ENDOCYTE INC
Form S-3
October 12, 2017
Table of Contents

As filed with the Securities and Exchange Commission on October 12, 2017

Registration No. 333

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S 3

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

ENDOCYTE, INC.

(Exact name of registrant as specified in its charter)

Delaware	35 1969 140
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

3000 Kent Avenue, Suite A1 100

West Lafayette, IN 47906

(765) 463 7175

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

Michael A. Sherman

President and Chief Executive Officer

Endocyte, Inc.

3000 Kent Avenue, Suite A1 100

West Lafayette, IN 47906

(765) 463 7175

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

With copies to:

Daniel L. Boeglin

Jonathan R. Zimmerman

Christine G. Long

Faegre Baker Daniels LLP

600 East 96th St., Suite 600

Indianapolis, IN 46240

(317) 569 9600

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated

filer," "smaller reporting company" and "emerging growth company" in Rule 12b 2 of the Exchange Act.

Large accelerated filer		Accelerated filer
Non accelerated filer	(Do not check if a smaller reporting company)	Smaller reporting company Emerging growth company

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

Table of Contents

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered	Proposed maximum offering price per unit	Proposed maximum aggregate offering price	Amount of registration fee
Primary Offering:				
Common Stock	(1)(2)	(1)	(1)(2)	
Preferred Stock	(1)(2)	(1)	(1)(2)	
Debt Securities	(1)	(1)	(1)	
Warrants	(1)	(1)	(1)	
Rights	(1)	(1)	(1)	
Units	(1)	(1)	(1)	
Total Primary Offering			$150,000,000 (3)	$18,675.00 (4)
Secondary Offering:				
Common Stock	5,278,000 (5)	$4.98 (6)	$26,284,440 (6)	$3,272.41
Common Stock Underlying Warrant(7)	722,000 (5)	$4.98 (6)	$3,595,560 (6)	$447.65
Total Secondary Offering	6,000,000 (5)	$4.98 (6)	$29,880,000 (6)	$3,720.06
Total Registration Fee				$22,395.06

(1) With respect to the primary offering, an unspecified number of securities or aggregate principal amount, as applicable, is being registered as may from time to time be offered at unspecified prices.
(2) Includes rights to acquire common stock or preferred stock of the Company under any stockholder rights plan then in effect, if applicable under the terms of any such plan.
(3) No separate consideration will be received for shares of common stock that are issued upon conversion of debt securities, depositary shares or preferred stock or upon exercise of common stock warrants registered in the primary offering hereunder. The aggregate maximum offering price of all securities issued by the registrant in the primary offering pursuant to this registration statement will not exceed $150,000,000.
(4) With respect to the primary offering, the registration fee has been calculated in accordance with Rule 457(o) under the Securities Act of 1933, as amended.
(5) This registration statement also relates to an indeterminate number of shares of the Company's common stock that may be issued upon stock splits, stock dividends or similar transactions in accordance with Rule 416 under the Securities Act of 1933, as amended.
(6) With respect to the secondary offering, the registration fee has been calculated in accordance with Rule 457(c) under the Securities Act of 1933, as amended, based on the average high and low prices of the Company's common stock as reported on the NASDAQ Global Market on October 11, 2017, which is within five business days of the filing of this registration statement.
(7) Represents shares of common stock underlying an unexercised warrant issued to ABX advanced biochemical compounds – Biomedizinische Forschungsreagenzien GmbH, or ABX, on September 29, 2017 in connection with that certain Development and License Agreement, dated as of September 29, 2017, by and between the Company and ABX, and subsequently transferred by ABX to Cambridge Isotope Laboratories, Inc.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933, AS AMENDED, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

Table of Contents

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 12, 2017

PROSPECTUS

ENDOCYTE, INC.

$150,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

Rights

Units

Offered by Endocyte, Inc.

5,278,000 Shares of Common Stock

722,000 Shares of Common Stock Underlying Warrant

Offered by the Selling Stockholders

We may offer and sell, from time to time in one or more offerings, up to $150,000,000 in the aggregate of common stock, preferred stock, debt securities, warrants, rights and units, in any combination. In addition, the selling stockholders may offer and sell, from time to time, up to 5,278,000 shares of our common stock, or the Shares, and up to 722,000 shares of our common stock issuable upon the exercise of an outstanding warrant, or the Warrant Shares, under this prospectus. We will not receive any of the proceeds from the sale of the Shares or the Warrant Shares by the selling stockholders. However, we will generate proceeds in the event of a cash exercise of the aforementioned outstanding warrant, or the Warrant, by a selling stockholder. We intend to use those proceeds, if any, for general corporate purposes.

This prospectus provides you with a general description of the securities that may be offered. Each time we or any of the selling stockholders offer and sell securities using this prospectus, we or such selling stockholders will provide a supplement to this prospectus that contains specific information about the offering, as well as the amounts, prices and terms of the securities. The supplement may also add, update or change information contained in this prospectus with respect to that offering. You should carefully read this prospectus and the applicable prospectus supplement before you invest in any of our securities.

We may offer and sell the securities described in this prospectus and any prospectus supplement to or through one or more underwriters, dealers and agents, or directly to purchasers, or through a combination of these methods. In addition, the selling stockholders may offer and sell shares of our common stock from time to time, together or separately. If any underwriters, dealers or agents are involved in the sale of any of the securities, their names and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. See the sections of this prospectus entitled “About this Prospectus” and “Plan of Distribution” for more information. This prospectus may not be used to offer and sell our securities unless accompanied by a prospectus supplement describing the method and terms of the offering of such securities.

