

Accelerate Diagnostics, Inc
Form 424B3
July 12, 2013

Filed Pursuant to Rule 424(b)(3)
Registration No. 333-189065

PROSPECTUS

Subscription Rights to purchase up to 2,487,562 shares of Common Stock at \$8.04 per share and the shares of Common Stock issuable upon the exercise of such Subscription Rights

Accelerate Diagnostics, Inc., a Delaware corporation (us , we , our , Accelerate or the Company), is distributing, charge to holders of our common stock, par value \$0.001 per share (Common Stock), as of 5:00 p.m., New York City time, on July 8, 2013 (the Record Date), non-transferable Subscription Rights (Subscription Rights) to purchase an aggregate of up to 2,487,562 shares of our Common Stock (the Rights Offering).

For each share of Common Stock held by a stockholder of the Company at the close of business on the Record Date, such stockholder will receive 0.064038 Subscription Rights. Subscription Rights may only be exercised in whole numbers; we will not issue fractional shares and will round all of the Subscription Rights down to the nearest whole number. Each whole Subscription Right will allow the holder thereof to subscribe to purchase one share of Common Stock (the Basic Subscription Privilege) at a subscription price of \$8.04 per share (the Subscription Price). In addition, any holder of Subscription Rights exercising his, her or its Basic Subscription Privilege in full will be eligible to subscribe to purchase additional shares of Common Stock at the same Subscription Price per share that applies to the Basic Subscription Privilege, subject to the conditions and limitations described further in this Prospectus (the Over-Subscription Privilege). We offer no assurances that any subscription requests submitted pursuant to the Over-Subscription Privilege will be fulfilled in whole or in part.

If any Subscription Rights remain unexercised after the expiration of the Rights Offering, Abeja Ventures, LLC (the Standby Purchaser) has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company s stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser. No fees or other consideration will be paid by the Company to the Standby Purchaser in exchange for its commitment to purchase any and all unsubscribed shares of Common Stock following the Rights Offering. Any shares of Common Stock issued to the Standby Purchaser in connection with the standby purchase commitment described above will be restricted securities as that term is defined in Rule 144 under the Securities Act of 1933, as amended. While the Standby Purchaser will not itself participate in the Rights Offering, certain of its members (including the individuals listed above) may exercise the Basic Subscription Privileges and/or Over-Subscription Privileges they hold in their capacity as stockholders of the Company. In light of the Standby Purchaser s commitment, the Company anticipates that it will receive \$20,000,000 in proceeds (before expenses) if the Rights Offering is completed.

Subscription Rights to purchase up to 2,487,562 shares of Common Stock at \$8.04 per share and the shares of Co

The Subscription Rights will expire if they are not exercised by 5:00 p.m., New York City time, on August 7, 2013. The Rights Offering period may not be extended. You should carefully consider whether to exercise your Subscription Rights before the expiration of the Rights Offering. All exercises of Subscription Rights are irrevocable. Our Board of Directors is making no recommendation regarding your exercise of the Subscription Rights. The Subscription Rights may not be sold or transferred. We may in our sole discretion cancel the Rights Offering at any time and for any reason. If we cancel the Rights Offering, the Subscription Agent will return all subscription payments it has received for the cancelled offering without interest or penalty.

Our Common Stock is listed on the NASDAQ Capital Market under the symbol `AXDX`. The shares of Common Stock issued in the Rights Offering will also be listed on the NASDAQ Capital Market under the same symbol. On July 1, 2013, the closing price of our Common Stock was \$8.04 per share.

Investing in our Common Stock involves risks. You should carefully review and consider the information contained in this Prospectus, including the risk factors beginning on page 15 of this Prospectus, as well as the risk factors and other information contained in any documents we incorporate by reference into this Prospectus before exercising your Subscription Rights. See Where You Can Find More Information.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION, NOR ANY BANK REGULATORY AGENCY, NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Our principal executive offices are located at 3950 South Country Club Road, Suite 470, Tucson, Arizona 85714, and our telephone number is (520) 365-3100.

The date of this Prospectus is July 12, 2013.

TABLE OF CONTENTS

TABLE OF CONTENTS

	Page
<u>Forward-Looking Statements</u>	<u>1</u>
<u>About This Prospectus</u>	<u>2</u>
<u>Questions and Answers Relating to the Rights Offering</u>	<u>3</u>
<u>Prospectus Summary</u>	<u>10</u>
<u>Risk Factors</u>	<u>15</u>
<u>Information About the Company</u>	<u>22</u>
<u>The Rights Offering</u>	<u>23</u>
<u>Description of Capital Stock</u>	<u>33</u>
<u>Plan of Distribution</u>	<u>35</u>
<u>Use of Proceeds</u>	<u>36</u>
<u>Price Range of Common Stock and Dividend Policy</u>	<u>37</u>
<u>Certain Material U.S. Federal Income Tax Considerations</u>	<u>38</u>
<u>Legal Matters</u>	<u>41</u>
<u>Experts</u>	<u>41</u>
<u>Where You Can Find More Information</u>	<u>41</u>

If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this document are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this Prospectus does not extend to you.

We have not authorized anyone to provide you with any information other than the information incorporated by reference or provided in this Prospectus or any prospectus supplement. We are not making an offer of these securities in any state or other jurisdiction where the offer is not permitted. You should not assume that the information in this Prospectus, any prospectus supplement or any document incorporated or deemed to be incorporated by reference in this Prospectus is accurate as of any date other than the date of that document.

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS

This Prospectus and the documents incorporated by reference contain statements that are considered forward looking statements within the meaning of United States securities laws. In addition, the Company and its management may make other written or oral communications from time to time that contain forward-looking statements.

Forward-looking statements, including statements about industry trends, management's future expectations and other matters that do not relate strictly to historical facts, are based on assumptions by management, and are often identified by such forward-looking terminology as expect, look, believe, anticipate, estimate, seek, may, will, goal or similar statements or variations of such terms. Forward-looking statements may include, among other things, statements about the Company's confidence in its strategies and its expectations about financial performance, market growth, market and regulatory trends and developments, acquisitions and divestitures, new technologies, services and opportunities and earnings.

Forward-looking statements are subject to various risks and uncertainties, which change over time, are based on management's expectations and assumptions at the time the statements are made, and are not guarantees of future results. Management's expectations and assumptions, and the continued validity of the forward-looking statements, are subject to change due to a broad range of factors affecting the national and global economies, the equity, debt, currency and other financial markets, as well as risk factors specific to the Company. Actual outcomes and results may differ materially from what is expressed in our forward-looking statements and from our historical financial results due to the risk factors discussed elsewhere in this Prospectus or disclosed in our other SEC filings.

Forward-looking statements should not be relied upon as representing our expectations or beliefs as of any date subsequent to the time this Prospectus is filed with the SEC. The Company undertakes no obligation to revise the forward-looking statements contained in this Prospectus to reflect events after the time it is filed with the SEC, other than as required by law. The risk factors discussed in this Prospectus are not intended to be a complete summary of all risks and uncertainties that may affect our business. Though we strive to monitor and mitigate risk, we cannot anticipate all potential economic, operational and financial developments that may adversely impact our operations and our financial results.

Forward-looking statements should not be viewed as predictions, and should not be the primary basis upon which investors evaluate the Company. Any investor in the Company should consider all risks and uncertainties disclosed in our SEC filings described below under the heading Where You Can Find More Information, all of which are accessible on the SEC's website at <http://www.sec.gov>.

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

Except as otherwise indicated by the context, references in this Prospectus to the Company, Accelerate, we, us or are references to the combined business of Accelerate Diagnostics, Inc.

You should rely only on the information contained or incorporated by reference in this Prospectus. We have not authorized anyone to provide you with additional or different information from that contained or incorporated by reference in this Prospectus. The information contained in this Prospectus is accurate only as of the date on the front cover of this Prospectus 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 or any exercise of the rights or sale of the securities.

The distribution of this Prospectus and the offering and sale of shares of our Common Stock in certain jurisdictions may be restricted by law. This Prospectus does not constitute an offer of, or a solicitation of an offer to buy, any shares of our Common Stock in any jurisdiction in which such offer or invitation would be unlawful.

TABLE OF CONTENTS

QUESTIONS AND ANSWERS RELATING TO THE RIGHTS OFFERING

The following are examples of what we anticipate will be common questions about the Rights Offering. The answers are based on selected information included elsewhere in this Prospectus. The following questions and answers do not contain all of the information that may be important to you and may not address all of the questions that you may have about the Rights Offering. This Prospectus and the documents we incorporate by reference contain more detailed descriptions of the terms and conditions of the Rights Offering and provide additional information about us and our business, including potential risks related to the Rights Offering, our Common Stock and our business.

What is the Rights Offering?

We are distributing, at no charge to holders of our Common Stock, as of 5:00 p.m., New York City time, on July 8, 2013, non-transferable Subscription Rights to purchase an aggregate of up to 2,487,562 shares of our Common Stock.

Why are we conducting the Rights Offering?

We are conducting the Rights Offering to (i) raise equity capital that will be needed to fund our business plan at a time when our Board of Directors believes market conditions are favorable, and (ii) provide our existing stockholders with the opportunity to purchase our Common Stock. We intend to use the net proceeds of the Rights Offering for working capital and general corporate purposes, including to fund our ongoing research and development and product commercialization initiatives, which have been previously disclosed.

What is the Basic Subscription Privilege?

For each share of Common Stock held by a stockholder of the Company at the close of business on the Record Date, such stockholder will receive 0.064038 Subscription Rights. Subscription Rights may only be exercised in whole numbers; we will not issue fractional shares and will round all of the Subscription Rights down to the nearest whole number. Each whole Subscription Right will allow the holder thereof to subscribe to purchase one share of Common Stock at a Subscription Price of \$8.04 per share.

For example, if you owned 1,000 shares of our Common Stock on the Record Date, you would receive 64.038 Subscription Rights entitling you to purchase 64 shares of Common Stock for a total purchase price of \$514.56 pursuant to your Basic Subscription Privilege.

What is the Over-Subscription Privilege?

In addition, any holder of Subscription Rights exercising his, her or its Basic Subscription Privilege in full will be eligible to subscribe to purchase additional shares of Common Stock at the same Subscription Price per share that applies to the Basic Subscription Privilege, subject to the conditions and limitations described further in this Prospectus. We offer no assurances that any subscription requests submitted pursuant to the Over-Subscription Privilege will be fulfilled in whole or in part.

We will be able to satisfy your exercise of the Over-Subscription Privilege only if other holders of Subscription Rights do not elect to purchase all of the shares offered under their Basic Subscription Privilege. We will satisfy Over-Subscription Requests to the extent sufficient shares are available following the exercise of rights under the Basic Subscription Privilege. If the number of shares of Common Stock requested by all holders exercising the Over-Subscription Privilege is less than the total number of shares available, then subject to the foregoing reservation of rights, each holder of Subscription Rights exercising the Over-Subscription Privilege will receive the total number of shares requested (up to a maximum number of shares equal to such holder's pro rata allocation, as described in the paragraph set forth immediately below).

If there are not enough shares of Common Stock available to satisfy all subscriptions made under the Over-Subscription Privilege, we will allocate the available shares pro rata among the stockholders exercising their Over-Subscription Privileges. With respect to any individual stockholder, pro rata means the percentage of our issued and outstanding shares of Common Stock that such stockholder owned, beneficially or of record, as of the Record Date. Any excess subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the completion of the Rights Offering.

TABLE OF CONTENTS

What is the role of the Standby Purchaser in this offering?

In connection with the Rights Offering, we have entered into a Standby Purchase Agreement with Abeja Ventures, LLC. Pursuant to the Standby Purchase Agreement, the Standby Purchaser has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company's stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser. Any shares of Common Stock issued to the Standby Purchaser in connection with the standby purchase commitment described above will be restricted securities as that term is defined in Rule 144 under the Securities Act of 1933, as amended. While the Standby Purchaser will not itself participate in the Rights Offering, certain of its members (including the individuals listed above) may exercise the Basic Subscription Privileges and/or Over-Subscription Privileges they hold in their capacity as stockholders of the Company.

Is the Standby Purchaser receiving any compensation for its standby commitment?

No fees or other consideration will be paid by the Company to the Standby Purchaser in exchange for its commitment to purchase any and all unsubscribed shares of Common Stock following the Rights Offering.

How many shares of Common Stock will the Standby Purchaser own after the Rights Offering?

The number of shares of Common Stock that will be purchased by the Standby Purchaser can only be determined upon the completion of the Rights Offering. The Standby Purchaser will purchase all shares of Common Stock that could have been but were not subscribed for in the Rights Offering. If the Rights Offering is fully subscribed by stockholders through the exercise in full of their Basic Subscription Privileges and Over-Subscription Privileges, the Standby Purchaser will not purchase any additional shares of Common Stock pursuant to the Standby Purchase Agreement. If, on the other hand, no stockholders were to purchase any shares of Common Stock through the exercise of their Basic Subscription Privileges and Over-Subscription Privileges, all of the shares offered pursuant to the Rights Offering would be issued and sold to the Standby Purchaser. In that event, 2,487,562 shares of Common Stock would be issued to the Standby Purchaser, representing approximately 6.02% of the Company's outstanding Common Stock after giving effect to such issuance.

Am I required to exercise the Subscription Rights that I receive in the Rights Offering?

