Ignyta, Inc.
Form 424B5
October 20, 2017
Table of Contents

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-221004

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(2)
Common Stock, par value $0.0001 per share	11,500,000	$16.00	$184,000,000	$22,908(3)

(1) Includes shares of Common Stock that may be purchased by the underwriters pursuant to their option to purchase additional shares of Common Stock.

(2) The registration fee is calculated and being paid pursuant to Rule 457(r) under the Securities Act of 1933, as amended, and relates to the Registration Statement on Form S-3 (File No. 333-221004) filed by the Registrant on October 18, 2017.

(3) Pursuant to Rule 457(p) under the Securities Act of 1933, as amended, filing fees of $7,964.74 previously paid with respect to $79,093,750 in aggregate offering price of unsold securities that were registered pursuant to a registration statement on Form S-3 (File No. 333-208743) filed by the Registrant on December 23, 2015 are being carried forward, of which the entire amount is offset against the $22,908 registration fees due for this offering. The balance of the registration fee, $14,943.26, is being paid herewith.

Table of Contents

Prospectus supplement

(To prospectus dated October 18, 2017)

10,000,000 shares

Common stock

We are offering 10,000,000 shares of our common stock.

Our common stock is listed on The NASDAQ Capital Market under the symbol RXDX . On October 19, 2017, the last reported sale price of our common stock on The NASDAQ Capital Market was $16.65 per share.

	Per share	Total
Public offering price	$ 16.00	$ 160,000,000
Underwriting discounts and commissions(1)	$ 0.96	$ 9,600,000
Proceeds to Ignyta, Inc. before expenses	$ 15.04	$ 150,400,000

(1) See Underwriting for a description of the compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to an additional 1,500,000 shares of our common stock.

Investing in our common stock involves a high degree of risk. See Risk factors beginning on page S-7 of this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to purchasers on or about October 24, 2017.

Joint Book-Running Managers

J.P. Morgan **Jefferies**

Lead Manager

Cantor

Co-Managers

Ladenburg Thalmann **SunTrust Robinson Humphrey**

October 19, 2017

Table of Contents

Table of contents

Table of Contents

About this prospectus supplement

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part is the accompanying prospectus dated October 18, 2017, included in our registration statement on Form S-3 (File No. 333-221004), along with the documents incorporated by reference, which provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or the SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information contained in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

This prospectus supplement and the accompanying prospectus are part of a shelf registration statement that we filed with the SEC, as a well-known seasoned issuer as defined in Rule 405 under the Securities Act of 1933, as amended. Under the shelf registration process, we may offer from time to time various securities, of which this offering of shares of our common stock is a part. Such registration statement also includes exhibits that provide more detail on the matters discussed in this prospectus supplement and the accompanying prospectus. You should read this prospectus supplement, the accompanying prospectus, including the information incorporated by reference, the exhibits filed with the SEC, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, along with the information contained in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and the underwriters have not, authorized anyone to provide you with different or additional information. If anyone provides you with different or inconsistent information, you should not rely on it. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering is accurate only as of the respective dates of those documents, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus supplement or the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties and covenants were accurate only as of the date when made; therefore, such representations, warranties and covenants should not be relied on as accurate representations of the current state of our affairs.

When we refer to Ignyta, we, our, our company, us and the Company in this prospectus, we mean Ignyta, Inc., a Delaware corporation, u
otherwise specified. When we refer to you, we mean the holders of our common stock.

Table of Contents

We have registered trademarks in the United States for Ignyta®, the Ignyta word mark and design, the Ignyta design, Methylome®, and Trailblaze®, and have pending trademark applications in the United States for Ignyta , the Ignyta word mark and design, the Ignyta design, Oncolome , Pharos , Trailblaze , Trailblaze Pharos and Trailblaze Pharos word mark and design . We have registered trademarks in the European Union, or EU, for Ignyta®, the Ignyta design, Methylome®, Oncolome®, Pharos®, Trailblaze®, Trailblaze Pharos® and Trailblaze Pharos word mark and design. We have pending trademark applications for the Ignyta word mark in Australia, Canada, China, Hong Kong, Japan, Republic of Korea (South), Singapore, Switzerland, and Taiwan. All other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. Use or display by us of other parties trademarks, trade dress or products is not intended to and does not imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owner. Solely for convenience, trademarks and tradenames referred to in this prospectus appear without the ® and symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trademarks and tradenames.