Investing in our securities involves risks. See “Risk Factors” beginning on page 7 of this prospectus and any similar section contained in the applicable prospectus supplement concerning factors you should consider before investing in our securities.

Our common stock is listed on The NASDAQ Global Market under the symbol “ECYT.” On October 11, 2017, the last reported sale price of our common stock on The NASDAQ Global Market was $4.83 per share.

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. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2017.

Table of Contents

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS	1
PROSPECTUS SUMMARY	2
WHERE YOU CAN FIND MORE INFORMATION	5
RISK FACTORS	7
CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS	27
USE OF PROCEEDS	28
RATIO OF EARNINGS TO FIXED CHARGES	28
SELLING STOCKHOLDERS	28
DESCRIPTION OF CAPITAL STOCK	30
DESCRIPTION OF DEBT SECURITIES	33
DESCRIPTION OF WARRANTS	47
DESCRIPTION OF RIGHTS	49
DESCRIPTION OF UNITS	49
PLAN OF DISTRIBUTION	51
LEGAL MATTERS	54
EXPERTS	54

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission, or the SEC, using a "shelf" registration process. By using a shelf registration statement, we may sell securities described in this prospectus from time to time and in one or more offerings up to a total dollar amount of $150,000,000, and the selling stockholders may from time to time in one or more offerings sell up to 5,278,000 Shares and up to 722,000 Warrant Shares. Each time that we or the selling stockholders offer and sell securities using this prospectus, we or the selling stockholders will provide a prospectus supplement to this prospectus that contains specific information about the securities being offered and sold and the specific terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you should rely on the prospectus supplement. Before purchasing any securities, you should carefully read both this prospectus and the applicable prospectus supplement, together with the additional information described under the heading "Where You Can Find More Information."

Neither we, nor the selling stockholders, have 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 and the selling stockholders will not make 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 and the applicable prospectus supplement to this prospectus is accurate as of the date on its respective cover, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus incorporates by reference, and any prospectus supplement or free writing prospectus may contain and incorporate by reference, certain market and industry data obtained from independent market research, industry publications and surveys, governmental agencies and publicly available information. Industry surveys, publications and forecasts generally state that the information contained therein has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We believe the data from such third-party sources to be reliable. However, we have not independently verified any of such data and cannot guarantee its accuracy or completeness. Similarly, internal market research and industry forecasts, which we believe to be reliable based upon our management's knowledge of the market and the industry, have not been verified by any independent sources. While we are not aware of any misstatements regarding the market or industry data presented herein, our estimates involve risks and uncertainties and are subject to change based on various factors.

References in this prospectus to "Endocyte", "we", "our", "us" and "the Company" refer to Endocyte, Inc., a Delaware corporation.

Table of Contents

PROSPECTUS SUMMARY

This summary highlights certain information about us and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding to invest in our common stock. For a more complete understanding of our company, we encourage you to read and consider carefully the more detailed information in this prospectus, including the information incorporated by reference in this prospectus, and the information under the heading "Risk Factors" in this prospectus, beginning on page 7, before making an investment decision.

Our Company

Overview

We are a biopharmaceutical company and leader in developing targeted therapies for the treatment of cancer. We use drug conjugation technology to create novel therapeutics and companion imaging agents for personalized targeted therapies. Our agents actively target receptors that are over-expressed on diseased cells relative to healthy cells, such as prostate specific membrane antigen, or PSMA, in prostate cancer. This targeted approach is designed to safely enable the delivery of highly potent drug payloads. The companion imaging agents are designed to identify patients whose disease over-expresses the target of the therapy and who are therefore more likely to benefit from treatment.

On September 29, 2017, we entered into a Development and License Agreement, or the License Agreement, with ABX advanced biochemical compounds – Biomedizinische Forschungsreagenzien GmbH, or ABX, pursuant to which we acquired exclusive worldwide rights to develop and commercialize PSMA 617, including the drug candidate known as 177Lu-PSMA 617, a radioligand therapeutic, or RLT. Under the terms of the License Agreement, we will be responsible for, and bear the future costs of, worldwide development and commercialization of PSMA 617, which ABX will supply. On September 29, 2017, we made an upfront cash payment of approximately $11.9 million to ABX, consisting of $12.0 million less an immaterial expense reimbursement amount. The License Agreement obligates us to pay ABX regulatory milestone payments of up to $25.0 million, sales milestone payments of up to $135.0 million, and tiered royalties based on percentages of net sales beginning in the mid-teens and not to exceed the mid-twenties.

177Lu-PSMA 617 in Prostate Cancer. We intend to seek regulatory approval to initiate, in the first half of 2018, a Phase 3 clinical study of 177Lu-PSMA 617 in patients with metastatic castration-resistant prostate cancer, or mCRPC. 177Lu-PSMA 617 utilizes a high affinity targeting ligand to direct potent radiotherapy to prostate cancer cells. The specific targeting of this therapy comes from the "ligand" portion of the RLT, which is a small molecule designed to bind to PSMA, a protein highly expressed on the cell surface of most prostate cancer cells but absent on most normal cells. The PSMA targeting ligand in 177Lu-PSMA 617 is chemically attached to a therapeutic radioactive atom called Lutetium 177 (177Lu), which releases an energetic beta particle designed to precisely deliver cell-killing radiation to the site of disease. Unlike traditional external beam radiotherapy, 177Lu-PSMA 617, which is administered as a systemic injection, has been designed to directly target multiple sites of PSMA-positive prostate cancer throughout the body, including the bone and soft tissue, while bypassing the PSMA-negative healthy cells. Prior to treatment with 177Lu-PSMA 617, the patient's expression of PSMA can be determined using imaging technology, allowing for personalization of treatment so that the optimum course of therapy might be selected. As highlighted in roughly 20 peer reviewed publications of studies in the post-chemotherapy compassionate use setting, 177Lu-PSMA 617 demonstrated a prostate-specific antigen, or PSA, response (defined as greater than 50% decline from baseline) in 40% to 60% of patients, and a Response Evaluation Criteria in Solid Tumors, or RECIST, response rate in soft tissue disease of between 40% and 50%.