No. You may exercise your Subscription Rights in full or in part, or you may choose not to exercise any of your Subscription Rights. However, if you choose not to fully exercise your Basic Subscription Privilege, the percentage of our Common Stock owned by stockholders participating in the Rights Offering (or, at a minimum, the Standby Purchaser) will increase relative to your ownership percentage, and your voting and other rights will likewise be diluted. In addition, if you do not exercise your Basic Subscription Privilege in full, you will not be entitled to subscribe to purchase additional shares pursuant to the Over-Subscription Privilege, and your ownership percentage

and related voting and other rights may be further diluted to the extent that participating stockholders exercise their Over-Subscription Privileges.

What are the limitations on the exercise of the Basic Subscription Privilege and Over-Subscription Privilege?

In the event that the exercise by a stockholder of the Basic Subscription Privilege or the Over-Subscription Privilege could, as determined by the Company in its sole discretion, potentially result in a limitation on the Company's ability to use net operating losses, tax credits and other tax assets, which we refer to as the Tax Attributes, under the Internal Revenue Code of 1986, as amended, which we refer to as the Code, and rules promulgated by the Internal Revenue Service, the Company may, but is under no obligation to, reduce the maximum exercise by such stockholder of the Basic Subscription Privilege and/or the Over-Subscription Privilege to such number of Subscription Rights as the Company in its sole discretion shall determine to be advisable in order to preserve the Company's ability to use the Tax Attributes.

TABLE OF CONTENTS

How soon must I act to exercise my Subscription Rights?

Stockholders desiring to exercise their Subscription Rights will be required to submit payment in full for all of the shares of Common Stock that they wish to purchase under their Basic Subscription Privilege and pursuant to the Over-Subscription Privilege to the Subscription Agent, by no later than 5:00 p.m., New York City time, on August 7, 2013 (the Expiration Date). Any fractional shares of our Common Stock resulting from the exercise of Subscription Rights, including under the Basic Subscription Privilege and the Over-Subscription Privilege, will be eliminated by rounding down to the nearest whole share, with the total subscription payment being adjusted accordingly. Any excess subscription payments that stockholders may pay to the Subscription Agent in the Rights Offering will be returned, without interest or penalty, by the Subscription Agent to the applicable stockholder(s) as soon as practicable following the completion of the Rights Offering.

The Subscription Rights will expire if they are not exercised by 5:00 p.m., New York City time, on the Expiration Date. The Rights Offering period may not be extended. You should carefully consider whether to exercise your Subscription Rights before the expiration of the Rights Offering. All exercises of Subscription Rights are irrevocable.

We may in our sole discretion cancel the Rights Offering at any time and for any reason. If we cancel the Rights Offering, the Subscription Agent will return all subscription payments it has received for the cancelled offering without interest or penalty.

May I transfer my Subscription Rights?

No, you may not sell, transfer or assign your Subscription Rights to anyone else.

Are we requiring a minimum subscription to complete the Rights Offering?

No, but our Board of Directors reserves the right to cancel the Rights Offering for any reason, including if our Board of Directors believes that there is insufficient participation by our stockholders. If the Rights Offering is cancelled, all subscription proceeds received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable.

How was the Subscription Price determined?

The Subscription Price is equal to the closing price of our Common Stock, as reported by the NASDAQ Capital Market, on July 1, 2013 (which was the latest practicable date on which the Subscription Price could be established prior to the launch of the Rights Offering). The Subscription Price is not necessarily related to our book value, results of operations, cash flows, financial condition or the future market value of our Common Stock. We cannot assure you that you will be able to sell shares purchased in this Rights Offering at a price equal to or greater than the Subscription Price. We do not intend to change the Subscription Price in response to changes in the trading price of our Common Stock prior to the closing of the Rights Offering.

Are there any other conditions to the completion of the Rights Offering?

Yes. The completion of the Rights Offering is subject to the conditions described under The Rights Offering Conditions and Cancellation.

Can the Rights Offering be cancelled?

Yes. We may cancel the Rights Offering at any time prior to the Expiration Date and for any reason. If the Rights Offering is cancelled, all subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable to those persons who subscribed for shares in the Rights Offering.

How do I exercise my Subscription Rights?

You must properly complete the enclosed Subscription Rights Certificate and deliver it, along with the full Subscription Price (including any amounts in respect of your Over-Subscription Privilege), to the Subscription Agent before 5:00 p.m., New York City time, on the Expiration Date. If you use the mail, we recommend that you use insured, registered mail, return receipt requested. If you cannot deliver your

TABLE OF CONTENTS

Subscription Rights Certificate to the Subscription Agent prior to the expiration of the Rights Offering, you may follow the guaranteed delivery procedures described under The Rights Offering Notice of Guaranteed Delivery.

If you send a payment that is insufficient to purchase the number of shares you requested, or if the number of shares you requested is not specified in the forms, the payment received will be applied to exercise your Basic Subscription Privilege and, if applicable, any Over-Subscription Privilege request that we have accepted to the fullest extent possible based on the amount of the payment received, subject to the elimination of fractional shares. If the payment exceeds the Subscription Price for the full exercise of your Basic Subscription Privilege and any applicable Over-Subscription Privilege request that we have accepted, or if you subscribe for more shares than you are eligible to purchase pursuant to the Over-Subscription Privilege, then the excess will be returned to you as soon as practicable.

You will not receive interest on any payments refunded to you under the Rights Offering.

If the Rights Offering is not completed, will my subscription payment be refunded to me?

Yes. The Subscription Agent will hold all funds it receives in a segregated bank account until completion of the Rights Offering. If the Rights Offering is not completed, the Subscription Agent will return, without interest or penalty, as soon as practicable all subscription payments. If you own shares in street name, it may take longer for you to receive payment because the Subscription Agent will return payments through the record holder of the shares.

What form of payment must I use to pay the Subscription Price?

You must timely pay the full Subscription Price for the full number of shares of Common Stock you wish to acquire under the Basic Subscription Privilege and any Over-Subscription Privilege request by delivering to the Subscription Agent a certified or cashier's check, a bank draft drawn on a U.S. bank, or a personal check that clears before the Expiration Date.

What should I do if I want to participate in the Rights Offering, but my shares are held in the name of my broker, dealer, custodian bank or other nominee?

If your shares of Common Stock are held in the name of a broker, dealer, custodian bank or other nominee, then your broker, dealer, custodian bank or other nominee is the record holder of the shares you own. You will not receive a Subscription Rights Certificate. The record holder must exercise the Subscription Rights on your behalf for the shares of Common Stock you wish to purchase.

We will ask your broker, dealer, custodian bank or other nominee to notify you of the Rights Offering. You should complete and return to your record holder the form entitled Beneficial Owner Election Form. You should receive this form from your record holder with the other Rights Offering materials.

If you wish to participate in the Rights Offering and purchase shares of our Common Stock, please contact the record holder of your shares promptly. Your bank, broker or other nominee holder is the holder of the shares you own and must exercise the Subscription Rights on your behalf for shares you wish to purchase. Your broker, dealer, custodian bank or other nominee may establish a deadline prior to the 5:00 p.m., New York City time, on the Expiration Date.

After I exercise my Subscription Rights, can I change my mind?

No. All exercises of Subscription Rights are irrevocable, even if you later learn information that you consider to be unfavorable to the exercise of your Subscription Rights. You should not exercise your Subscription Rights unless you are certain that you wish to purchase additional shares of our Common Stock at the Subscription Price.

Are there risks in exercising my Subscription Rights?

Yes. The exercise of your Subscription Rights involves risks. Exercising your Subscription Rights means buying shares of our Common Stock and should be considered as carefully as you would consider any other equity investment. Among other things, you should carefully consider the risks described under the heading **Risk Factors** in this Prospectus and the risks described in documents incorporated by reference in this

TABLE OF CONTENTS

Prospectus, including but not limited to the sections entitled "Risk Factors" in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and "Management's Discussion and Analysis of Financial Condition and Results of Operation" in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

Has our Board of Directors made a recommendation to our stockholders regarding the Rights Offering and is the Board of Directors participating in the Rights Offer?

Our Board of Directors is making no recommendation regarding your exercise of the Subscription Rights. Stockholders who exercise Subscription Rights risk investment loss on new money invested. We cannot assure you that the market price of our Common Stock will be above the Subscription Price at the time of exercise or at the expiration of the Rights Offering or that anyone purchasing shares at the Subscription Price will be able to sell those shares in the future at the same price or a higher price. You are urged to decide whether or not to exercise your Subscription Rights based on your own assessment of our business and the Rights Offering. Among other things, you should carefully consider the risks described under the heading "Risk Factors" in this Prospectus and the risks described in documents incorporated by reference in this Prospectus, including but not limited to the sections entitled "Risk Factors" in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and "Management's Discussion and Analysis of Financial Condition and Results of Operation" in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

In connection with the Rights Offering, we have entered into a Standby Purchase Agreement with Abeja Ventures, LLC. Pursuant to the Standby Purchase Agreement, the Standby Purchaser has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company's stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser. Other members of the Board of Directors may decide to participate in the Rights Offering but are not required to do so. Any shares of Common Stock issued to the Standby Purchaser in connection with the standby purchase commitment described above will be restricted securities as that term is defined in Rule 144 under the Securities Act of 1933, as amended. While the Standby Purchaser will not itself participate in the Rights Offering, certain of its members (including the individuals listed above) may exercise the Basic Subscription Privileges and/or Over-Subscription Privileges they hold in their capacity as stockholders of the Company.

What fees or charges apply if I exercise my Subscription Rights?

We are not charging any fees or sales commissions to issue Subscription Rights to you or to issue shares to you if you exercise your Subscription Rights. If you exercise your Subscription Rights through a broker or other holder of your shares, you are responsible for paying any fees that person may charge.

How do I exercise my Subscription Rights if I live outside of the United States or have a U.S. military post office or foreign post office address?

The Subscription Agent will hold Subscription Rights Certificates for stockholders having addresses outside the United States or who have a U.S. military post office or foreign post office address. In order to exercise Subscription Rights, our foreign stockholders and stockholders with a U.S. military post office or foreign post office address must notify the Subscription Agent and timely follow other procedures described below under the heading "The Rights Offering - Foreign Stockholders."

When will I receive my new shares of Common Stock?

All shares that you purchase in the Rights Offering will be issued in book-entry, or uncertificated, form. When issued, the shares will be registered in the name of the Subscription Rights holder of record. As soon as practicable after the expiration of the Rights Offering, the Subscription Agent will arrange for the issuance of

TABLE OF CONTENTS

the shares of Common Stock purchased pursuant to the Basic Subscription Privilege. Shares purchased pursuant to the Over-Subscription Privilege will be issued as soon as practicable after the Expiration Date and following the completion of any pro-rations as may be necessary in the event the Over-Subscription Privilege requests exceed the number of shares available to satisfy such requests. Subject to state securities laws and regulations, we have the discretion to delay distribution of any shares you may have elected to purchase by exercise of your Subscription Rights in order to comply with state securities laws.

Will the Subscription Rights be listed on a stock exchange or trading market?

The Subscription Rights may not be sold, transferred or assigned to anyone else and will not be listed on the NASDAQ Capital Market or any other stock exchange or trading market. Our Common Stock trades on the NASDAQ Capital Market under the symbol **AXDX** and the shares to be issued in connection with the Rights Offering will be eligible for trading on the NASDAQ Capital Market under the same symbol.

What are the U.S. federal income tax consequences of exercising my Subscription Rights?

The receipt and exercise of Subscription Rights pursuant to the Basic Subscription Privilege or subscription for shares pursuant to the Over-Subscription Privilege should generally not be taxable for U.S. federal income tax purposes. You should, however, seek specific tax advice from your tax advisor in light of your particular circumstances and as to the applicability and effect of any other tax laws. See **Certain Material U.S. Federal Income Tax Consequences.**

What happens if I choose not to exercise my Subscription Rights?

You are not required to exercise your Subscription Rights or otherwise take any action in response to this Rights Offering. If you do not exercise your Subscription Rights and the Rights Offering is completed, the number of shares of our Common Stock you own will not change but your percentage ownership of our total outstanding voting stock will decrease because shares will be purchased by other stockholders in the Rights Offering or by the Standby Purchaser. Your percentage ownership of our voting stock may also decrease if you do not exercise your Basic Subscription Privilege in full.

How many shares of Common Stock will be outstanding after the Rights Offering?

As of July 10, 2013, 38,845,209 shares of Common Stock were issued and outstanding. Assuming no other transactions by us involving our Common Stock, and no options for our Common Stock are exercised prior to the expiration of the Rights Offering, if the Rights Offering is fully subscribed through the exercise of the Subscription Rights and/or the Standby Purchaser acquires all of the Common Stock not purchased by the holders of Subscription Rights, then an additional 2,487,562 shares of our Common Stock will be issued and outstanding after the closing of the Rights Offering, for a total of 41,332,771 shares of Common Stock issued and outstanding. As a result of the Rights Offering, the ownership interests and voting interests of the existing stockholders that do not fully exercise

their Basic Subscription Privileges will be diluted.

How much money will we receive from the Rights Offering?

In light of the Standby Purchaser's commitment, the total proceeds to us from the Rights Offering (before expenses) will be approximately \$20,000,000.

To whom should I send my forms and payment?

If your shares are held in the name of a broker, dealer or other nominee, then you should send your subscription documents, rights certificate, notices of guaranteed delivery and subscription payment to that record holder. If you are the record holder, then you should send your subscription documents, rights certificate, notices of guaranteed delivery and subscription payment by hand delivery or overnight courier service to:

Broadridge Corporate Issuer Solutions, Inc.
Attention: Reorganization Department
1981 Marcus Avenue, Suite 100
Lake Success, NY 11042

TABLE OF CONTENTS

If delivering documents via first class mail, you should send your subscription documents, Subscription Rights Certificate, Notice of Guaranteed Delivery and Subscription Price payment to:

Broadridge Corporate Issuer Solutions, Inc.
Attention: Reorganization Department
P.O. Box 1317
Brentwood, NY 11717-0693

You are solely responsible for completing delivery to the Subscription Agent of your subscription documents, rights certificate and payment. We urge you to allow sufficient time for delivery of your subscription materials to the Subscription Agent.