Table of Contents

Prospectus supplement summary

This summary highlights certain information about us, this offering and selected information contained elsewhere in, or incorporated by reference into, this prospectus supplement and the accompanying prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including our financial statements and related notes and the other information incorporated by reference into this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information referred to under the heading Risk Factors in this prospectus supplement beginning on page S-7 and in the documents incorporated herein by reference.

Company overview

We are a biotechnology company focused on precision medicine in oncology. Our goal is not just to shrink tumors, but to eradicate residual disease the source of cancer relapse and recurrence in precisely defined patient populations. We are pursuing an integrated therapeutic, or Rx, and companion diagnostic, or Dx, strategy for treating patients with cancer. Our Rx efforts are focused on in-licensing or acquiring, then developing and commercializing molecularly or immunologically targeted therapies that, sequentially or in combination, are foundational for eradicating residual disease. Our Dx efforts aim to pair these product candidates with biomarker-based companion diagnostics that are designed to precisely identify, on a molecular or immunological basis, the patients who are most likely to benefit from the precision therapies we develop.

Our current pipeline includes the following compounds:

- entrectinib, formerly called RXDX-101, a CNS-active, potent, and selective small molecule tyrosine kinase inhibitor of the TRK (tropomyosin receptor kinase) family of tyrosine kinase receptors (TRKA, TRKB and TRKC) and ROS1 proteins, which is in a Phase 2 clinical study and two Phase 1 clinical studies in molecularly defined adult patient populations for the treatment of solid tumors, and a Phase 1/1b clinical study in pediatric patients with advanced solid tumor malignancies;

- RXDX-105, an orally bioavailable, small molecule tyrosine kinase inhibitor of RET that spares the vascular endothelial growth factor receptor, or VEGFR, which has completed enrollment in a Phase 1b clinical trial;

- taladegib, an orally bioavailable, small molecule hedgehog/smoothened antagonist that has achieved clinical proof-of-concept and a recommended Phase 2 dose in a Phase 1 dose escalation trial; and

- RXDX-106, a novel small molecule immunomodulatory agent with potent anti-tumor activity, alone and in combination with checkpoint inhibitors, that appears to restore and enhance overall immune function by reversing immunosuppression of innate immune cells in the tumor microenvironment (TME) through TYRO3, AXL, and MER (TAM) receptor tyrosine kinase (RTK) inhibition that is in late preclinical development.

A kinase is an enzyme that catalyzes the transfer of phosphate groups from high-energy, phosphate-donating molecules to specific other molecules, called substrates. Tyrosine kinases transfer phosphate groups from adenosine triphosphate to cellular proteins and can function as an on/off switch for cellular functions, including cancer signaling. Cell division is partly driven by protein kinases that regulate progression through the various phases of the cell division cycle.

Table of Contents

We acquired exclusive global development and commercialization rights to entrectinib under a license agreement with Nerviano Medical Sciences S.r.l., or NMS, that became effective in November 2013; we acquired our RXDX-105 and RXDX-106 development programs in an asset purchase transaction with Cephalon, Inc., an indirect wholly-owned subsidiary of Teva Pharmaceutical Industries Ltd., or Teva, in March 2015; and we acquired exclusive, global development and commercialization rights to taladegib under a license agreement with Eli Lilly and Company, or Lilly, in November 2015, which agreement was subsequently amended and restated in March 2017. In connection with such amendment and restatement, we announced our intention to explore strategic options for the taladegib program in basal cell carcinoma.