At the European Society for Medical Oncology Congress in September 2017, Dr. Michael Hofman of the Peter MacCallum Cancer Center in Melbourne, Australia presented the results of an open-label, single-arm,

non-randomized pilot study of 177Lu-PSMA 617 in 30 mCRPC patients. Primary endpoints included safety and efficacy as defined by PSA response, quality of life, and imaging response. The results showed a 57% PSA response rate (>50% reduction) and 71% interim RECIST response rate in soft tissue lesions in patients who had previously failed such conventional therapies as docetaxel, cabazitaxel, enzalutamide and abiraterone. Median overall survival was 12.7 months. The drug was well-tolerated, with a grade 3 or higher hematoxicity attributable to 177Lu-PSMA 617 occurring in five (17%) patients and no renal toxicity. Significantly improved quality of life scores and reduction in pain scores were recorded in

Table of Contents

37% and 43% of patients, respectively. This trial has subsequently been expanded to 50 patients from the original 30, with updated results expected to be presented in 2018.

CAR T-Cell Therapy. We are also developing a unique therapeutic approach that involves the re-targeting of potent immune cells, called chimeric antigen receptor T-cells, or CAR T-cells, to fight cancer. Traditional CAR T-cell therapies rely on the activity and specificity of T-cells that have been engineered to recognize a single naturally expressed target that, ideally, is only present on cancer cells, with no cross-reactivity to or targeting of healthy tissues. Our alternative strategy relies on a single universal CAR T-cell that expresses a high affinity for a molecule called fluorescein isothiocyanate, or FITC, which is not naturally present in the human body. The activity and specificity of these universal CAR T-cells is dependent upon the administration of our proprietary cell adaptor molecules, or CAMs, that "paint" a patient's cancer cells with FITC by conjugating it to a tumor-homing ligand. The FITC molecule then attracts the universal CAR T-cell to the site of disease, causing the anti-cancer immune response of a traditional CAR T-cell therapy. However, unlike existing CAR T-cell technologies, our unique CAM-dependent technology makes possible the engineering of a single universal CAR T-cell that can be used to treat a wide range of cancer types. This is accomplished through the use of multiple CAMs, each of which is designed to bind the FITC molecule to a specific cancer type. In addition to enabling the treatment of multiple cancer types with a single universal CAR T-cell, this adaptor technology is also designed to facilitate novel control strategies intended to increase the safety of CAR T-cell therapy. In March 2017, we announced our collaboration with Seattle Children's Research Institute, or SCRI, and Dr. Michael Jensen for the development of our technology in the CAR T-cell immunotherapy setting. The aim of the research collaboration is to join our adapter technology with the CAR T-cell immunotherapy research efforts at the Ben Towne Center for Childhood Cancer Research at SCRI, to move these potentially enabling technologies more quickly to patients in the clinic. In October 2017, we announced that we are limiting the scope our CAR T-cell program to a very targeted effort to generate proof-of-concept data.

Strategy

Since our inception, we have been focused on the development of our small molecule drug conjugates, or SMDCs. In June 2017, we discontinued clinical development of EC1456, our second-generation folate-targeted SMDC, and narrowed the focus of our clinical development of EC1169, a PSMA-targeted SMDC, to include only the cohort of taxane-exposed mCRPC patients, for which a top-line efficacy assessment of the expansion phase of this phase 1 trial is expected before the end of 2017. In addition, in June 2017, we reduced our workforce by approximately 40% to align resources to focus on our highest value opportunities while maintaining key capabilities. On October 2, 2017, we announced our plan to focus our resources on the development of 177Lu-PSMA 617 and on a very targeted effort to generate proof-of-concept data for our CAR T-cell program, and to explore out-licensing opportunities for all other development programs, including EC2629, our dual-targeted folate-pro pyrrolobenzodiazepine, or pro-PBD, DNA crosslinker drug.

Our Corporate Information

We were incorporated in the State of Indiana in 1995, and we were reincorporated in the State of Delaware in 2001. Our principal offices are located at 3000 Kent Avenue, Suite A1 100, West Lafayette, Indiana 47906, and our telephone number is (765) 463 7175. Our website address is www.endocyte.com. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website as part of this prospectus or part of any prospectus supplement.

The name "Endocyte" and our logo are our trademarks. All other trademarks and trade names appearing in this prospectus are the property of their respective owners.