What if I have more questions?

If you have more questions about the Rights Offering or need additional copies of the Rights Offering documents, please contact the Subscription Agent (Broadridge Corporate Issuer Solutions, Inc.) at (855) 793-5068.

TABLE OF CONTENTS

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this Prospectus. Because it is a summary, it does not contain all of the information that you should consider before investing in our securities. You should read the entire Prospectus carefully, including the Risk Factors section and the other documents we refer to and incorporate by reference, in order to understand this offering fully. In particular, we incorporate important business and financial information into this Prospectus by reference.

Company Information

Accelerate Diagnostics, Inc. is a corporation organized under the laws of the State of Delaware. Since 2004, we have focused on developing and commercializing innovative instrumentation for the rapid identification and antibiotic susceptibility testing of infectious pathogens. The Company currently conducts no other significant business activities.

Our website address is www.acceleratediagnostics.com. None of the information contained on, or that may be accessed through, our website is a prospectus or constitutes part of, or is otherwise incorporated into, this Prospectus.

Our Common Stock is listed on the NASDAQ Capital Market under the symbol **AXDX**. Our principal executive offices are located at 3950 South Country Club Road, Suite 470, Tucson, Arizona 85714, and our telephone number is (520) 365-3100.

Rights Offering Summary

The following summary describes the principal terms of the Rights Offering, but is not intended to be complete. See the information under the heading **The Rights Offering** in this Prospectus for a more detailed description of the terms and conditions of the Rights Offering.

Securities Offered

We are distributing, at no charge to holders of our Common Stock, non-transferable Subscription Rights to purchase up to 2,487,562 shares of our Common Stock. For each share of Common Stock held of record at the close of business on the Record Date (as specified below), you will receive 0.064038 of a Subscription Right. Each whole Subscription Right will entitle you to purchase one share of our Common Stock at the Subscription Price specified below. Subscription Rights may only be exercised in whole numbers; we will not issue fractional shares of Common Stock upon exercise of Subscription Rights and, to the extent that the number of Subscription Rights that are distributed to you on the record date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which you may subscribe.

Basic Subscription Privilege

For each whole Subscription Right that you hold, you will have a Basic Subscription Privilege to buy from us one share of our Common Stock at the Subscription Price. You may exercise your Basic Subscription Privilege for some or all of your Subscription Rights, or you may choose not to exercise your Subscription Rights in your sole discretion. If you do not exercise your Subscription Rights and the Rights Offering is completed, the number of shares of our Common Stock you own will not change but your percentage ownership of our total outstanding voting stock will decrease because shares will be purchased by other stockholders in the Rights Offering or by the Standby Purchaser. Your percentage ownership of our

TABLE OF CONTENTS

voting stock may also decrease if you do not exercise your Basic Subscription Privilege in full.

Over-Subscription Privilege

If you exercise all of the Subscription Rights distributed to you pursuant to the Basic Subscription Privilege, you will also have the opportunity to purchase additional shares not purchased by other stockholders pursuant to their Basic Subscription Privilege at the same Subscription Price per share that applies to the Basic Subscription Privilege.

We will be able to satisfy your exercise of the Over-Subscription Privilege only if other holders of Subscription Rights do not elect to purchase all of the shares offered under their Basic Subscription Privilege. We will satisfy Over-Subscription Requests to the extent sufficient shares are available following the exercise of rights under the Basic Subscription Privilege. If the number of shares of Common Stock requested by all holders exercising the Over-Subscription Privilege is less than the total number of shares available, then subject to the foregoing reservation of rights, each holder of Subscription Rights exercising the Over-Subscription Privilege will receive the total number of shares requested (up to a maximum number of shares equal to such holder's pro rata allocation, as described in the paragraph set forth immediately below).

If there are not enough shares of Common Stock available to satisfy all subscriptions made under the Over-Subscription Privilege, we will allocate the available shares pro rata among the stockholders exercising their Over-Subscription Privileges. With respect to any individual stockholder, pro rata means the percentage of our issued and outstanding shares of Common Stock that such stockholder owned, beneficially or of record, as of the Record Date. Any excess subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the completion of the Rights Offering.

Subscription Price

\$8.04 per share of Common Stock. To be effective, any payment related to the exercise of a Subscription Right must clear prior to the Expiration Date.

Limitation on Exercise of Basic Subscription Privilege and Over- Subscription Privilege

In the event that the exercise by a stockholder of the Basic Subscription Privilege or the Over-Subscription Privilege could, as determined by the Company in its sole discretion, potentially result in a limitation on the Company's ability to use Tax Attributes, under the Code, and rules promulgated by the Internal Revenue Service, the Company may, but is under no obligation to, reduce the maximum exercise by such stockholder of the Basic Subscription Privilege and/or the Over-Subscription Privilege to such number of rights as the Company in its sole discretion shall determine to be advisable in order to preserve the Company's ability to use the Tax Attributes.

11

TABLE OF CONTENTS

In addition, under applicable federal and state banking laws, any purchase of shares of our Common Stock may also require the prior clearance or approval of, or prior notice to, federal and state bank regulatory authorities if the purchase will result in any person or entity or group of persons or entities acting in concert owning or controlling shares in excess of such threshold ownership interest.

Record Date

July 8, 2013

Expiration Date

The Subscription Rights will expire at 5:00 p.m., New York City time, on August 7, 2013.

Procedure for Exercising Rights

You must properly complete the enclosed Subscription Rights Certificate and deliver it, along with the full Subscription Price (including any amounts in respect of your Over-Subscription Privilege), to the Subscription Agent before the Expiration Date.

If you use the mail, we recommend that you use insured, registered mail, return receipt requested. If you cannot deliver your Subscription Rights Certificate to the Subscription Agent on time, you may follow the guaranteed delivery procedures described under The Rights Offering Guaranteed Delivery Procedures.

Standby Purchaser and Standby Purchase Agreement

In connection with the Rights Offering, we have entered into a Standby Purchase Agreement with Abeja Ventures, LLC. Pursuant to the Standby Purchase Agreement, the Standby Purchaser has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company's stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser. Any shares of Common Stock issued to the Standby Purchaser in connection with the standby purchase commitment described above will be restricted securities as that term is defined in Rule 144 under the Securities Act of 1933, as amended. While the Standby Purchaser will not itself participate in the Rights Offering, certain of its members (including the individuals listed above) may exercise the Basic Subscription Privileges and/or Over-Subscription Privileges they hold in their capacity as stockholders of the Company.

Use of Proceeds

We expect the net proceeds from the Rights Offering and the transactions contemplated by the Standby Purchase Agreement to be approximately \$20,000,000 (before expenses). We intend to use the net proceeds from the Rights Offering for general corporate purposes, including to fund our ongoing research and development and product commercialization initiatives, which have been previously disclosed.

12

TABLE OF CONTENTS

Non-Transferability of Rights

The Subscription Rights may not be sold, transferred or assigned and will not be listed for trading on the NASDAQ Capital Market or any other stock exchange or trading market.

No Revocation

All exercises of Subscription Rights are irrevocable, even if you later learn information about us that you consider unfavorable. You should not exercise your Subscription Rights unless you are certain that you wish to purchase the shares of Common Stock offered pursuant to the Rights Offering.

Conditions to the Rights Offering

The completion of the Rights Offering is subject to the conditions described under The Rights Offering Conditions and Cancellation.

Cancellation

We reserve the right to withdraw the Rights Offering at any time prior to the Expiration Date and for any reason. If the Rights Offering is cancelled, all subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable to those persons who subscribed for shares in the Rights Offering.

No Board Recommendation

Our Board of Directors is making no recommendations regarding your exercise of the Subscription Rights. You are urged to make your own decision whether or not to exercise your Subscription Rights based on your own assessment of our business and the Rights Offering. See the section below entitled Risk Factors.

Issuance of Common Stock

If you purchase shares of Common Stock through the Rights Offering, we will issue those shares to you in book-entry, or uncertificated, form as soon as practicable after the completion of the Rights Offering. Stock certificates will not be issued for shares of our Common Stock purchased in the Rights Offering.

Listing of Common Stock

Our Common Stock is listed on the NASDAQ Capital Market under the symbol AXDX and the shares to be issued in connection with the Rights Offering will also be listed on the NASDAQ Capital Market under the same symbol.

Federal Income Tax Consequences

The receipt and exercise of Subscription Rights pursuant to the Basic Subscription Privilege or subscription for shares pursuant to the Over-Subscription Privilege will generally not be taxable for U.S. federal income tax purposes. You should, however, seek specific tax advice from your tax advisor in light of your particular circumstances and as to the applicability and effect of any other tax laws. See Certain Material U.S. Federal Income Tax Consequences.

Subscription and Information Agent

Broadridge Corporate Issuer Solutions, Inc.

Questions

If you have any questions about the Rights Offering, including questions about subscription procedures and requests for additional copies of this Prospectus or other documents, please contact Broadridge Corporate Issuer Solutions, Inc. at (855) 793-5068.

Fees and Expenses

We will pay the fees and expenses related to the Rights Offering.

TABLE OF CONTENTS

Risk Factors

Before you invest in the Rights Offering, you should be aware that there are risks associated with your investment, including the risks described in the section entitled "Risk Factors" beginning on page 15 of this Prospectus. You should carefully read and consider these risk factors together with all of the other information included in or incorporated by reference into this Prospectus before you decide to exercise your Subscription Rights to purchase shares of our Common Stock.

14

TABLE OF CONTENTS

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the risks described below, together with the other information contained or incorporated by reference into this Prospectus, including the information contained in the sections entitled Risk Factors in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and Management's Discussion and Analysis of Financial Condition and Results of Operation in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, and any risks described in our other filings with the Securities and Exchange Commission, pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act of 1934, as amended, before making a decision to invest in our Common Stock.

The risks described below and in the documents referred to in the preceding sentence are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also materially and adversely affect our business operations. If any of the following risks actually occurs, our business, results of operations and financial condition could suffer. In that case, the trading price of our Common Stock could decline, and you may lose all or part of your investment.

Risks Related to the Rights Offering

The Subscription Price determined for this Rights Offering is not necessarily an indication of the value of our Common Stock.

The Subscription Price is equal to the closing price of our Common Stock, as reported by the NASDAQ Capital Market, on July 1, 2013 (which was the latest practicable date on which the Subscription Price could be established prior to the launch of the Rights Offering). The Subscription Price is not necessarily related to our book value, results of operations, cash flows, financial condition or the future market value of our Common Stock. We cannot assure you that you will be able to sell shares purchased in this Rights Offering at a price equal to or greater than the Subscription Price. We do not intend to change the Subscription Price in response to changes in the trading price of our Common Stock prior to the closing of the Rights Offering.

The Rights Offering may cause the price of our Common Stock to decline.

Depending upon the trading price of our Common Stock at the time of our announcement of the Rights Offering, the announcement of the Rights Offering and its terms, including the Subscription Price, together with the number of shares of Common Stock we could issue if the Rights Offering is completed, may result in a decrease in the trading price of our Common Stock. This decrease may continue after the completion of the Rights Offering. If that occurs, your purchase of shares of our Common Stock in the Rights Offering may be at a price greater than the prevailing trading price.

Because you may not revoke or change your exercise of the Subscription Rights, you could be committed to buying shares above the prevailing trading price at the time the Rights Offering is completed.

Once you exercise your Subscription Rights, you may not revoke or change the exercise. The trading price of our Common Stock may decline before the Subscription Rights expire. If you exercise your Subscription Rights, and, afterwards, the trading price of our Common Stock decreases below the Subscription Price, you will have committed to buying shares of our Common Stock at a price above the prevailing trading price and could have an immediate unrealized loss.

Our Common Stock is traded on the NASDAQ Capital Market under the symbol, **AXDX** and the closing sale price of our Common Stock on the NASDAQ Capital Market on July 1, 2013 was \$8.04 per share. There can be no assurances that the trading price of our Common Stock will equal or exceed the Subscription Price at the time of exercise or at the expiration of the Subscription Rights offering period.

You may not be able to resell any shares of our Common Stock that you purchase pursuant to the exercise of Subscription Rights immediately upon expiration of the Subscription Rights offering period or be able to sell your shares at a price equal to or greater than the Subscription Price.

If you exercise Subscription Rights, you may not be able to resell the Common Stock purchased by exercising your Subscription Rights until you, or your broker, custodian bank or other nominee, if applicable,

TABLE OF CONTENTS

have received those shares. Moreover, you will have no rights as a stockholder of the shares you purchased in the Rights Offering until we issue the shares to you. Although we will endeavor to issue the shares as soon as practicable after completion of the Rights Offering, including the guaranteed delivery period and after all necessary calculations have been completed, there may be a delay between the Expiration Date of the Rights Offering and the time that the shares are issued. In addition, we cannot assure you that, following the exercise of your Subscription Rights, you will be able to sell your Common Stock at a price equal to or greater than the Subscription Price.

If you do not exercise your Subscription Rights, you will suffer dilution.

If you do not exercise your Subscription Rights, you will suffer dilution of your percentage ownership of our equity securities relative to stockholders who exercise their Subscription Rights and/or the Standby Purchaser.

As of July 10, 2013, there were 38,845,209 shares of our Common Stock outstanding. We anticipate issuing a total of 2,487,562 shares of Common Stock in connection with the Rights Offering and the transactions contemplated by the Standby Purchase Agreement.