Our ability to identify innovative cancer targets and develop drugs against them is enabled by, and dependent on, a set of essential capabilities and the experience of our drug development and management team. Once compounds with activity against our target have been identified by those or other tests and procedures, our drug discovery and scientific team further pursues the drug development process. The members of our team have significant experience in medicinal chemistry, lead optimization, ADME & PK (the study of absorption, distribution, metabolism, excretion, and pharmacokinetics), preclinical development and clinical development, and have collectively led or contributed to the development of multiple drugs approved by the U.S. Food and Drug Administration, including several cancer therapeutics. In addition, we have a laboratory accredited by the College of American Pathologists and certified under the Clinical Laboratory Improvement Amendments of 1988. Our personnel use their expertise and our laboratory facilities with the goal of developing biomarker-based molecular and immunological assays to precisely define the patient populations in which we would test our product candidates, screen patients for enrollment in our clinical trials and potentially perform commercial companion diagnostic testing should any of our product candidates and the associated companion diagnostic obtain marketing approval.

Since inception, our operations have focused on organizing and staffing our company, business planning, raising capital, assembling our core capabilities in genetic and epigenetic based biomarker discovery, and developing drug candidates. Our product candidate development operations include preparing, managing and conducting preclinical and clinical studies and trials, preparing regulatory submissions relating to those product candidates and establishing and managing relationships with third parties in connection with all of those activities. We expect that in the future, our operations may also, if regulatory approval is obtained, include pursuing the commercialization of our product candidates.

Recent developments

On October 18, 2017, we announced updated results from our clinical trials, including the STARTRK-2 study of entrectinib.

In this interim analysis, entrectinib demonstrated a 78% confirmed objective response rate (ORR) (by Investigator; 95% CI: 60.0, 90.7) and a 69% confirmed ORR (by Blinded Independent Central Review, or BICR; 95% CI: 50.0, 83.9) in 32 patients with locally advanced or metastatic non-small cell lung cancer (NSCLC) that harbored ROS1 fusions. Entrectinib demonstrated compelling duration of response in these patients, with a median duration of response (mDOR) of 28.6 months (by BICR; 95% CI: 6.8, 34.8; median follow-up of 12.9 months) and a median progression free survival (mPFS) of 29.6 months (by BICR; 95% CI: 7.7, 36.6; median follow-up of 8.5 months). Of the patients evaluated, 11 had central nervous system (CNS) metastases at baseline as assessed by Investigator, and 83% (5 out of 6; by BICR) of the patients with measurable CNS metastases at presentation had confirmed intracranial RECIST responses to treatment with entrectinib.

Table of Contents

Safety was consistent with previous studies of entrectinib. With over 200 patients treated at the recommended phase 2 dose, most adverse events (AEs) were Grade 1-2 and reversible, and only 3% of patients discontinued from the study due to treatment-related AEs (TRAEs). The most common TRAEs were dysgeusia (38%), fatigue (29%), constipation (23%), dizziness (23%), and increased weight (19%). The most common Grade 3 TRAEs were increased weight (5%), anemia (4%), and fatigue (3%). There were no Grade 4 events occurring in greater than 1% of patients and no Grade 5 TRAEs.

In addition to these data in ROS1-positive NSCLC, entrectinib has demonstrated promising preliminary antitumor activity across NTRK-positive solid tumors.

On October 16, 2017, we announced that the European Medicines Agency (EMA) has granted Priority Medicines (PRIME) designation for entrectinib for the treatment of NTRK fusion-positive, locally advanced or metastatic solid tumors in adult and paediatric patients who have either progressed following prior therapies or who have no acceptable standard therapy. Through the PRIME initiative, we will have enhanced EMA support, including optimizing the entrectinib development pathway and potentially accelerating assessment of the Marketing Authorisation Application (MAA). PRIME designation for entrectinib was substantially based on data from the Phase 2 global study, STARTRK-2. In addition to PRIME designation, we have received breakthrough therapy designation (BTD) from the U.S. Food and Drug Administration (FDA) for NTRK fusion-positive, locally advanced or metastatic solid tumors in adult and pediatric patients who have either progressed following prior therapies or who have no acceptable standard therapy.