3

Table of Contents

Securities that may be Offered

Issuer	Endocyte, Inc.
Securities Offered	
Primary Offering:	We may offer up to $150,000,000 of: common stock; preferred stock; debt securities; warrants; rights; and units. We may also offer securities of the types listed above that are convertible or exchangeable into one or more of the securities listed above.
Secondary Offering:	Our selling stockholders may offer up to 6,000,000 shares of our common stock, including up to 722,000 shares of our common stock issuable upon the exercise of the Warrant.
Use of Proceeds	
Primary Offering:	We intend to use the net proceeds from the sale of any securities offered by us for general corporate purposes unless otherwise indicated in the applicable prospectus supplement.
Secondary Offering:	We will not receive any proceeds from the resale of the shares of our common stock, including the shares issuable upon the exercise of the Warrant, by the selling stockholders. The Warrant is exercisable under certain circumstances on a cashless basis, and should a selling stockholder elect to exercise on a cashless basis, we will not receive any proceeds from such issuance of common stock. We cannot predict whether a holder of the Warrant will choose to exercise all or part of the Warrant, or if it will do so for cash or on a cashless basis. However, if the Warrant were exercised in full for cash, we would receive gross proceeds of approximately $1.0 million. We expect to use the proceeds received from the exercise of the Warrant, if any, for general corporate purposes.
Risk Factors	Investing in our common stock involves a high degree of risk. See “Risk Factors” beginning on page 7 of this prospectus, and any other risk factors described in a prospectus supplement and in the documents incorporated herein and therein by reference, for a discussion of certain factors that you should carefully consider before deciding to invest in our common stock.
	ECYT

NASDAQ
Global
Market
symbol

Table of Contents

WHERE YOU CAN FIND MORE INFORMATION

Available Information

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. You may also read and copy any document we file with the SEC at its Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You can also obtain copies of the documents at prescribed rates by writing to the Office of Investor Education and Advocacy of the SEC at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at (800) SEC 0330 for further information on the operation of the Public Reference Room.

We also make our SEC filings available, free of charge, on or through our website at www.endocyte.com. Please note, however, that information on our website is not, and should not be deemed to be, a part of this prospectus.

Incorporation by Reference

We "incorporate by reference" into this prospectus certain information we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. Some information contained in this prospectus updates the information incorporated by reference, and information that we file subsequently with the SEC will automatically update this prospectus as well as our other filings with the SEC. In other words, in the case of a conflict or inconsistency between information set forth in this prospectus and information incorporated by reference into this prospectus, you should rely on the information contained in the document that was filed later. We incorporate by reference the documents listed below and any filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, (i) following the date of the registration statement that contains this prospectus but prior to the effectiveness of such registration statement or (ii) after the date of this prospectus and prior to the time that all the securities offered by this prospectus are sold (in each case, other than any portions of any such documents that are not deemed "filed" under the Exchange Act in accordance with the Exchange Act and applicable SEC rules):

- our Annual Report on Form 10 K for the year ended December 31, 2016, filed with the SEC on March 13, 2017;
- our Quarterly Reports on Form 10 Q filed with the SEC for the quarters ended March 31, 2017 and June 30, 2017, filed with the SEC on May 10, 2017 and August 9, 2017, respectively;
- our Definitive Proxy Statement on Schedule 14A, filed with the SEC on March 24, 2017;
- our Current Reports on Form 8 K filed with the SEC on February 21, 2017, May 5, 2017, June 2, 2017, and October 2, 2017 (other than the portions of such Form 8 K not deemed to be filed); and
- the description of our common stock contained in our registration statement on Form 8 A, which was filed with the SEC on January 24, 2011, including any amendment or report filed with the SEC for the purpose of updating such description.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents. You may request a copy of these

Table of Contents

filings, other than an exhibit to a filing unless that exhibit is specifically incorporated by reference into that filing, at no cost, by writing to or telephoning us at the following:

Endocyte, Inc.

3000 Kent Avenue, Suite A1 100

West Lafayette, IN 47906

Attention: Secretary

(765) 463 7175

You should rely only on the information incorporated by reference or presented in this prospectus or the applicable prospectus supplement. Neither we, the selling stockholders nor any underwriters or agents, have authorized anyone else to provide you with different information. Neither we nor the selling stockholders are making an offer of these securities in any jurisdiction where the offer is not permitted. You should not assume that the information in this prospectus or the applicable prospectus supplement is accurate as of any date other than the dates on the front of those documents.

Table of Contents

RISK FACTORS

Investment in any securities offered pursuant to this prospectus and the applicable prospectus supplement involves risks. You should carefully consider the risk factors included in, or incorporated by reference into, this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in the applicable prospectus supplement before acquiring any of such securities. Additional risks and uncertainties not presently known to us or that are currently not believed to be significant to our business may also affect our actual results and could harm our business, financial condition and results of operations. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

Risks Related to Our Business and Industry

We have incurred significant losses in each year since our inception, other than in 2014, and we anticipate that we will continue to incur significant losses for the foreseeable future. We may never again achieve or sustain profitability.

We are a clinical-stage biopharmaceutical company with a limited operating history. Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We have not generated any revenue from product sales to date. For the six months ended June 30, 2017, we had a net loss of $23.3 million and a retained deficit of $277.1 million. Other than in 2014, we have incurred significant losses in each year since our inception in December 1995. We expect to continue to incur significant operating expenses for the next several years as we pursue the advancement of our product candidates through the research, development, regulatory and commercialization processes. As such, we are subject to all of the risks incident to the creation of new biopharmaceutical products, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. If our product candidates fail in clinical trials, or do not gain regulatory approval, or fail to achieve market acceptance, we may never again be profitable. Even if we achieve profitability again in the future, we may not be able to sustain profitability in subsequent periods.

We currently have no approved products, which makes it difficult to assess our future viability.