Based on the number of shares of Common Stock outstanding as of July 10, 2013 and assuming that no options or warrants are exercised and there are no other changes in the number of outstanding shares prior to the expiration of the Rights Offering, if we issue all 2,487,562 shares of Common Stock available in this Rights Offering (to stockholders participating in the Rights Offering and/or the Standby Purchaser), we would have 41,332,771 shares of Common Stock outstanding following the completion of the Rights Offering and the transactions contemplated by the Standby Purchase Agreement.

We may cancel the Rights Offering at any time prior to the expiration of the Rights Offering period, and neither we nor the Subscription Agent will have any obligation to you except to return your subscription payment.

We may at our sole discretion cancel the Rights Offering at any time prior to the expiration of the Rights Offering period. If we elect to cancel the Rights Offering, neither we nor the Subscription Agent will have any obligation with respect to the Subscription Rights except to return to you, without interest or penalty, as soon as practicable any subscription payments.

If you do not act promptly and follow the subscription instructions, your exercise of Subscription Rights will be rejected.

Stockholders that desire to purchase shares in the Rights Offering must act promptly to ensure that all required forms and payments are actually received by the Subscription Agent prior to the Expiration Date of the Rights Offering. If you are a beneficial owner of shares, you must act promptly to ensure that your broker, dealer, custodian bank or other nominee acts for you and that all required forms and payments are actually received by the Subscription Agent prior to the expiration of the Rights Offering period. We are not responsible if your broker, dealer, custodian bank or nominee fails to ensure that all required forms and payments are actually received by the Subscription Agent prior to the expiration of the Rights Offering period. If you fail to complete and sign the required subscription forms, send an incorrect payment amount or otherwise fail to follow the subscription procedures that apply to your exercise in the Rights Offering prior to the expiration of the Rights Offering period, the Subscription Agent may, depending on the circumstances, reject your subscription or accept it only to the extent of the payment received. Neither we nor the Subscription Agent undertakes to contact you concerning, or attempt to correct, an incomplete or incorrect

You may not be able to resell any shares of our Common Stock that you purchase pursuant to the exercise of Subscri

subscription form. We have the sole discretion to determine whether the exercise of your Subscription Rights properly and timely follows the subscription procedures.

If you make payment of the Subscription Price by uncertified personal check, your check may not clear in sufficient time to enable you to purchase shares in the Rights Offering.

Any uncertified personal check used to pay the Subscription Price in the Rights Offering must clear prior to the Expiration Date of the Rights Offering, and the clearing process may require five or more business days. As a result, if you choose to use an uncertified personal check to pay the Subscription Price, it may not

TABLE OF CONTENTS

clear prior to the Expiration Date, in which event you would not be eligible to exercise your Subscription Rights. You may eliminate this risk by paying the Subscription Price by certified or cashier's check or bank draft drawn on a U.S. bank.

The Subscription Rights are non-transferable and thus there will be no market for them.

You may not sell, transfer or assign your Subscription Rights to anyone else. We do not intend to list the Subscription Rights on any securities exchange or any other trading market. Because the Subscription Rights are non-transferable, there is no market or other means for you to directly realize any value associated with the Subscription Rights.

Risks Relating to Ownership of Our Common Stock

Our stock price has been volatile and may continue to be volatile; Dividend Policy.

The trading price of our Common Stock has been, and is likely to continue to be, highly volatile, in large part attributable to developments and circumstances related to factors identified in Forward-looking Statements and Risk Factors set forth herein and in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, and any risks described in our other filings with the Securities and Exchange Commission, pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act of 1934, as amended, as well as the market's response to our operations and financial condition. The market value of your investment in our Common Stock may rise or fall sharply at any time because of this volatility, and also because of significant short positions that may be taken by investors from time to time in our stock. During the fiscal year ended July 31, 2012, the closing sale price for our Common Stock ranged from \$0.77 to \$3.80 per share. The market prices for securities of medical technology companies historically have been highly volatile, and the market has experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. Further, we do not intend to pay any cash dividends on our Common Stock in the foreseeable future.

We may require additional capital in the future and you may incur dilution to your stock holdings.

We have historically relied upon our existing cash balance, revenues and capital from the sale of our securities to fund our operating losses and we expect that we will continue to incur operating losses until we are able to complete the development of the BACcel™ system and sell it into the marketplace or license it to a third party. If capital requirements vary materially from those currently planned, we may require additional capital sooner than expected. There can be no assurance that such capital will be available in sufficient amounts or on terms acceptable to us, if at all. Further, any sale of a substantial number of additional shares will cause dilution to an investment in our Common Stock and could also cause the market price of our Common Stock to decline. We have the authority to issue up to 45,000,000 shares of Common Stock (of which, as of July 10, 2013, 38,845,209 shares were outstanding) and to issue options and warrants to purchase shares of our Common Stock (of which, as of July 10, 2013, 5,082,191 options and 571,160 warrants to acquire shares of our Common Stock were outstanding). Issuances of additional shares of our stock in the future could dilute existing stockholders and may adversely affect the market price of our Common Stock. The Company's board of directors and stockholders have approved an increase in the Company's authorized capital stock to 55,000,000 shares of Common Stock and 5,000,000 shares of Preferred Stock, which the Company

If you make payment of the Subscription Price by uncertified personal check, your check may not clear in sufficient t

anticipates will take effect on or about August 7, 2013.

Risks Relating to Our Business

Our future success, profitability and continued existence is dependent in large part upon the successful development of the BACcel™ system.

We have spent a significant amount of resources developing the BACcel™ system and intend to spend a significant amount more in the future and there can be no assurance that we will successfully develop the BACcel™ system. If we are not successful in the development of the BACcel™ system, or if we are unable to sell it into the marketplace or license it to a third party strategic partner for its development, manufacturing

TABLE OF CONTENTS

and marketing, it would have a material adverse effect upon the Company's revenues and results of operations, it could lead to impairment of certain of our intellectual property and would likely have a material adverse effect upon the price of the our Common Stock, our results of operations and may result in us having to cease operations.

Our success depends partly on our ability to successfully introduce and the market acceptance of our current and new products.

In a market primarily driven by the need for innovative products, our revenue growth will depend on overcoming various technological challenges to successfully introduce our current and new products, including but not limited to the BACcel™ system or other technology based upon the intellectual property included in the BACcel™ system into the marketplace in a timely manner. In addition, we must continue to develop new applications for our existing technologies, including but not limited to, additional commercial applications for the BACcel™ system proprietary technology. Market acceptance of these products will depend on many factors, including, but not limited to, demonstrating that our technologies perform as intended and are superior to other technologies and products that are currently available or may become available in the future. If we are unable to successfully develop new products or if the market does not accept our products, or even if we experience difficulties or delays in the development of our products, including the BACcel™ system, we may be unable to attract additional customers for our products or license our products to other strategic partners, which would seriously harm our business and future growth prospects.

Limited revenues from our products and no assurance of future revenues.

We have received limited revenue from sales based on products using our OptiChem technology. There is no assurance that we will be successful in marketing our OptiChem products in the future or will receive any revenue from such products. Further, there can be no assurance that we will be successful in marketing the BACcel™ system or will receive any revenues from it. During the transition period ended December 31, 2012 and the fiscal years ended July 31, 2012 and 2011, we experienced losses from operations. If we are unsuccessful in completing the development of the BACcel™ system and generating revenues from such product, we will likely continue to experience losses from operations and negative cash flow as we have in the past, which may have a material adverse effect upon the Company, its results of operations and the price of our Common Stock may be adversely affected.

Dependence on key employees.

The loss or failure to attract and retain key personnel could significantly impede our performance, including product development, strategic plans, marketing and other objectives. Our success depends to a substantial extent not only on the ability and experience of our senior management, but particularly upon Lawrence Mehren, our President and Chief Executive Officer. We do not have key man life insurance on Mr. Mehren. To the extent that the services of Mr. Mehren would be unavailable to us, we would be required to find another person to perform the duties Mr. Mehren otherwise would perform. We may be unable to employ another qualified person with the appropriate background and expertise to replace Mr. Mehren on terms suitable to us. Further, we believe that our future success will depend in large part upon our ability to attract and retain highly skilled technical, managerial, sales and marketing personnel. There can be no assurance that we will be successful in attracting and retaining the personnel we require to develop and market our products, develop new products and to conduct our operations successfully.

If we are unable to effectively protect our intellectual property, we may be unable to prevent infringement.

Our success depends in part on our ability to obtain and maintain patent protection for the technology underlying our products, especially that used in the BACcel™ system, both in the United States and in other countries. We cannot assure you that any of the presently pending or future patent applications will result in issued patents, or that any patents issued to us or licensed by us will not be challenged, invalidated or held unenforceable. Further, we cannot guarantee that any patents issued to us will provide us with a significant competitive advantage. If we fail to successfully enforce our proprietary technology or otherwise maintain the proprietary nature of our intellectual property with respect to our significant current and proposed products, our competitive position, our ability to complete the development of the BACcel™ system and future sales or

TABLE OF CONTENTS

license of this product or technology could suffer, which would have a material adverse effect upon the Company and its results of operations. Notwithstanding our efforts to protect our intellectual property, our competitors may independently develop similar or alternative technologies or products that are equal to or superior to our technology and proposed products without infringing on any of our intellectual property rights or design around our proprietary technologies. If customers prefer these alternative technologies and products as compared to our technology and proposed products, it may have a material adverse effect upon the Company, our results of operations and the price of our Common Stock may be adversely affected.

Our products could infringe on the intellectual property rights of others.

Due to the significant number of U.S. and foreign patents issued to, and other intellectual property rights owned by entities operating in the industry in which we operate, we believe that there is a significant risk of litigation arising from infringement of these patents and other rights. Third parties may assert infringement or other intellectual property claims against us or our licensees. We may have to pay substantial damages, including treble damages, for past infringement if it is ultimately determined that our products infringe on a third party's proprietary rights. In addition, even if such claims are without merit, defending a lawsuit may result in substantial expense to us and divert the efforts of our technical and management personnel. We may also be subject to significant damages or injunctions against development and sale of some of our products, which could have a material adverse effect on our future revenues. Furthermore, claims of intellectual property infringement may require us to enter into royalty or license agreements with third parties, and we may be unable to obtain royalty or license agreements on commercially acceptable terms, if at all.

Third parties may seek to challenge, invalidate or circumvent issued patents owned by or licensed to us or claim that our products and operations infringe their patent or other intellectual property rights.

In addition to our patents, we possess an array of unpatented proprietary technology and know-how and we license intellectual property rights to and from third parties. The measures that we employ to protect this technology and these rights may not be adequate. We may incur significant expense in any legal proceedings to protect our proprietary rights or to defend infringement claims by third parties. In addition, claims of third parties against us could result in awards of substantial damages or court orders that could effectively prevent us from manufacturing, using, importing or selling our products in the United States or abroad.

Competition.

The industry in which we compete is subject to rapid technological changes, and we face and expect to continue to face competition for our products. We may also face competition from non-medical device companies, including pharmaceutical companies that may offer alternatives to our products. Many of our competitors have greater research and development, financial, manufacturing, marketing and sales resources than we do. In addition, some of our competitors may, individually or together with companies affiliated with them, have greater human and scientific resources than we do. Our competitors could develop technologies and methods that render our technologies and methodologies less competitive. Accordingly, if competitors introduce products that are more effective than our current and proposed technologies, including but not limited to the BACcel™ system, it could have a material adverse effect upon the Company, our results of operations and the price of our Common Stock may be adversely affected.

Ability to respond to technological change.

Our future success will depend significantly on our ability to enhance our current products and develop or acquire and market new products that keep pace with technological developments and evolving industry standards as well as respond to changes in customer needs. There can be no assurance that we will be successful in developing or acquiring product enhancements or new products to address changing technologies and customer requirements adequately, that we can introduce such products on a timely basis or that any such products or enhancements will be successful in the marketplace. Our delay or failure to develop or acquire technological improvements or to adapt our products to technological change would have a material adverse effect on our business, results of operations and financial condition.

We use hazardous materials in some of our research, development and manufacturing processes.

Our research activities sometimes involve the controlled use of various hazardous materials. Although we believe that our safety procedures for handling and disposing of such materials comply with the standards

TABLE OF CONTENTS

prescribed by state and federal regulations, the risk of accidental contamination or injury from these materials cannot be completely eliminated. We could be held liable for any damages that might result from any accident or release involving such materials. Any such liability could have a material adverse effect on our business, financial condition and results of operations.

Changes in governmental regulations may reduce demand for our products or increase our expenses.

We compete in markets in which we or our customers must comply with federal, state, local and foreign regulations, such as environmental, health and safety and food and drug regulations. We develop, configure and market our products to meet customer needs created by these regulations. Any significant change in these regulations could reduce demand for our products.

We have a single research and development facility and we may lose revenue and be unable to continue to conduct our research and development and product development activities if we lose this facility.

We currently conduct all of our research and development and product development activities in our existing facility in Tucson, Arizona. If we were unable to use these facilities to conduct our research and development and product development activities, we would have no other means of conducting such activities until we were able to restore such capabilities at the current facility or develop an alternative facility. Further, in such an event, we may lose revenue and significant time during which we might otherwise have conducted research and development and product development activities. Further, we may not be able to maintain our relationships with our licensees or customers. While we carry a nominal amount of business interruption insurance to cover lost revenue and profits, this insurance does not cover all possible situations. In addition, our business interruption insurance would not compensate us for the loss of opportunity and potential adverse impact on relations with our licensees or customers. The loss of facility may have a material adverse effect upon the Company and its results of operations.