We expect to announce top-line registration-enabling data in 2018 and, based on recent guidance from the FDA, we are on track for dual NDA submissions in both the NTRK tissue-agnostic and the ROS1-positive NSCLC indications in 2018.

Corporate information

We are incorporated in the state of Delaware and were founded in 2011 (with the name NexDx, Inc.). We changed our name to Ignyta, Inc. on October 8, 2012. Our principal executive offices are located at 4545 Towne Centre Court, San Diego, California 92121, and our telephone number is (858) 255-5959.

Table of Contents

The offering

Common stock offered by us	10,000,000 shares (or 11,500,000 shares if the underwriters exercise their option to purchase additional shares in full)
Common stock to be outstanding immediately after this offering	66,237,915 shares (or 67,737,915 shares if the underwriters exercise their option to purchase additional shares in full)
Option to purchase additional shares	We have granted the underwriters an option for a period of 30 days from the date of this prospectus supplement to purchase up to an additional 1,500,000 shares of our common stock.
Use of proceeds	We intend to use the net proceeds from this offering to fund research and development activities for our development programs, including, but not limited to, the clinical development and pre-commercialization activities of entrectinib, the conduct of ongoing clinical and pre-clinical development of other pipeline assets, the completion of development activities related to the diagnostic lab, and for working capital and other general corporate purposes. See the section entitled Use of proceeds on page S-10 of this prospectus supplement.
Risk factors	Investing in our common stock involves a high degree of risk. See Risk factors beginning on page S-7 of this prospectus supplement, as well as those Risk factors incorporated by reference into this prospectus supplement, for a discussion of factors you should consider carefully before deciding to purchase any shares of our common stock.
NASDAQ Capital Market symbol	RXDX

The number of shares of our common stock to be outstanding immediately after this offering is based on 56,237,915 shares of our common stock outstanding as of June 30, 2017. The number of shares outstanding as of June 30, 2017 excludes:

- 5,732,219 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2017, at a weighted-average exercise price of $8.20 per share;
- 231,520 shares of common stock issuable upon the exercise of restricted stock units outstanding as of June 30, 2017;
- 153,472 shares of common stock issuable upon the exercise of warrants outstanding as of June 30, 2017, at a weighted-average exercise price of $5.75 per share; and
- 2,565,595 shares of common stock reserved for future issuance under our Amended and Restated 2014 Incentive Award Plan as of June 30, 2017.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their option to purchase up to an additional 1,500,000 shares of our common stock.

Table of Contents

Risk factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors described below and the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus supplement, and all other information contained or incorporated by reference into this prospectus supplement and the accompanying prospectus, including our financial statements and the related notes, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and in any free writing prospectus that we have authorized for use in connection with this offering before acquiring any of our common stock. These risks could have a material and adverse impact on our business, results of operations, financial condition and growth prospects, which may cause the trading price of our common stock to decline and you could lose all or part of your investment.

Risks relating to this offering, our common stock and our business

If you purchase shares of our common stock sold in this offering, you will experience immediate and substantial dilution in the net tangible book value of your shares. In addition, we may issue additional equity or convertible debt securities in the future, which may result in additional dilution to investors.

The offering price per share of our common stock in this offering is substantially higher than the net tangible book value per share of our outstanding common stock. Investors purchasing shares of our common stock in this offering will pay a price that substantially exceeds the value of our tangible assets after subtracting liabilities. As a result, investors will incur immediate dilution of $12.00 per share, representing the difference in the pro forma net tangible book value per share of our common stock as of June 30, 2017 after giving effect to the offering of 10,000,000 shares of common stock at the public offering price of $16.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. See the section entitled Dilution below for a more detailed discussion of the dilution you will incur if you purchase shares of our common stock in this offering.