To date, we have not derived any revenue from the sales of our products. Our operations to date have been limited to acquiring, developing and securing our technology, undertaking pre-clinical studies and clinical trials of our product candidates and engaging in research and development under collaboration agreements. We have not yet demonstrated an ability to obtain regulatory approval, formulate and manufacture commercial-scale products, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, it is difficult to predict our future success and the viability of any commercial programs that we may choose to take forward. While we have in the past derived revenues from payments under collaboration agreements, all of such agreements have been terminated, and we have no current sources of revenue.

Our restructuring activities and refocused development program efforts may not be successful, and our restructuring activities and changes in our development program efforts may cause uncertainty regarding the future of our business and may adversely impact employee hiring and retention, our stock price and our results of operations and financial condition.

In June 2017, we discontinued clinical development of EC1456, our second-generation folate-targeted SMDC, and narrowed the focus of our clinical development of EC1169, a PSMA-targeted SMDC, to include only the cohort of taxane-exposed mCRPC patients, for which a top-line efficacy assessment of the expansion phase of this phase 1 trial is expected before the end of 2017. In addition, in June 2017, we reduced our workforce by approximately 40% to align resources to focus on our highest value opportunities while maintaining key capabilities. On October 2, 2017, we announced our plan to focus our resources on the development of 177Lu-PSMA 617 and on a very targeted effort to

generate proof-of-concept data for our CAR T-cell program, and to explore out-licensing opportunities for all other development programs.

Table of Contents

Our ability to achieve the anticipated benefits, including the anticipated levels of cost savings and efficiency, of our restructuring activities within expected timeframes is subject to many estimates, assumptions and uncertainties. Additional restructuring or reorganization activities may also be required in the future, which could further increase the risks associated with these activities. There is no assurance that we will successfully implement, or fully realize the anticipated impact of, our restructuring or execute successfully on our refocused development program, in the timeframes we desire or at all. If we fail to realize the anticipated benefits from these measures, or if we incur charges or costs in amounts that are greater than anticipated, our financial condition and operating results may be adversely affected.

In addition, the changes in focus of our development program may not be successful and we may have to terminate other clinical and pre-clinical efforts. Further, although the workforce reduction is intended to align resources to focus on highest value opportunities while maintaining key capabilities, those opportunities may not prove to be of high value and those capabilities may not be sufficient.

The changes to our development program and the workforce reduction measures, as well as the potential for additional changes or activities in the future, may introduce uncertainty regarding our prospects and may result in disruption of our business. As a result of these actions, we incurred significant expenses and charges, including site close-out expenses, employee termination benefits and fixed asset impairment charges, and we may incur additional expenses and charges related to these actions. In addition, these changes and measures could distract our employees, decrease employee morale and make it more difficult to retain and hire new talent, and harm our reputation. These changes and activities caused our stock price to decline, and may cause it to further decline in the future. As a result of these or other similar risks, our business, results of operations and financial condition may be adversely affected.

We are highly dependent on the success of PSMA 617 product candidates, and we cannot give any assurance that we will successfully complete its clinical development, or that it will receive regulatory approval or be successfully commercialized.

In September 2017, we entered into a License Agreement with ABX, pursuant to which we acquired exclusive worldwide rights to develop and commercialize PSMA 617, including the drug candidate known as 177Lu-PSMA 617, an RLT. We intend to seek regulatory approval to initiate, in the first half of 2018, a Phase 3 clinical study of 177Lu-PSMA 617 in patients with mCRPC. The regulatory approval required to initiate this study may be conditioned on various factors, including that we undertake additional pre-clinical or earlier phase clinical studies prior to initiating the Phase 3 clinical study. A requirement to undertake additional studies could delay the initiation of the Phase 3 clinical study of 177Lu-PSMA 617 beyond the first half of 2018. If initiated, the Phase 3 study may not be successful, and 177Lu-PSMA 617 may never receive regulatory approval or be successfully commercialized. We may fail to obtain necessary marketing approvals for 177Lu-PSMA 617 from the U.S. Food and Drug Administration, or the FDA, or other regulatory authorities if our clinical development programs for 177Lu-PSMA 617 fail to demonstrate that it is safe and effective to the satisfaction of such authorities, or if we have inadequate financial or other resources to advance 177Lu-PSMA 617 through the necessary development activities. Even if 177Lu-PSMA 617 receives regulatory approval, we may not be successful in marketing it for a number of reasons, including the introduction by our competitors of more clinically-effective or cost-effective alternatives or failure in our sales and marketing efforts. Any failure to obtain approval of 177Lu-PSMA 617 and successfully commercialize it would have a material and adverse impact on our business.

We cannot give any assurance that we will successfully complete the clinical development of any of our other product candidates, or that they will receive regulatory approval or be successfully commercialized.

We have terminated or significantly limited the development programs for product candidates other than PSMA 617 product candidates. With respect to any other product candidates that we may pursue, they may never receive

regulatory approval or be successfully commercialized. We may fail to obtain necessary marketing approvals from the FDA or other regulatory authorities if our clinical development programs fail to demonstrate that they are safe and effective to the satisfaction of such authorities, or if we have inadequate financial or other resources to advance our product candidates through the necessary development activities. Even if any of our product candidates receive regulatory approval, we may not be successful in marketing them for a number of reasons, including the introduction by our competitors of more clinically-effective or cost-effective alternatives or failure in our sales and marketing efforts.

Table of Contents

The results of clinical trials may not be predictive of future results, and those trials may not satisfy the requirements of the FDA or other regulatory authorities.