Our business strategy approach may be adversely affected by additional healthcare reform and changes in managed healthcare.

Our vision is to develop and commercialize the BACcel™ system, an innovative, integrated system for rapid identification of infectious pathogens and their antibiotic resistance in critically ill patients. Healthcare reform and the growth of managed care organizations have been considerable forces in the medical diagnostics industry and in recent political discussions. These forces continue to and are expected in the future to place constraints on the levels of overall pricing and thus could have a material adverse effect on our future profit margins of our products or the amounts that we are able to receive from third parties for the licensing of such products. Such continuing changes in the United States healthcare market could also force us to alter our approach to selling, marketing, distributing and servicing our products and customer base. In and outside the United States, changes to government reimbursement policies could reduce the funding that healthcare service providers have available for diagnostic product expenditures, which could have a material adverse impact on the use of the products we are developing and our future sales, license and royalty fees and/or profit margin.

We have and intend to make significant additional investments in research and development, but there is no guarantee that any of these investments will ultimately result in a commercial product that will generate revenues.

The BACcel™ system integrates several of our component products, systems and processes. For the five month periods ended December 31, 2012 and 2011 and the fiscal years ended July 31, 2012 and 2011, we spent \$1,777,244, \$163,340, \$431,906 and \$454,997, respectively, on research and development expenses, and we intend to spend significantly more on research and development activities during the fiscal year ending December 31, 2013 and thereafter. Notwithstanding these investments, we anticipate that we will have to spend additional funds in the research and development of the BACcel™ system. There can be no assurance that the BACcel™ system will be successful, or even if it is successful will be accepted in the marketplace. Further, we might also encounter substantial delays in getting products to market in a timely fashion. There can be no assurance that we will complete the development of the BACcel System, will bring it to market or will generate revenues from licensing or sales.

TABLE OF CONTENTS

Acquisitions and joint ventures may have an adverse effect on our business.

In the future, we may make acquisitions or enter into joint ventures as part of our long-term business strategy. These transactions involve significant challenges and risks including that the transaction does not advance our business strategy, that we don't realize a satisfactory return on our investment, or that we experience difficulty in the integration of new employees, business systems, and technology, or there is a diversion of management's attention from our other business operations. These events could harm our operating results or financial condition.

Changes in our business strategy or plans may adversely affect our operating results and financial condition.

If our business strategy or plans change, whether in response to changes in economic conditions or developments in the diagnostics industry, or otherwise, we may be required to expend significantly more resources than planned to develop the BACcel™ system, may have to cease developing the BACcel™ system or develop other products. The expense of such change could adversely affect our operating results and financial condition.

The regulatory clearance or approval process is expensive, time consuming and uncertain, and the failure to obtain and maintain required clearances or approvals could prevent us from commercializing our future products.

We are investing in the research and development of new diagnostic tests, as well as to develop our novel BACcel™ system. Our products are subject to 510(k) clearance or pre-market approval by the FDA prior to their marketing for commercial use in the United States, and to any approvals required by foreign governmental entities prior to their marketing outside the United States. The 510(k) clearance and pre-market approval processes, as well as the process of obtaining foreign approvals, can be expensive, time consuming and uncertain. It generally takes from four to twelve months from submission to obtain 510(k) clearance, and from one to three years from submission to obtain pre-market approval; however, it may take longer, and 510(k) clearance or pre-market approval may never be obtained. Delays in receipt of, or failure to obtain, clearances or approvals for future products, including tests that are currently in design or development, would result in delayed, or no, realization of revenues from such products and in substantial additional costs which could decrease our profitability. We have limited experience in filing FDA applications for 510(k) clearance and pre-market approval. In addition, we are required to continue to comply with applicable FDA and other regulatory requirements once we have obtained clearance or approval for a product. There can be no assurance that we will obtain or maintain any required clearance or approval on a timely basis, or at all. Any failure to obtain or any material delay in obtaining FDA clearance or any failure to maintain compliance with FDA regulatory requirements could harm our business, financial condition and results of operations.

Delaware law and our Certificate of Incorporation may protect our directors from certain types of lawsuits.

Delaware law provides that our directors will not be liable to us or our stockholders for monetary damages for all but certain types of conduct as directors. Our Certificate of Incorporation permit us to indemnify our directors and officers against all damages incurred in connection with our business to the fullest extent provided or allowed by law. The exculpation provisions may have the effect of preventing stockholders from recovering damages against our directors caused by their negligence, poor judgment or other circumstances. The indemnification provisions may require us to use our limited assets to defend our directors and officers against claims, including claims arising out of their negligence, poor judgment, or other circumstances.

TABLE OF CONTENTS

INFORMATION ABOUT THE COMPANY

Accelerate Diagnostics, Inc.

Accelerate Diagnostics, Inc. is a corporation organized under the laws of the State of Delaware. Since 2004, we have focused on developing and commercializing innovative instrumentation for the rapid identification and antibiotic susceptibility testing of infectious pathogens. The Company currently conducts no other significant business activities.

Our website address is *www.acceleratediagnostics.com*. None of the information contained on, or that may be accessed through, our website is a Prospectus or constitutes part of, or is otherwise incorporated into, this Prospectus.

Our principal executive offices are located at 3950 South Country Club Road, Suite 470, Tucson, Arizona 85714, and our telephone number is (520) 365-3100.

As of December 31, 2012, the Company had:

total assets of \$13,316,116;
total liabilities of \$1,248,068; and
total stockholders equity of \$12,068,048.

TABLE OF CONTENTS

THE RIGHTS OFFERING

The following describes the Rights Offering in general and assumes, unless specifically provided otherwise, that you are a record holder of our Common Stock on the Record Date. If you hold your shares in a brokerage account or through a dealer or other nominee, please also refer to Notice to Brokers and Nominees below.

The Subscription Rights

We are distributing to holders of our Common Stock as of 5:00 p.m., New York City time, on July 8, 2013, which is the Record Date for this Rights Offering, at no charge, non-transferable Subscription Rights to purchase shares of our Common Stock. For each share of Common Stock held of record at the close of business on the Record Date, you will receive 0.064038 of a Subscription Right. Each whole Subscription Right will entitle you to purchase one share of our Common Stock at a Subscription Price equal to \$8.04 per share of Common Stock. Subscription Rights may only be exercised in whole numbers; we will not issue fractional shares of Common Stock upon exercise of Subscription Rights and, to the extent that the number of Subscription Rights that are distributed to you on the record date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which you may subscribe. Any excess subscription funds will be returned, without interest or penalty, as soon as practicable after the expiration of the Rights Offering period.

Basic Subscription Privilege

Each whole Subscription Right that you own will entitle you to purchase one share of our Common Stock at the Subscription Price. You may exercise your Basic Subscription Privilege for some or all of your Subscription Rights, or you may choose not to exercise any Subscription Rights.

For example, if you owned 1,000 shares of our Common Stock as of the Record Date, you would receive 64.038 Subscription Rights and would have the right to purchase 64 shares of Common Stock for \$8.04 per share (or \$514.56 in the aggregate) by exercising your Basic Subscription Privilege in full.

Over-Subscription Privilege

If you exercise all of the Subscription Rights distributed to you pursuant to the Basic Subscription Privilege, you will also have the opportunity to purchase additional shares not purchased by other stockholders pursuant to their Basic Subscription Privilege at the same Subscription Price per share that applies to the Basic Subscription Privilege.

You may exercise your Over-Subscription Privilege only if you exercise your Basic Subscription Privilege in full. To determine if you have fully exercised your Basic Subscription Privilege, we will consider only the Basic Subscription Privileges held by you in the same capacity. For example, if you are granted Subscription Rights for shares of our Common Stock that you own individually and shares of our Common Stock that you own jointly with your spouse, you may exercise your Over-Subscription Privilege with respect to the Subscription Rights you own individually, as long as you fully exercise your Basic Subscription Privilege with respect to your individually owned Subscription Rights. You will not, however, be able to exercise the Over-Subscription Privilege you have collectively with your spouse unless the Basic Subscription Privilege collectively held by you and your spouse is fully exercised. You do not have to subscribe for any shares under the Basic Subscription Privilege owned jointly with your spouse to exercise your individual Over-Subscription Privilege.

When you complete the portion of your Subscription Rights Certificate to exercise your Over-Subscription Privilege, you will be representing and certifying that you have fully exercised your subscription privileges as to shares of our Common Stock that you hold in that capacity. You must exercise your Over-Subscription Privilege at the same time you exercise your Basic Subscription Privilege in full.

We will be able to satisfy your exercise of the Over-Subscription Privilege only if other holders of Subscription Rights do not elect to purchase all of the shares offered under their Basic Subscription Privilege. We will satisfy Over-Subscription Requests to the extent sufficient shares are available following the exercise of rights under the Basic Subscription Privilege. If the number of shares of Common Stock requested by all

TABLE OF CONTENTS

holders exercising the Over-Subscription Privilege is less than the total number of shares available, then subject to the foregoing reservation of rights, each holder of Subscription Rights exercising the Over-Subscription Privilege will receive the total number of shares requested (up to a maximum number of shares equal to such holder's pro rata allocation, as described in the paragraph set forth immediately below).

If there are not enough shares of Common Stock available to satisfy all subscriptions made under the Over-Subscription Privilege, we will allocate the available shares pro rata among the stockholders exercising their Over-Subscription Privileges. With respect to any individual stockholder, pro rata means the percentage of our issued and outstanding shares of Common Stock that such stockholder owned, beneficially or of record, as of the Record Date. Any excess subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the completion of the Rights Offering.

Limitation on Exercise of Basic Subscription Privilege and Over-Subscription Privilege

In the event that the exercise by a stockholder of the Basic Subscription Privilege or the Over-Subscription Privilege could, as determined by the Company in its sole discretion, potentially result in a limitation on the Company's ability to use Tax Attributes, under the Code and rules promulgated by the Internal Revenue Service, the Company may, but is under no obligation to, reduce the maximum exercise by such stockholder of the Basic Subscription Privilege and/or the Over-Subscription Privilege to such number of rights as the Company in its sole discretion shall determine to be advisable in order to preserve the Company's ability to use the Tax Attributes.

In addition, under applicable federal and state banking laws, any purchase of shares of our Common Stock may also require the prior clearance or approval of, or prior notice to, federal and state bank regulatory authorities if the purchase will result in any person or entity or group of persons or entities acting in concert owning or controlling shares in excess of such threshold ownership interest.

No Fractional Shares Issuable Upon Exercise of Subscription Rights

Subscription Rights may only be exercised in whole numbers; we will not issue fractional shares of Common Stock upon exercise of Subscription Rights and, to the extent that the number of Subscription Rights that are distributed to you on the record date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which you may subscribe. Any excess subscription funds will be returned, without interest or penalty, as soon as practicable after the expiration of the Rights Offering period.

Subscription Price

The Subscription Price per share of Common Stock will be \$8.04. The Subscription Price is equal to the closing price of our Common Stock, as reported by the NASDAQ Capital Market, on July 1, 2013 (which was the latest practicable date on which the Subscription Price could be established prior to the launch of the Rights Offering). The Subscription Price is not necessarily related to our book value, results of operations, cash flows, financial condition or the future market value of our Common Stock. We cannot assure you that you will be able to sell shares purchased in this Rights Offering at a price equal to or greater than the Subscription Price. We do not intend to change the Subscription Price

in response to changes in the trading price of our Common Stock prior to the closing of the Rights Offering.

Standby Commitment

On June 4, 2013, we entered into a Standby Purchase Agreement with Abeja Ventures, LLC as the Standby Purchaser. Pursuant to the Standby Purchase Agreement, the Standby Purchaser has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company's stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser.

24

TABLE OF CONTENTS

Any purchases by the Standby Purchaser will be made for investment purposes and not with a view toward resale. The number of shares of Common Stock that will be purchased by the Standby Purchaser can only be determined upon the completion of the Rights Offering. The Standby Purchaser will purchase all shares of Common Stock that could have been but were not subscribed for in the Rights Offering. If the Rights Offering is fully subscribed by stockholders through the exercise in full of their Basic Subscription Privileges and Over-Subscription Privileges, the Standby Purchaser will not purchase any additional shares of Common Stock pursuant to the Standby Purchase Agreement. If, on the other hand, no stockholders were to purchase any shares of Common Stock through the exercise of their Basic Subscription Privileges and Over-Subscription Privileges, all of the shares offered pursuant to the Rights Offering would be issued and sold to the Standby Purchaser. In that event, 2,487,562 shares of Common Stock would be issued to the Standby Purchaser, representing approximately 6.02% of the Company's outstanding Common Stock after giving effect to such issuance.

No fees or other consideration will be paid by the Company to the Standby Purchaser in exchange for its commitment to purchase any and all unsubscribed shares of Common Stock following the Rights Offering.

Expiration Time and Date; Closing

The Subscription Rights will expire at 5:00 p.m., New York City time, on August 7, 2013. You must properly complete the enclosed Subscription Rights Certificate and deliver it, along with the full Subscription Price (including any amounts in respect of your Over-Subscription Privilege), to the Subscription Agent before 5:00 p.m., New York City time, on August 7, 2013. After the expiration of the Rights Offering period, all unexercised Subscription Rights will be null and void. We will not be obligated to honor any purported exercise of Subscription Rights that the Subscription Agent receives after the expiration of the Rights Offering, regardless of when you sent the documents regarding that exercise, unless you have used the guaranteed delivery procedures described under "The Rights Offering - Notice of Guaranteed Delivery." All shares purchased in the Rights Offering will be issued in book-entry, or uncertificated, form. Any subscription payments for shares not allocated or validly purchased will be returned to you, without interest or penalty, as soon as practicable following the Expiration Date of the Rights Offering.