In addition, to the extent we need to raise additional capital in the future and we issue additional shares of common stock or securities convertible or exchangeable for our common stock, our then existing stockholders may experience dilution and the new securities may have rights senior to those of our common stock offered in this offering.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section entitled Use of proceeds, and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. We intend to use the net proceeds from this offering to fund research and development activities for our development programs, including, but not limited to, the clinical development and pre-commercialization activities of entrectinib, the conduct of ongoing clinical and pre-clinical development of other pipeline assets, the completion of development activities related to the diagnostic lab, and for working capital and other general corporate purposes. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders. If

Table of Contents

we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

Sales of a substantial number of shares of our common stock in the public market, or the perception that such sales could occur, could cause our stock price to fall.

Sales of a substantial number of our shares of common stock in the public markets, or the perception that such sales could occur, could depress the market price of our shares of common stock and impair our ability to raise capital through the sale of additional equity securities. A substantial number of our outstanding shares of common stock are, and the shares of common stock being offered by this prospectus supplement will be, freely tradable, without restriction, in the public market. Any sales of these shares or any perception in the market that such sales may occur could also cause the trading price of our common stock to decline.

In addition, shares of common stock that are either subject to outstanding options or warrants or reserved for future issuance under our equity incentive plans will be eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, Rule 144 and Rule 701 under the Securities Act of 1933, as amended, or the Securities Act, our effective Registration Statements on Form S-8 and any future registration of such shares under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

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

We have incurred substantial losses during our history and do not expect to become profitable in the foreseeable future and may never achieve profitability. To the extent we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an ownership change (generally defined as a cumulative change in equity ownership by 5% shareholders that exceeds 50 percentage points over a rolling three-year period), the corporation s ability to use its pre-ownership change net operating loss carryforwards and other pre-ownership change tax attributes to offset its post-ownership change income and taxes may be limited. We may have experienced one or more ownership changes as a result of our October 31, 2013 merger transaction, our November 2013, March 2014, March 2015, June 2015, May 2016 and May 2017 common stock offerings, our March 2015 transaction with Teva and our November 2015 transaction with Lilly, and we may experience one or more ownership changes as a result of this common stock offering and/or future transactions in our stock. We have not performed, nor do we have any current plan to perform, a formal study of such potential limitations on the use of our net operating loss carryforwards and other tax assets. As a result, we may be limited in our ability to use our net operating loss carryforwards and other tax assets to reduce taxes owed on the net taxable income that we earn. As of December 31, 2016, we believe we had federal and state net operating loss carryforwards of approximately $192.3 million and $138.8 million, respectively. These net operating loss carryforwards could be limited if the merger, the common stock offerings or the Teva and Lilly transactions resulted in an ownership change, or if we experience any other ownership change, which could potentially result in increased future tax liability to us. In addition, we are reporting an uncertain tax position in respect of approximately $83.3 million of our California state net operating loss carryforward as of December 31, 2016, which carryforward would be disallowed under a recent decision by the California Supreme Court on apportionment, unless there is a change in law to the contrary.

Table of Contents

Cautionary note regarding forward-looking statements

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, contain forward-looking statements. All statements other than statements of historical facts contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein also contain estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

In some cases, you can identify these forward-looking statements by the use of words or phrases such as believe, may, could, will, estimate, continue, anticipate, intend, seek, plan, expect, should or would, or the negative of these terms or other comparable terminology. Th forward-looking statements in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus supplement and are subject to a number of risks, uncertainties and assumptions, including those under the heading Risk factors in this prospectus supplement and in the documents incorporated by reference herein, and elsewhere in this prospectus supplement. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Table of Contents

Use of proceeds

We estimate that we will receive net proceeds of approximately $150.0 million from the sale of 10,000,000 shares of our common stock offered in this offering, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their option to purchase up to an additional 1,500,000 shares in full, we estimate that the net proceeds of the shares we sell in this offering will be approximately $172.6 million.

We intend to use the net proceeds from this offering to fund research and development activities for our development programs, including, but not limited to, the clinical development and pre-commercialization activities of entrectinib, the conduct of ongoing clinical and pre-clinical development of other pipeline assets, the completion of development activities related to the diagnostic lab, and for working capital and other general corporate purposes.