The clinical trials of our product candidates are, and the manufacturing and marketing of any approved products will be, subject to extensive and rigorous review and regulation by numerous government authorities in the United States, Europe and in other countries where we intend to test and market our product candidates. Before obtaining regulatory approvals for the commercial sale of any product candidate, we must demonstrate through pre-clinical testing and clinical trials that the product candidate is safe and effective for use in each indication for which we intend to market such product candidate. This process takes many years and requires the expenditure of substantial financial and human resources and may include post-marketing trials and surveillance. To date, we have not completed any randomized phase 3 clinical trials.

Positive results from pre-clinical studies and early clinical trials, such as those of 177Lu-PSMA 617, should not be relied upon as evidence that later-stage or large-scale clinical trials will succeed. Like our past history with respect to certain product candidates, a number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, even after promising results in earlier trials. We will be required to demonstrate with substantial evidence through adequate and well-controlled clinical trials that our product candidates are safe and effective for use in the target population before the regulatory authorities will approve our product candidates for commercial sale, and we cannot assure you that we will be able to do so.

In addition to the Phase 3 clinical study of 177Lu-PSMA 617 that we intend to initiate in the first half of 2018, certain third party investigators, including Dr. Michael Hofman of the Peter MacCallum Cancer Center in Melbourne, Australia, are conducting clinical studies of 177Lu-PSMA 617 and other product candidates containing PSMA 617. In addition, the German institutions that own the patent rights to PSMA 617 have retained the right, under their license to ABX (under which we are the exclusive sublicensee), to conduct clinical studies of compounds containing PSMA 617 at their premises in Heidelberg, Germany, subject to our approval of the study protocol. Current or possible future clinical studies of compounds containing PSMA 617 that are conducted by third party investigators outside of our control (in whole or in part) may generate clinical data that hinders our ability to obtain regulatory approvals for the development and/or commercialization of 177Lu-PSMA 617.

Further, our product candidates may not be approved even if they achieve the primary endpoints in phase 3 clinical trials or registration trials. The FDA or other regulatory authorities may disagree with our trial design or the interpretation of data from pre-clinical studies and clinical trials. In addition, the FDA and other regulatory authorities may change requirements for the approval of our product candidates even after reviewing and providing non-binding comments on a protocol for a pivotal phase 3 clinical trial that has the potential to result in approval. Regulatory authorities may also approve any of our product candidates for fewer or more limited indications than we request, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

There is a high risk that our development and clinical activities will not result in commercial products, and we may be required to invest significant additional resources in our current development and clinical programs, to the exclusion of others, before it is known whether one or more of our product candidates will receive regulatory approval or be commercially introduced.

Our product candidates are in various stages of development and are prone to the risks of failure inherent in biopharmaceutical development. Development of our product candidates could be discontinued due to insufficient

efficacy or unacceptable toxicity. In many cases, even if we ultimately obtain regulatory approval to market a product candidate, we will need to complete significant additional clinical trials before we can demonstrate that the product candidate is safe and effective to the satisfaction of the regulatory authorities involved. Clinical trials are expensive and uncertain processes that take years to complete. Failure can occur at any stage of the process. Further, even if a product candidate receives the required regulatory approvals, we cannot assure you that it will be successful commercially. In addition, while we invest in the technology and indications that we believe are most promising, financial and resource

Table of Contents

constraints may require us to forego or delay opportunities that may ultimately have greater commercial potential than those programs we are currently actively developing.

We may not achieve research, development and commercialization goals in the time frames that we publicly estimate, which could have an adverse impact on our business and could cause our stock price to decline.

We set goals, and make public statements regarding our expectations, regarding the timing of certain accomplishments, developments and milestones under our research and development programs. The actual timing of these events can vary significantly due to a number of factors, including, without limitation, the amount of time, effort and resources committed to our programs by us and any collaborators and the uncertainties inherent in the regulatory approval process. As a result, there can be no assurance that we or any collaborators will make regulatory submissions or receive regulatory approvals as planned or that we or any collaborators will be able to adhere to our current schedule for the achievement of key milestones under any of our programs. If we or any collaborators fail to achieve one or more of the milestones described above as planned, our business could be materially adversely affected and the price of our common stock could decline.

The coverage and reimbursement status of newly approved biopharmaceuticals is uncertain, and failure to obtain adequate coverage and adequate reimbursement of our product candidates could limit our ability to generate revenue.

There is significant uncertainty related to the third-party coverage and reimbursement of newly approved drugs. The commercial success of our product candidates, if approved, in both domestic and international markets will depend in part on the availability of coverage and adequate reimbursement from third-party payors, including government payors, such as the Medicare and Medicaid programs, and managed care organizations. Government and other third-party payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement for new drugs and, as a result, they may not cover or provide adequate payment for our product candidates. These payors may conclude that our product candidates are less safe, less effective or less cost-effective than existing or later introduced products, and third-party payors may not approve our product candidates for coverage and reimbursement or may cease providing coverage and reimbursement for these product candidates. Because each country has one or more payment systems, obtaining reimbursement in the United States and internationally may take significant time and cause us to spend significant resources. The failure to obtain coverage and adequate reimbursement for our product candidates or healthcare cost containment initiatives that limit or deny reimbursement for our product candidates may significantly reduce any future product revenue.