Reasons for the Rights Offering; Use of Proceeds

We are conducting the Rights Offering (i) raise equity capital that will be needed to fund our business plan at a time when our Board of Directors believes market conditions are favorable, and (ii) provide our existing stockholders with the opportunity to purchase our Common Stock. We expect the proceeds from the Rights Offering and the transactions contemplated by the Standby Purchase Agreement to be approximately \$20,000,000 (before expenses). We intend to use the net proceeds from the Rights Offering for general corporate purposes, including to fund our ongoing research and development and product commercialization initiatives, which have been previously disclosed.

Method of Exercising Subscription Rights

The exercise of Subscription Rights is irrevocable and may not be cancelled or modified. You may exercise your Subscription Rights as follows:

Subscription by Registered Holders

To exercise your Basic Subscription Privilege and your Over-Subscription Privilege, you must properly complete and execute the Subscription Rights Certificate, together with any required signature guarantees, and forward it, together

with payment in full of the subscription price for each share of our Common Stock you are subscribing for, including any shares you subscribe for pursuant to the Over-Subscription Privilege, to the Subscription Agent at the address set forth under The Rights Offering Subscription Agent below, on or prior to the Expiration Date.

Subscription by Beneficial Owners

If you are a beneficial owner of shares of our Common Stock, meaning that you hold your shares in street name through a broker, custodian bank or other nominee, we will ask your broker, custodian bank or other nominee to notify you of the Rights Offering. If you wish to exercise your Subscription Rights, you will

TABLE OF CONTENTS

need to have your broker, custodian bank or other nominee act for you and exercise your Subscription Rights and deliver all documents and payment on your behalf, including a Nominee Holder Certification, prior to 5:00 p.m., New York City time, on the Expiration Date. If you hold certificates of our Common Stock directly and would prefer to have your broker, custodian bank or other nominee act for you, you should contact your nominee and request it to effect the transactions for you.

To indicate your decision with respect to your Subscription Rights, you should complete and return to your broker, custodian bank or other nominee, the form entitled Beneficial Owner Election Form. You should receive this form from your broker, custodian bank or other nominee with the other Subscription Rights offering materials. If you wish to obtain a separate Subscription Rights Certificate, you should contact the nominee as soon as possible and request that a separate Subscription Rights Certificate be issued to you. You should contact your broker, custodian bank or other nominee if you do not receive this form, but you believe you are entitled to participate in the Rights Offering. We are not responsible if you do not receive the form from your broker, custodian bank or nominee or if you receive it without sufficient time to respond.

Your Subscription Rights will not be considered exercised unless the Subscription Agent actually receives from you, your broker, custodian, bank or other nominee, as the case may be, all of the required documents and your full Subscription Price payment prior to 5:00 p.m., New York City time, on August 7, 2013, the scheduled Expiration Date of this Rights Offering.

Payment Method

Your payment of the Subscription Price must be made in U.S. dollars for the full number of shares of Common Stock you wish to acquire under the Basic Subscription Privilege and the Over-Subscription Privilege. Your payment must be delivered in one of the following ways:

uncertified check payable to Broadridge Corporate Issuer Solutions, Inc. (acting as Subscription Agent for Accelerate Diagnostics, Inc.) ; or
certified or cashier's check drawn upon a U.S. bank and payable to Broadridge Corporate Issuer Solutions, Inc. (acting as Subscription Agent for Accelerate Diagnostics, Inc.).

Your payment will be considered received by the Subscription Agent only upon:

clearance of any uncertified personal check deposited by the Subscription Agent; or
receipt by the Subscription Agent of any certified or cashier's check drawn upon a U.S. bank.

Clearance of Uncertified Personal Checks

If you are paying by uncertified personal check, please note that payment will not be deemed to have been received by the Subscription Agent until the check has cleared, which could take at least five or more business days. If you wish to pay the Subscription Price by uncertified personal check, we urge you to make payment sufficiently in advance of the time the Rights Offering expires to ensure that your payment is received by the Subscription Agent and clears by the Expiration Date. We urge you to consider using a certified or cashier's check drawn upon a U.S. bank.

Instructions for Completing Your Subscription Rights Certificate

You should read the instruction letter accompanying the Subscription Rights Certificate carefully and strictly follow it. **Do not send Subscription Rights Certificates or payments to us.** Except as described below under The Rights

Offering Notice of Guaranteed Delivery, we will not consider your subscription received until the Subscription Agent has received delivery of a properly completed and duly executed Subscription Rights Certificate and payment of the full subscription amount. The risk of delivery of all documents and payments is on you or your nominee, not us or the Subscription Agent.

The method of delivery of Subscription Rights Certificates and payment of the subscription amount to the Subscription Agent will be at the risk of the holders of Subscription Rights. If sent by mail, we recommend that you send those certificates and payments by overnight courier or by registered mail, properly insured, with return receipt requested, and that a sufficient number of days be allowed to ensure delivery to the Subscription Agent and clearance of payment before the expiration of the subscription period for the Rights

TABLE OF CONTENTS

Offering. Because uncertified personal checks may take at least five or more business days to clear, we urge you to pay or arrange for payment by means of certified or cashier's check or bank draft to avoid missing the opportunity to exercise your Subscription Rights should you decide to exercise your Subscription Rights.

Missing or Incomplete Subscription Information

If you do not indicate the number of Subscription Rights being exercised, or do not forward full payment of the total Subscription Price payment for the number of Subscription Rights that you indicate are being exercised, then you will be deemed to have exercised your Subscription Rights with respect to the maximum number of whole Subscription Rights that may be exercised with the aggregate Subscription Price payment you delivered to the Subscription Agent.

If your aggregate Subscription Price payment is greater than the amount you owe for exercise of your Basic Subscription Privilege in full, you will be deemed to have exercised your Over-Subscription Privilege to purchase the maximum number of shares of our Common Stock with your over-payment. If we do not apply your full Subscription Price payment to your purchase of shares of our Common Stock, the Subscription Agent will return the excess amount to you by mail, without interest or penalty, as soon as practicable after the Expiration Date of the Rights Offering.

Conditions and Cancellation

We reserve the right to cancel the Rights Offering on or prior to the Expiration Date for any reason. We may cancel the Rights Offering if at any time before completion of the Rights Offering there is any judgment, order, decree, injunction, statute, law or regulation entered, enacted, amended or held to be applicable to the Rights Offering that in the sole judgment of our Board of Directors would or might make the Rights Offering or its completion, whether in whole or in part, illegal or otherwise restrict or prohibit completion of the Rights Offering. We may waive any of these conditions and choose to proceed with the Rights Offering even if one or more of these events occur. If we cancel the Rights Offering, in whole or in part, all affected Subscription Rights will expire without value, and all subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable.

Cancellation Rights

Our Board of Directors may cancel the Rights Offering in its sole discretion at any time prior to the time the Rights Offering expires for any reason. If we cancel the Rights Offering, we will issue a press release notifying stockholders of the cancellation, and any funds you paid to the Subscription Agent will be returned, without interest or penalty, as soon as practicable.

Subscription and Information Agent

Broadridge Corporate Issuer Solutions, Inc. is acting as the Subscription Agent for the Rights Offering under an agreement with us. All Subscription Rights Certificates, payments of the Subscription Price, and nominee holder certifications, to the extent applicable to your exercise of Subscription Rights, must be delivered to the Subscription Agent (Broadridge Corporate Issuer Solutions, Inc.) as follows:

By hand or overnight courier:

Broadridge Corporate Issuer Solutions, Inc.
Attention: Reorganization Department

Edgar Filing: Accelerate Diagnostics, Inc - Form 424B3

1981 Marcus Avenue, Suite 100
Lake Success, NY 11042

By first class mail:

Broadridge Corporate Issuer Solutions, Inc.
Attention: Reorganization Department
P.O. Box 1317
Brentwood, NY 11717-0693

You should direct any questions or requests for assistance concerning the method of subscribing for the shares of Common Stock or for additional copies of this Prospectus to Subscription Agent at (855) 793-5068.

27

TABLE OF CONTENTS

If you deliver subscription documents, Subscription Rights Certificates or notices of guaranteed delivery in a manner different than that described in this Prospectus, we may not honor the exercise of your subscription privileges.

Fees and Expenses

We will pay the fees and expenses of the Subscription Agent. We have also agreed to indemnify the Subscription Agent from and against certain liabilities in connection with the Rights Offering. You are responsible for paying any other commissions, fees, taxes or other expenses incurred in connection with the exercise of the Subscription Rights.

Neither the Subscription Agent nor the Company will pay such expenses.

Notice to Brokers and Nominees

If you are a broker, a custodian bank, a trustee, a depository for securities or other nominee holder who holds shares of our Common Stock for the account of others on the Rights Offering record date, you should notify the respective beneficial owners of such shares of the Rights Offering as soon as possible to learn their intentions with respect to exercising their Subscription Rights. You should obtain instructions from the beneficial owner with respect to their Subscription Rights, as set forth in the instructions we have provided to you for your distribution to beneficial owners. If the beneficial owner so instructs, you should complete the appropriate Subscription Rights Certificates and submit them to the Subscription Agent with the proper payment. If you hold shares of our Common Stock for the account(s) of more than one beneficial owner, you may exercise the number of Subscription Rights to which all such beneficial owners in the aggregate otherwise would have been entitled had they been direct record holders of our Common Stock on the Rights Offering record date, provided that you, as a nominee record holder, make a proper showing to the Subscription Agent by submitting the form entitled *Nominee Holder Certification* that we will provide to you with your Rights Offering materials. If you did not receive this form, you should contact the Subscription Agent to request a copy.

In the case of Subscription Rights that you hold of record on behalf of others through the Depository Trust Company (DTC), those Subscription Rights may be exercised by instructing DTC to transfer the Subscription Rights from your DTC account to the Subscription Agent's DTC account, and by delivering to the Subscription Agent the required certification as to the number of shares subscribed for pursuant to the exercise of the Subscription Rights of the beneficial owners on whose behalf you are acting, together with payment of the full Subscription Price.

Notice of Guaranteed Delivery

If you wish to exercise your Subscription Rights, but you do not have sufficient time to deliver the Subscription Rights Certificate evidencing your Subscription Rights to the Subscription Agent, on or before the time the Rights Offering expires, you may exercise your Subscription Rights by the following guaranteed delivery procedures:

deliver to the Subscription Agent on or prior to the Rights Offering Expiration Date your Subscription Price payment in full for each share you subscribed for under your subscription privilege in the manner set forth above under *The Rights Offering Payment Method* ;

deliver to the Subscription Agent on or prior to the Expiration Date the form entitled *Notice of Guaranteed Delivery*, substantially in the form provided with the *Instructions For Use of Accelerate Diagnostics, Inc. Rights Certificates* distributed with your Subscription Rights Certificates; and

deliver the properly completed Subscription Rights Certificate evidencing your Subscription Rights being exercised and the related nominee holder certification, if applicable, with any required signature guarantee, to the Subscription

Agent no later than three business days after the Expiration Date of the Rights Offering. For purposes of these Notice of Guaranteed Delivery procedures, business day means any day on which trading is conducted on the NASDAQ Capital Market.

28

TABLE OF CONTENTS

Your Notice of Guaranteed Delivery must be delivered in substantially the same form provided with the Instructions For Use of Accelerate Diagnostics, Inc. Subscription Rights Certificates, which will be distributed to you with your Subscription Rights Certificate. Your Notice of Guaranteed Delivery must include a signature guarantee from a member firm of a registered national securities exchange or a member of the Financial Industry Regulatory Authority, Inc., or a commercial bank or trust company having an office or correspondent in the United States, or a bank, stockbroker, savings and loan association or credit union with membership in an approved signature guarantee medallion program, pursuant to Rule 17Ad-15 of the Exchange Act (each, an Eligible Institution). A form of that guarantee is included with the Notice of Guaranteed Delivery.

In your Notice of Guaranteed Delivery, you must state:

your name;

the number of Subscription Rights represented by your Subscription Rights Certificates, the number of shares of our Common Stock for which you are subscribing under your Basic Subscription Privilege and the number of shares of our Common Stock for which you are subscribing under your Over-Subscription Privilege, if any; and your guarantee that you will deliver to the Subscription Agent the Subscription Rights Certificate evidencing the Subscription Rights you are exercising within three business days following the expiration of the Rights Offering.

You may deliver your Notice of Guaranteed Delivery to the Subscription Agent in the same manner as your Subscription Rights Certificate at the address set forth above under The Rights Offering Subscription Agent or may be transmitted, if transmitted by an Eligible Institution, to the Subscription Agent by facsimile transmission to (215) 553-5402. You should confirm receipt of all facsimile transmissions by calling the Subscription Agent at (855) 793-5068.

The Subscription Agent will send you additional copies of the form of Notice of Guaranteed Delivery if you request them by calling (855) 793-5068.

Questions About Exercising Subscription Rights

If you have any questions or require assistance regarding the method of exercising your Subscription Rights or requests for additional copies of this document, the Instructions For Use of Accelerate Diagnostics, Inc. Subscription Rights Certificates or the Notice of Guaranteed Delivery, you should contact the Subscription Agent at (855) 793-5068.

Transferability of Rights

The Subscription Rights granted to you may be exercised only by you, and, therefore, you may not sell, transfer or assign your Subscription Rights to anyone else.