The amounts and timing of our actual expenditures will depend on numerous factors, including the factors described under Risk factors in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference herein, as well as the amount of cash used in our operations. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds. Pending the uses described above, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

Table of Contents

Dilution

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the net tangible book value per share of our common stock immediately after this offering. The net tangible book value of our common stock as of June 30, 2017 was approximately $114.9 million, or approximately $2.04 per share of common stock based upon 56,237,915 shares outstanding. Net tangible book value per share is equal to our total tangible assets, less our total liabilities, divided by the total number of shares outstanding as of June 30, 2017.

After giving effect to the issuance and sale by us of 10,000,000 shares of our common stock at the public offering price of $16.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma net tangible book value as of June 30, 2017 would have been $264.9 million, or $4.00 per share of our common stock. This represents an immediate increase in net tangible book value of $1.96 per share to our existing stockholders and an immediate dilution in net tangible book value of $12.00 per share to new investors in this offering.

The following table illustrates this calculation on a per share basis:

Public offering price per share		$ 16.00
Net tangible book value per share as of June 30, 2017	$ 2.04	
Increase in net tangible book value per share attributable to the offering	1.96	
As adjusted net tangible book value per share after giving effect to the offering		4.00
Dilution in net tangible book value per share to new investors in this offering		$ 12.00

If the underwriters exercise in full their option to purchase up to an additional 1,500,000 shares of common stock at the public offering price of $16.00 per share, the pro forma net tangible book value after this offering would be $4.24 per share of our common stock, representing an increase of pro forma net tangible book value of $2.20 per share to our existing stockholders and an immediate dilution of $11.76 per share to new investors purchasing shares in this offering.

The number of shares of our common stock to be outstanding immediately after this offering is based on 56,237,915 shares of our common stock outstanding as of June 30, 2017. The number of shares outstanding as of June 30, 2017 excludes:

- 5,732,219 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2017, at a weighted-average exercise price of $8.20 per share;
- 231,520 shares of common stock issuable upon the exercise of restricted stock units outstanding as of June 30, 2017;
- 153,472 shares of common stock issuable upon the exercise of warrants outstanding as of June 30, 2017, at a weighted-average exercise price of $5.75 per share; and
- 2,565,595 shares of common stock reserved for future issuance under our Amended and Restated 2014 Incentive Award Plan as of June 30, 2017.

The foregoing table does not give effect to the exercise of any outstanding options or warrants. To the extent options and warrants are exercised, there may be further dilution to new investors.

Table of Contents

Material U.S. federal income tax consequences to Non-U.S. Holders

The following discussion is a summary of the material U.S. federal income tax consequences to Non-U.S. Holders (as defined below) of the purchase, ownership and disposition of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not discussed. This discussion is based on the U.S. Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service, or the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Non-U.S. Holder of our common stock. We have not sought and will not seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the purchase, ownership and disposition of our common stock.

This discussion is limited to Non-U.S. Holders that hold our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to a Non-U.S. Holder s particular circumstances, including the impact of the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Non-U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- persons subject to the alternative minimum tax;
- persons holding our common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- brokers, dealers or traders in securities;
- controlled foreign corporations, passive foreign investment companies, and corporations that accumulate earnings to avoid U.S. federal income tax;
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;

tax-qualified retirement plans; and

qualified foreign pension funds as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds.

If an entity treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

Table of Contents

THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX ADVICE. INVESTORS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of a Non-U.S. Holder

For purposes of this discussion, a Non-U.S. Holder is any beneficial owner of our common stock that is neither a U.S. person nor an entity treated as a partnership for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and the control of one or more United States persons (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Distributions

If we make distributions of cash or property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and first be applied against and reduce a Non-U.S. Holder s adjusted tax basis in its common stock, but not below zero. Any excess will be treated as capital gain and will be treated as described below under Sale or other taxable disposition.

Subject to the discussion below on effectively connected income, dividends paid to a Non-U.S. Holder of our common stock will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends (or such lower rate specified by an applicable income tax treaty, provided the Non-U.S. Holder furnishes a valid IRS Form W-8BEN or W-8BEN-E (or other applicable documentation) certifying qualification for the lower treaty rate). A Non-U.S. Holder that does not timely furnish the required documentation, but that qualifies for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. Holders should consult their tax advisors regarding their entitlement to benefits under any applicable income tax treaty.