In the United States and in other countries, there have been and we expect there will continue to be a number of legislative and regulatory proposals to change the healthcare system in ways that could significantly affect our business. International, federal and state lawmakers regularly propose and, at times, enact legislation that would result in significant changes to the healthcare system, some of which are intended to contain or reduce the costs of medical products and services. The U.S. government and other governments have shown significant interest in pursuing healthcare reform. Such government-adopted reform measures may adversely impact the pricing of healthcare products and services in the United States or internationally and the amount of reimbursement available from governmental agencies or other third-party payors. In addition, in some foreign jurisdictions, there have been a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. The continuing efforts of U.S. and other governments, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce healthcare costs may adversely affect our ability to set satisfactory prices for our products, to generate revenues, and to achieve and maintain profitability.

In some countries, particularly in the European Union, prescription drug pricing is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product candidate. To obtain reimbursement or pricing approval in some countries, we may

be required to conduct additional clinical trials that compare the cost-effectiveness of our product candidates to other available therapies. If reimbursement of our product candidates is unavailable or limited in scope or amount in a particular country, or if pricing is set at unsatisfactory levels, we may be unable to achieve or sustain profitability of our products in such country.

Table of Contents

Our development activities could be delayed or stopped for a number of reasons, many of which are outside our control, which could materially harm our financial results and the commercial prospects for our product candidates.

Each of our clinical trials requires the investment of substantial expense and time, and the timing of the commencement, continuation and completion of these clinical trials may be subject to significant delays relating to various causes. We do not know whether our current clinical trials will be completed on schedule, or at all, and we cannot guarantee that our future planned clinical trials will begin on time, or at all. Clinical trials must be conducted in accordance with FDA or applicable foreign government guidelines and are subject to oversight by the FDA, foreign governmental agencies and independent institutional review boards, or IRBs, at the medical institutions where the clinical trials are conducted. In addition, clinical trials must be conducted with supplies of our product candidates produced under current Good Manufacturing Practice, or cGMP, and other requirements in foreign countries, and may require large numbers of test patients. Our current and planned clinical trials could be substantially delayed or prevented by several factors, including:

- limited number of, and competition for, suitable sites to conduct our clinical trials;
- government or regulatory delays and changes in regulatory requirements, policy and guidelines;
- delay or failure to obtain sufficient supplies of the product candidate for, or other drugs used in, our clinical trials as a result of our suppliers' non-compliance with cGMP, or for other reasons;
- delay or failure to reach agreement on acceptable clinical trial agreement terms with prospective sites or investigators; and
- delay or failure to obtain IRB approval to conduct a clinical trial at a prospective site.

The completion of our clinical trials could also be substantially delayed or prevented by several factors, including:

- slower than expected rates of patient recruitment and enrollment;
- unforeseen safety issues;
- lack of efficacy evidenced during clinical trials, which risk may be heightened given the advanced state of disease and lack of response to prior therapies of patients in certain clinical trials;
- termination of our clinical trials by an IRB at one or more clinical trial sites;
- inability or unwillingness of patients or medical investigators to follow our clinical trial protocols; and
- inability to monitor patients adequately during or after treatment or high patient dropout rates.

Our clinical trials may be suspended or terminated at any time by the FDA, other regulatory authorities or us. For example, in June 2017 we ended clinical development of EC1456 and stopped enrollment in our EC1456 phase 1b trial, as the assessment of trial data did not yield the level of clinical activity necessary to support continued advancement of EC1456. We cannot assure you that we will not terminate our current and future development programs.

Failure or significant delay in completing clinical trials for our product candidates could materially harm our financial results and the commercial prospects for our product candidates.

Our product candidates may cause undesirable side effects that could delay or prevent their regulatory approval or commercialization.

Table of Contents

Common side effects of our product candidates include abdominal pain, vomiting, constipation, nausea, fatigue, loss of appetite, hematologic events and peripheral sensory neuropathy. Because our product candidates have been tested in relatively small patient populations and for limited durations to date, additional side effects may be observed as their development progresses.

177Lu-PSMA 617 is designed to target PSMA, a protein highly expressed on the surface of most prostate cancer cells but absent on most normal cells. However, the fact that PSMA is expressed on some normal cells may result in off-target toxicity due to the delivery of 177Lu, the cell-killing radioactive atom in 177Lu-PSMA 617, to those normal cells.

Undesirable side effects caused by any of our product candidates could cause us or regulatory authorities to interrupt, delay or discontinue clinical trials and could result in the denial, cancellation or withdrawal of regulatory approval by the FDA or other regulatory authorities for any or all targeted indications. This, in turn, could prevent us from commercializing our product candidates and generating revenues from their sale. In addition, if one of our products receives marketing approval and we or others later identify undesirable side effects caused by that product:

- regulatory authorities may withdraw their approval of the product;
- we may be required to recall the product, change the way the product is administered, conduct additional clinical trials or change the labeling of the product;
- the product may be rendered less competitive and sales may decrease; or
- our reputation may suffer generally both among clinicians and patients.

Any one or a combination of these events could prevent us from achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing the product, which in turn could delay or prevent us from generating revenues from the sale of the product.

We may not obtain government regulatory approval to market our product candidates.

We may seek approval to market certain of our product candidates in both the United States and in non-U.S. jurisdictions. Prior to commercialization, each product candidate will be subject to an extensive and lengthy governmental regulatory approval process in the United States and in other countries. In order to market our products in the European Union and many other non-U.S. jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements. We may not receive the approvals necessary to commercialize our product candidates in any market and we may withdraw applications for approval before acted upon by the regulatory authority.