Validity of Subscriptions

We will resolve all questions regarding the validity and form of the exercise of your subscription privileges, including time of receipt and eligibility to participate in the Rights Offering. Our determination will be final and binding. Once made, subscriptions and directions are irrevocable, and we will not accept any alternative, conditional or contingent subscriptions or directions. We reserve the absolute right to reject any subscriptions or directions not properly submitted or the acceptance of which would be unlawful. You must resolve any irregularities in connection with your subscriptions before the subscription period expires, unless waived by us in our sole discretion. Neither the

Subscription Agent nor we shall be under any duty to notify you or your representative of defects in your subscriptions. A subscription will be considered accepted, subject to our right to cancel the Rights Offering, only when a properly completed and duly executed Subscription Rights Certificate and any other required documents and payment of the full subscription amount have been received by the Subscription Agent (and any payment by uncertified personal check has cleared). Our interpretations of the terms and conditions of the Rights Offering will be final and binding.

TABLE OF CONTENTS

Segregated Account; Return of Funds

The Subscription Agent will hold funds received in payment for shares of the Common Stock in a segregated account pending completion of the Rights Offering. The Subscription Agent will hold this money until the Rights Offering is completed or is cancelled. If the Rights Offering is cancelled for any reason, the Subscription Agent will return this money to subscribers, without interest or penalty, as soon as practicable.

Certificates for Shares of Common Stock

All shares that you purchase in the Rights Offering will be issued in book-entry, or uncertificated, form. When issued, the shares will be registered in the name of the Subscription Rights holder of record. As soon as practicable after the expiration of the Rights Offering period, the Subscription Agent will arrange for issuance to each Subscription Rights holder of record that has validly exercised its Basic Subscription Privilege, the shares of Common Stock purchased pursuant to the Basic Subscription Privilege. Any shares purchased pursuant to the Over-Subscription Privilege will be issued as soon as practicable after the Expiration Date of the Rights Offering and following the completion of any pro-rations as may be necessary in the event the over-subscription requests exceed the number of shares available to satisfy such requests.

Rights of Subscribers

You will have no rights as a stockholder with respect to the shares of our Common Stock purchased in the Rights Offering until your account, or your account at your broker, custodian bank or other nominee, is credited with such shares. You will have no right to revoke your subscriptions after you deliver your completed Subscription Rights Certificate, payment and any other required documents to the Subscription Agent.

Foreign Stockholders

We will not mail Subscription Rights Certificates to stockholders whose addresses are outside the United States or who have a U.S. military post office or foreign post office address. The Subscription Agent will hold these Subscription Rights Certificates for their account. To exercise Subscription Rights, our foreign stockholders must notify the Subscription Agent prior to 11:00 a.m., New York City time, at least three business days prior to the Expiration Date of the Rights Offering and demonstrate to the satisfaction of the Company that the exercise of such Subscription Rights does not violate the laws of the jurisdiction of such stockholder.

No Revocation or Change

Once you submit the Form of Non-Transferable Subscription Rights Certificate to exercise any Subscription Rights, you are not allowed to revoke or change the exercise or request a refund of monies paid. All exercises of Subscription Rights are irrevocable, even if you learn information about us that you consider to be unfavorable. You should not exercise your Subscription Rights unless you are certain that you wish to purchase the shares of our Common Stock offered pursuant to the Rights Offering.

Regulatory Limitation

We will not be required to issue to you shares of our Common Stock pursuant to the Rights Offering if, in our opinion, you are required to obtain prior clearance or approval from, or submit a prior notice to, any state or federal regulatory authorities to own or control the shares and if, at the time the Rights Offering expires, we determine that you have not properly obtained such clearance or approval or submitted such notice. See also Limitation on Exercise of Basic Subscription Privilege and Over-Subscription Privilege.

No Recommendation to Subscription Rights Holders

Our Board of Directors is making no recommendations regarding your exercise of the Subscription Rights. Stockholders who exercise Subscription Rights risk investment loss on new money invested. We cannot assure you that the market price of our Common Stock will be above the Subscription Price at the time of exercise or at the expiration of the Rights Offering period or that anyone purchasing shares at the Subscription Price will be able to sell those shares in the future at the same price or a higher price. You are urged to decide whether or not to exercise your Subscription Rights based on your own assessment of our

TABLE OF CONTENTS

business and the Rights Offering. Among other things, you should carefully consider the risks described under the heading **Risk Factors** in this Prospectus and the risks described in the documents incorporated by reference in this Prospectus, including but not limited to the sections entitled **Risk Factors** in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and **Management's Discussion and Analysis of Financial Condition and Results of Operation** in our Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

In connection with the Rights Offering, we have entered into a Standby Purchase Agreement with Abeja Ventures, LLC. Pursuant to the Standby Purchase Agreement, the Standby Purchaser has agreed to purchase, at the Subscription Price, in a private transaction separate from the Rights Offering, any and all shares of Common Stock not subscribed for by the Company's stockholders pursuant to the exercise of their Basic Subscription Privileges and Over-Subscription Privileges. The Standby Purchaser is owned by, among other individuals and entities, Lawrence Mehren, John Patience, Jack Schuler and Matthew W. Strobeck, each of whom is a director of the Company. Messrs. Mehren and Patience also serve as managers of the Standby Purchaser. Other members of the Board of Directors may decide to participate in the Rights Offering but are not required to do so. Any shares of Common Stock issued to the Standby Purchaser in connection with the standby purchase commitment described above will be restricted securities as that term is defined in Rule 144 under the Securities Act of 1933, as amended. While the Standby Purchaser will not itself participate in the Rights Offering, certain of its members (including the individuals listed above) may exercise the Basic Subscription Privileges and/or Over-Subscription Privileges they hold in their capacity as stockholders of the Company.

Listing

The Subscription Rights may not be sold, transferred or assigned to anyone else and will not be listed on the NASDAQ Capital Market or any other stock exchange or trading market. Our Common Stock trades on the NASDAQ Capital Market under the symbol **AXDX** and the shares to be issued in connection with the Rights Offering will be eligible for trading on the NASDAQ Capital Market under the same symbol.

Participation in Rights Offering Not Required; Potential Dilution

You are not required to exercise your Subscription Rights or otherwise take any action in response to this Rights Offering. If you do not exercise your Subscription Rights and the Rights Offering is completed, the number of shares of our Common Stock you own will not change but your percentage ownership of our total outstanding voting stock will decrease because shares will be purchased by other stockholders in the Rights Offering or by the Standby Purchaser. Your percentage ownership of our voting stock may also decrease if you do not exercise your Basic Subscription Privilege in full.

Shares of Common Stock Outstanding After the Rights Offering

As of July 10, 2013, 38,845,209 shares of Common Stock were issued and outstanding. Assuming no other transactions by us involving our Common Stock, and no options for our Common Stock are exercised prior to the expiration of the Rights Offering, if the Rights Offering is fully subscribed through the exercise of the Subscription Rights and/or the Standby Purchaser acquires all of the Common Stock not purchased by the holders of Subscription Rights, then an additional 2,487,562 shares of our Common Stock will be issued and outstanding after the closing of the Rights Offering, for a total of 41,332,771 shares of Common Stock issued and outstanding. As a result of the Rights Offering, the ownership interests and voting interests of the existing stockholders that do not fully exercise

their Basic Subscription Privileges will be diluted.

TABLE OF CONTENTS

Other Matters

We are not making the Rights Offering in any state or other jurisdiction in which it is unlawful to do so, nor are we distributing or accepting any offers to purchase any shares of our Common Stock from Subscription Rights holders who are residents of those states or other jurisdictions or who are otherwise prohibited by federal or state laws or regulations to accept or exercise the Subscription Rights. We may delay the commencement of the Rights Offering in those states or other jurisdictions, or change the terms of the Rights Offering, in whole or in part, in order to comply with the securities laws or other legal requirements of those states or other jurisdictions. Subject to state securities laws and regulations, we also have the discretion to delay allocation and distribution of any shares you may elect to purchase by exercise of your subscription privileges in order to comply with state securities laws. We may decline to make modifications to the terms of the Rights Offering requested by those states or other jurisdictions, in which case, if you are a resident in those states or jurisdictions or if you are otherwise prohibited by federal or state laws or regulations from accepting or exercising the Subscription Rights, you will not be eligible to participate in the Rights Offering. However, we are not currently aware of any states or jurisdictions that would preclude participation in the Rights Offering.

TABLE OF CONTENTS

DESCRIPTION OF CAPITAL STOCK

As of the date hereof, the Company's authorized capital stock consists of 45,000,000 shares of Common Stock and 5,000,000 shares of preferred stock, \$0.001 par value per share (Preferred Stock). The Company's Board of Directors and stockholders have approved an increase in the Company's authorized capital stock to 55,000,000 shares of Common Stock and 5,000,000 shares of Preferred Stock, which the Company anticipates will take effect on or about August 7, 2013. The Company's Board of Directors is expressly authorized to provide, out of the unissued shares of Preferred Stock, for one or more series of Preferred Stock and, with respect to each such series, to fix the number of shares constituting such series and the designation of such series, the voting powers, if any, of the shares of such series, and the preferences and relative, participating, optional or other special rights, if any, and any qualifications, limitations or restrictions thereof, of the shares of such series. The powers, preferences and relative, participating, optional and other special rights of each series of Preferred Stock, and the qualifications, limitations or restrictions thereof, if any, may differ from those of any and all other series at any time outstanding. As of the date of this filing, the Board has not provided for or designated any series of Preferred Stock, and no Preferred Stock is issued or outstanding. As of July 10, 2013, 38,845,209 shares of the Company's Common Stock and no shares of Preferred Stock were outstanding.

The holders of Common Stock are entitled to receive such dividends as are from time to time declared by the Board of Directors out of funds legally available therefore. Holders of Common Stock are entitled to one vote per share on all matters. Upon the sale of substantially all of the stock of assets of the Company in a non-public transaction or dissolution, liquidation, or winding up of the Company, whether voluntary or involuntary, after all liquidation preferences payable to any series of preferred stock entitled thereto to have been satisfied, the remaining net assets of the Company shall be distributed to the holders of Common Stock (and any similarly situated stockholders who are not entitled to any liquidation preference).

The Common Stock is not redeemable. The holders of the Common Stock have no pre-emptive, conversion or cumulative voting rights. There are no sinking fund provisions for or applicable to the Common Stock. The outstanding shares of Common Stock are not liable to further call or to assessment by the Company.

The Company's Certificate of Incorporation and By-Laws provide that the Board is comprised of one class of directors and that each director shall be elected for a term lasting until the next annual meeting of stockholders following his or her election, or until his or her successor is duly elected and qualified. Each director holds office until the expiration of his or her term and until such director's respective successor is elected and qualified, subject to such director's earlier death, resignation or removal.

The Company reserves the rights to repeal, alter, amend or rescind any provision contained in the Certificate of Incorporation or By-Laws.

The Company is subject to the Delaware anti-takeover laws regulating corporate takeovers, including Section 203 of the Delaware General Corporation Law (DGCL). These anti-takeover laws prevent Delaware corporations from engaging in certain business combination transactions with interested stockholders (generally, stockholders owning 15% or more of the corporation's outstanding voting stock and their affiliates) for a period of three years following the time that such stockholder became an interested stockholder, except in certain situations. In addition, the Company's Certificate of Incorporation and By-Laws include a number of provisions that may deter or impede hostile takeovers or changes of control or management. These provisions include the following:

the authority of the Board to issue up to 5,000,000 shares of serial Preferred Stock and to determine the price, rights, preferences and privileges of such Preferred Stock without stockholder approval; and cumulative voting is not allowed in the election of the Company's directors.

These provisions of Delaware law and the Company's Certificate of Incorporation and By-Laws could prohibit or delay mergers or other takeover or change of control of the Company and may discourage attempts by other companies to acquire us, even if such a transaction would be beneficial to the Company's stockholders.

TABLE OF CONTENTS

The foregoing description of the Common Stock is qualified in its entirety by the provisions of the Company's Certificate of Incorporation and By-Laws, which are filed as Exhibits 3.1 and 3.2 to this Form S-3 and incorporated by reference.

Broadridge Corporate Issuer Solutions, Inc. is the transfer agent for the Company's Common Stock.

The Company's Common Stock is listed on the NASDAQ Capital Market under the symbol AXDX.

34

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

On or about July 18, 2013, we will distribute the Subscription Rights, Subscription Rights Certificates and copies of this Prospectus to individuals who owned shares of Common Stock of record as of the close of business on July 8, 2013, the Record Date for the Rights Offering. If you wish to exercise your Subscription Rights and purchase shares of Common Stock, you should complete the Subscription Rights Certificate and return it with payment for the shares, to the Subscription Agent. See The Rights Offering Method of Exercising Rights. If you have any questions, you should contact the Subscription Agent (Broadridge Corporate Issuer Solutions, Inc.) at (855) 793-5068. The Subscription Rights will not be listed on the NASDAQ Capital Market or any other stock exchange or trading market. The shares of Common Stock issuable upon exercise of the Subscription Rights will be listed on the NASDAQ Capital Market under the symbol AXDX .

We have agreed to pay the Subscription Agent customary fees plus certain expenses in connection with the Rights Offering. We have not employed any brokers, dealers or underwriters in connection with the solicitation of exercise of Subscription Rights. Except as described in this section, we are not paying any other commissions, underwriting fees or discounts in connection with the Rights Offering. Some of our employees may solicit responses from you as a holder of Subscription Rights, but we will not pay our employees any commissions or compensation for these services other than their normal employment compensation. We estimate that our total expenses in connection with the Rights Offering will be approximately \$74,000.