If dividends paid to a Non-U.S. Holder are effectively connected with the Non-U.S. Holder s conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable), the Non-U.S. Holder will be exempt from the U.S. federal withholding tax described above. To claim the exemption, the Non-U.S. Holder must furnish to the applicable withholding agent a valid IRS Form W-8ECI, certifying that the dividends are effectively connected with the Non-U.S. Holder s conduct of a trade or business within the United States.

Any such effectively connected dividends will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation for U.S. federal income tax purposes also may

Table of Contents

be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected dividends, as adjusted for certain items. Non-U.S. Holders should consult their tax advisors regarding any applicable tax treaties that may provide for different rules.

Sale or other taxable disposition

A Non-U.S. Holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

- the gain is effectively connected with the Non-U.S. Holder s conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such gain is attributable);
- the Non-U.S. Holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition and certain other requirements are met; or
- our common stock constitutes a U.S. real property interest, or USRPI, by reason of our status as a U.S. real property holding corporation, or USRPHC, for U.S. federal income tax purposes.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation for U.S. federal income tax purposes also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected gain, as adjusted for certain items.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty), which may be offset by U.S. source capital losses of the Non-U.S. Holder (even though the individual is not considered a resident of the United States), provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the third bullet point above, we believe we currently are not, and do not anticipate becoming, a USRPHC. Because the determination of whether we are a USRPHC depends, however, on the fair market value of our USRPIs relative to the fair market value of our non-U.S. real property interests and our other business assets, there can be no assurance we currently are not a USRPHC or will not become one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a Non-U.S. Holder of our common stock will not be subject to U.S. federal income tax if our common stock is regularly traded, as defined by applicable Treasury Regulations, on an established securities market, and such Non-U.S. Holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the Non-U.S. Holder s holding period.

Non-U.S. Holders should consult their tax advisors regarding potentially applicable income tax treaties that may provide for different rules.

Information reporting and backup withholding

Payments of dividends on our common stock will not be subject to backup withholding, provided the applicable withholding agent does not have actual knowledge or reason to know the holder is a United States person and the holder either certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI, or otherwise establishes an exemption. However, information returns are required to be filed with the IRS in connection with any dividends on our common stock paid to the Non-U.S. Holder, regardless of whether any tax was actually withheld. In addition, proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to

Table of Contents

backup withholding or information reporting, if the applicable withholding agent receives the certification described above and does not have actual knowledge or reason to know that such holder is a United States person, or the holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker generally will not be subject to backup withholding or information reporting.

Copies of information returns that are filed with the IRS may also be made available under the provisions of an applicable treaty or agreement to the tax authorities of the country in which the Non-U.S. Holder resides or is established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Non-U.S. Holder s U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

Additional withholding tax on payments made to foreign accounts

Withholding taxes may be imposed under Sections 1471 to 1474 of the Code (such Sections commonly referred to as the Foreign Account Tax Compliance Act, or FATCA) on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends on, or gross proceeds from the sale or other disposition of, our common stock paid to a foreign financial institution or a non-financial foreign entity (each as defined in the Code), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any substantial United States owners (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain specified United States persons or United States owned foreign entities (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules.

Under the applicable Treasury Regulations and administrative guidance, withholding under FATCA generally applies to payments of dividends on our common stock, and will apply to payments of gross proceeds from the sale or other disposition of such stock on or after January 1, 2019.

Prospective investors should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

Table of Contents

Underwriting

We are offering the shares of common stock described in this prospectus supplement through a number of underwriters. J.P. Morgan Securities LLC and Jefferies LLC are acting as book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus supplement, the number of shares of common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	4,650,000
Jefferies LLC	2,850,000
Cantor Fitzgerald & Co.	1,200,000
Ladenburg Thalmann & Co. Inc.	