TABLE OF CONTENTS

USE OF PROCEEDS

We expect the proceeds from the Rights Offering and the transactions contemplated by the Standby Purchase Agreement to be approximately \$20,000,000 (before expenses). We intend to use the net proceeds from the Rights Offering for general corporate purposes, including to fund our ongoing research and development and product commercialization initiatives, which have been previously disclosed.

TABLE OF CONTENTS**PRICE RANGE OF COMMON STOCK AND DIVIDEND POLICY**

Our Common Stock is traded on the NASDAQ Capital Market under the symbol AXDX. The following table sets forth, for the periods indicated, the quarterly high and low sales prices per share of our Common Stock on the NASDAQ Capital Market during 2013 (through March 31, 2013), 2012 and 2011, as reported on the NASDAQ Capital Market.

			2013		
			High	Low	
First Quarter			\$ 8.52	\$ 4.06	
		2012 ⁽¹⁾	2011 ⁽¹⁾		
		High	Low	High	Low
Fourth Quarter		\$ 4.48	\$ 2.81	\$ 3.40	\$ 1.02
Third Quarter		\$ 3.44	\$ 2.65	\$ 4.30	\$ 2.35
Second Quarter		\$ 3.90	\$ 0.92	\$ 7.80	\$ 3.30
First Quarter		\$ 1.73	\$ 0.76	\$ 5.70	\$ 0.89

(1) As of January 1, 2013, the Company changed its fiscal year end from July 31 to December 31. The quarterly results set forth are based on a December 31 year end.

As of July 10, 2013, there were approximately 216 record holders of the Company's Common Stock.

The Company has never paid a cash dividend on its Common Stock and there are no plans to pay a cash dividend on its Common Stock at this time.

TABLE OF CONTENTS

CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following is a general summary of certain material U.S. federal income tax consequences to U.S. holders (as defined below) of the receipt and ownership of the Subscription Rights pursuant to the Rights Offering and certain tax considerations for U.S. holders of the ownership of our Common Stock resulting from the exercise of Subscription Rights, including under the Basic Subscription Privilege and the Over-Subscription Privilege. This summary is based upon provisions of the Code, applicable Treasury Regulations, administrative rulings, judicial authorities and other applicable existing U.S. federal income tax authorities, all of which are subject to change or differing interpretations, possibly with retroactive effect which could result in U.S. federal income tax consequences different from those discussed below. No assurance can be given that the Internal Revenue Service, or IRS, will not challenge one or more of the tax results described in this discussion, and no opinion of the Company's counsel or ruling from the IRS has been, or is expected to be, sought with respect to the U.S. federal tax consequences of the Rights Offering.

This summary does not provide a complete analysis of all potential tax considerations. This summary is only applicable to U.S. holders of Common Stock who are individuals and who acquire the Subscription Rights pursuant to the terms of the Rights Offering, have held the Common Stock, and will hold the Subscription Rights, and the Common Stock issued upon exercise of the rights or, if applicable, the Over-Subscription Privilege, as capital assets (generally, property held for investment) within the meaning of Section 1221 of the Code. This summary does not deal with all tax consequences that may be relevant to holders in light of their personal circumstances or particular situations, such as holders who may be subject to special tax treatment under the Code, including (without limitation) dealers in securities or currencies, financial institutions, insurance companies, regulated investment companies, real estate investment trusts, tax-exempt entities or traders in securities that elect to use a mark-to-market method of accounting for their securities, persons holding Subscription Rights or Common Stock as part of a hedging, integrated or conversion transaction or a straddle, persons deemed to sell Common Stock, under the constructive sale provisions of the Code, persons whose functional currency is not the U.S. dollar, and foreign taxpayers. This summary does not deal with any U.S. federal non-income, state, local or foreign tax consequences, estate or gift tax consequences, or alternative minimum tax consequences, nor does it address any tax considerations to persons other than U.S. holders.

For purposes of this discussion, a U.S. holder is a beneficial owner of our right or Common Stock that is, for U.S. federal income tax purposes:

an individual who is a citizen or resident of the United States;
a corporation, or other business entity treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States, any state of the United States or the District of Columbia;
an estate, if its income is subject to U.S. federal income taxation regardless of its source; or
a trust, if (i) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons (within the meaning of the Code) have the authority to control all of its substantial decisions or (ii) the trust has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

If a partnership (including any entity treated as a partnership for U.S. federal income tax purposes) receives the Subscription Rights or exercises the Subscription Rights or the over-Subscription Rights, the tax treatment of a partner in a partnership generally will depend upon the status of the partner and the activities of the partnership. Such a partner or partnership should consult its tax advisor as to the U.S. federal income tax consequences of the receipt, exercise or lapse of the Subscription Rights.

Holders of Common Stock are urged to consult their own tax advisors as to the specific tax consequences of the Rights Offering to them, including the applicable federal, state, local and foreign tax consequences of the Rights Offering to them and the effect of possible changes in tax laws.

TABLE OF CONTENTS

Taxation of Subscription Rights

Receipt of Subscription Rights

Your receipt of Subscription Rights pursuant to the Rights Offering should be treated as a nontaxable distribution with respect to your existing Common Stock for U.S. federal income tax purposes, and the following summary assumes you will qualify for such nontaxable treatment. If, however, the Rights Offering does not qualify as nontaxable, you would be treated as receiving a taxable distribution equal to the fair market value of the Subscription Rights on their distribution date. The distribution would be taxed as a dividend to the extent made out of our current or accumulated earnings and profits; any excess would be treated first as a return of your basis (investment) in your Common Stock and then as a capital gain. Expiration of the Subscription Rights would result in a capital loss.

If the fair market value of the Subscription Rights you receive is less than 15% of the fair market value of your existing Common Stock on the date you receive the Subscription Rights, the Subscription Rights will be allocated a zero basis for U.S. federal income tax purposes, unless you elect to allocate basis between your existing Common Stock and the Subscription Rights in proportion to the relative fair market values of the existing Common Stock and the Subscription Rights determined on the date of receipt of the Subscription Rights. If you choose to allocate basis between your existing Common Stock and the Subscription Rights, you must make this election on a statement included with your tax return for the taxable year in which you receive the Subscription Rights. Such an election is irrevocable. The fair market value of the Subscription Rights on the date the Subscription Rights are distributed is uncertain, and we have not obtained, and do not intend to obtain, an appraisal of the fair market value of the Subscription Rights on that date. In determining the fair market value of the Subscription Rights, you should consider all relevant facts and circumstances, including any difference between the Subscription Price of the Subscription Rights and the trading price of our Common Stock on the date that the Subscription Rights are distributed, the length of the period during which the Subscription Rights may be exercised and the fact that the Subscription Rights are non-transferable.

On the other hand, if the fair market value of the Subscription Rights you receive is 15% or more of the fair market value of your existing Common Stock on the date you receive the Subscription Rights, then you must allocate your basis in your existing Common Stock between the existing Common Stock and the Subscription Rights you receive in proportion to their fair market values determined on the date you receive the Subscription Rights.

Your holding period in a Subscription Right will include your holding period in the Common Stock with respect to which the Subscription Right was distributed.

Exercise of Basic Subscription Privilege or Over-Subscription Privilege

Generally, you will not recognize gain or loss on the exercise of a Subscription Right pursuant to the Basic Subscription Privilege or subscription for shares pursuant to the Over-Subscription Privilege. Your tax basis in new shares of Common Stock acquired when you exercise a Subscription Right pursuant to the Basic Subscription Privilege or subscribe for shares pursuant to the Over-Subscription Privilege will be equal to your adjusted tax basis in the Subscription Right plus the Subscription Price. The holding period of a share of Common Stock acquired when you exercise a Subscription Right pursuant to the Basic Subscription Privilege or subscribe for shares pursuant to the Over-Subscription Privilege will begin on the date of exercise.

If you exercise a Subscription Right received in the Rights Offering after disposing of the share of our Common Stock with respect to which such Subscription Right is received, then certain aspects of the tax treatment of the exercise of

the Subscription Right are unclear, including (1) the allocation of tax basis between the Common Stock previously sold and the Subscription Right, (2) the impact of such allocation on the amount and timing of gain or loss recognized with respect to the Common Stock previously sold, and (3) the impact of such allocation on the tax basis of Common Stock acquired through exercise of the Subscription Right. If you exercise a Subscription Right received in the Rights Offering after disposing of the Common Stock with respect to which the Subscription Right is received, you should consult your tax advisor.

TABLE OF CONTENTS

Non-Exercising Subscription Rights

If you do not exercise your Subscription Rights, you should not recognize a capital loss for U.S. federal income tax purposes and any portion of the tax basis in your existing shares of Common Stock previously allocated to the Subscription Right not exercised should be re-allocated to the existing Common Stock.

Ownership of Common Stock Upon Exercise of Basic Subscription Privilege or Over-Subscription Privilege

Dividends

In general, distributions of money, securities and any other property (other than our stock or rights to acquire such stock) with respect to our Common Stock will constitute dividends to the extent made out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a non-taxable return of capital to the extent of your adjusted tax basis in the Common Stock and thereafter as capital gain from the sale or exchange of such Common Stock.

Gain on Disposition of Common Stock

Upon the sale or other disposition of our Common Stock, you will generally recognize capital gain or loss for U.S. federal income tax purposes equal to the difference between your amount realized on the sale and your adjusted tax basis in such Common Stock. Capital gain of a noncorporate U.S. holder is generally taxed at preferential rates where the holder has a holding period greater than one (1) year. The deductibility of capital losses is subject to limitations.

Additional Medicare Tax on Net Investment Income

For tax years beginning after December 31, 2012, an additional 3.8% tax will be imposed on the net investment income of certain U.S. citizens and resident aliens, and on the undistributed net investment income of certain estates and trusts. Among other items, net investment income generally includes gross income from dividends and net gain from the disposition of property, such as our Common Stock, less certain deductions. You should consult your tax advisor with respect to this additional tax.

Information Reporting and Backup Withholding

Payments made to you of proceeds from the sale or other disposition of the Common Stock may be subject to information reporting to the IRS and possible U.S. federal backup withholding. Backup withholding will not apply if you furnish a correct taxpayer identification number (certified on the IRS Form W-9) or otherwise establish that you are exempt from backup withholding. Backup withholding is not an additional tax. Amounts withheld as backup withholding may be credited against your U.S. federal income tax liability. You may obtain a refund of any excess amounts withheld under the backup withholding rules by filing the appropriate claim for refund with the IRS and furnishing any required information.

TABLE OF CONTENTS

LEGAL MATTERS

Snell & Wilmer L.L.P., Phoenix, Arizona has issued an opinion regarding the securities being offered by this Prospectus. We have filed the opinion as an exhibit to the registration statement of which this Prospectus is part.

EXPERTS

The consolidated financial statements incorporated by reference in this Prospectus and elsewhere in the registration statement from our Transition Report on Form 10-K have been so incorporated by reference in reliance upon the report of Comiskey & Company, P.C., an independent registered public accounting firm, upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC covering the securities that may be sold under this Prospectus. This Prospectus summarizes material provisions of contracts and other documents that we refer you to.

For further information on the Company and the securities, you should refer to our registration statement and its exhibits. As permitted by the rules and regulations of the SEC, the registration statement that contains this Prospectus includes additional information not contained in this Prospectus. Because the Prospectus may not contain all the information that you may find important, you should review the full text of these documents. We have included copies of these documents as exhibits to our registration statement of which this Prospectus is a part.

We also file reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file by visiting the SEC's public reference room in Washington, D.C. The SEC's address in Washington, D.C. is 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information about the public reference room. You may also inspect our SEC reports and other information at the offices of The NASDAQ Stock Market at One Liberty Plaza, 165 Broadway, New York, New York 10006. Copies are also available on our website at www.acceleratediagnostics.com.

The SEC allows us to incorporate by reference the information we file with them, which means:

incorporated documents are considered part of the Prospectus;
we can disclose important information to you by referring you to those documents; and
information that we file with the SEC will automatically update and supersede this incorporated information.
We incorporate by reference the following documents that we have filed with the SEC:

Annual Report on Form 10-K for the fiscal year ended July 31, 2012;
Transition Report on Form 10-K for the transition period from August 1, 2012 to December 31, 2012;
Definitive Proxy Statement on Schedule 14A for our 2012 Annual Meeting of Stockholders;
Quarterly Report filed on Form 10-Q for the quarter ended March 31, 2013;
Current Reports on Form 8-K filed on March 12, 2013, June 10, 2013 and July 2, 2013; and
Description of the Common Stock which is contained in the Company's Registration Statement on Form 8-A including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference each of the following documents that we will file with the SEC after the date of this Prospectus until this offering is completed:

reports filed under Sections 13(a) and (c) of the Exchange Act;
any document filed under Section 14 of the Exchange Act; and
any reports filed under Section 15(d) of the Exchange Act.

41

TABLE OF CONTENTS

You should rely only on information contained or incorporated by reference in this Prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are 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 is accurate as of the date of this Prospectus only. Our business, financial condition and results of operation may have changed since that date.

We will provide to each person, including any beneficial owner, to whom this Prospectus is delivered a copy of any or all of the information that has been incorporated by reference in this Prospectus but not delivered with this Prospectus.

To receive a free copy of any of the documents incorporated by reference in this Prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents), you may request them in writing or by telephone from us at the following address and phone number:

Accelerate Diagnostics, Inc.
3950 South Country Club Road, Suite 470
Tucson, Arizona 85714
Attention: Steve Reichling, Chief Financial Officer
Telephone: (520) 365-3100

TABLE OF CONTENTS

**Subscription Rights to purchase up to 2,487,562
shares of Common Stock at \$8.04 per share
and the shares of Common Stock issuable upon the
exercise of such Subscription Rights**

PROSPECTUS

July 12, 2013