We may not be able to obtain regulatory approval for any product candidates, or even if approval is obtained, the labeling for such products may place restrictions on their use that could materially negatively impact the marketability and profitability of the product subject to such restrictions. Satisfaction of these regulatory requirements, which includes satisfying regulatory authorities that the product is both safe and effective for its intended uses, typically takes several years or more depending upon the type, complexity, novelty and safety profile of the product and requires the expenditure of substantial resources. Uncertainty with respect to meeting the regulatory requirements governing our product candidates may result in excessive costs or extensive delays in the regulatory approval process, adding to the already lengthy review process.

Also, the approval procedure varies among countries and can involve additional testing and data review. The time and safety and efficacy data required to obtain foreign regulatory approval may differ from that required to obtain FDA approval. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory agencies in other countries, and approval by one foreign regulatory authority does not

ensure approval by regulatory agencies in other countries or by the FDA. However, a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in other jurisdictions,

Table of Contents

including approval by the FDA. The failure to obtain regulatory approval in any jurisdiction could materially harm our business.

We may require substantial additional funding which may not be available to us on acceptable terms, or at all.

As we work to advance product candidates through pre-clinical and clinical development, our future funding requirements will depend on many factors, including but not limited to:

- our need to expand our research and development activities;
- the rate of progress and cost of our clinical trials and the need to conduct clinical trials beyond those planned;
- the costs associated with establishing a sales force and commercialization capabilities;
- the costs of acquiring, licensing or investing in businesses, product candidates and technologies;
- the costs and timing of seeking and obtaining approval from regulatory authorities;
- our ability to maintain, defend and expand the scope of our intellectual property portfolio;
- our need and ability to hire additional management and scientific and medical personnel;
- the effect of competing technological and market developments; and
- the economic and other terms and timing of collaboration, licensing or other arrangements into which we have entered or may enter into in the future.

Until we can generate a sufficient amount of revenue to finance our cash requirements, which we may never do, and if we would require additional funding, we expect to finance future cash needs primarily through public or private equity or debt financings or other sources. We do not know whether additional funding will be available on acceptable terms, or at all. If we are not able to secure additional funding when needed, we may have to delay, reduce the scope of or eliminate one or more of our clinical trials or research and development programs, or enter into collaboration or other arrangements with other companies to provide such funding for one or more of such clinical trials or programs in exchange for our affording such partner commercialization or other rights to the product candidates that are the subject of such clinical trials or programs.

Furthermore, we may incur unexpected expenses, experience timing delays or encounter other circumstances that result in us needing additional funds sooner than planned. Also, we may seek additional capital due to favorable market conditions or other strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

Raising additional capital may cause dilution to existing stockholders, restrict our operations or require us to relinquish rights.

We may seek the additional capital necessary to fund our operations through public or private equity or debt financings or other sources, such as strategic partnerships or licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of the current stockholders will be diluted and the terms may include liquidation or other preferences that adversely affect their rights as a common stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures, or declaring dividends, or which impose financial covenants on us that limit our operating flexibility to achieve our business objectives. If we raise additional funds through collaboration and licensing arrangements with third parties, we may have

Table of Contents

to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms that are not favorable to us. In addition, we cannot assure you that additional funds will be available to us on favorable terms or at all.

If our competitors develop and market products that are more effective, safer or less expensive than our product candidates, our commercial opportunities will be negatively impacted.

The life sciences industry is highly competitive, and we face significant competition from many pharmaceutical, biopharmaceutical and biotechnology companies that are researching and marketing products designed to address various types of cancer and other indications we treat or may treat in the future. We are currently developing cancer therapeutics that will compete with other drugs and therapies that currently exist or are being developed. Also, certain of our product candidates may be clinically developed not as an initial first line therapy but as a therapy for patients whose tumors have developed resistance to first line chemotherapy, which limits its potential addressable market. Products we may develop in the future are also likely to face competition from other drugs and therapies.

Many of our competitors have significantly greater financial, manufacturing, marketing and drug development resources than we do. Large biopharmaceutical companies, in particular, have extensive experience in clinical testing and in obtaining regulatory approvals for drugs. Additional mergers and acquisitions in the biopharmaceutical industry may result in even more resources being concentrated by our competition. Competition may increase further as a result of advances in the commercial applicability of technologies currently being developed and a greater availability of capital investment in those fields. These companies may also have significantly greater research and marketing capabilities than we do. Some of the companies developing products which may compete with our product candidates include Adaptimmune Therapeutics PLC; Affimed N.V.; AstraZeneca PLC ; Atara Biotherapeutics, Inc.; Atridia Pty LTD; Autolus Limited; Bayer AG; Bellicum Pharmaceuticals, Inc.; BioNTech AG; Bluebird Bio Inc.; Cancer Targeted Technology; Cellectis S.A.; Celyad S.A.; Editas Medicine, Inc.; ESSA Pharma, Inc.; Gilead Sciences, Inc.; GlaxoSmithKline PLC; Immatics Biotechnology GmbH; Immunocore Limited; Innocrin Pharmaceuticals, Inc.; Intellia Therapeutics, Inc.; Intrexon Corporation; Janssen Biotechnology, Inc.; Johnson & Johnson; Juno Therapeutics, Inc.; MedImmune, Inc.; Merck & Co., Inc.; MorphoSys AG; Novartis AG; Progenics Pharmaceutical, Inc.; Roche Holdings; Suzhou Kintor Pharmaceuticals, Inc.; Takara Bio, Inc.; TRACON Pharmaceuticals, Inc.; Unum Therapeutics, Inc.; Zenith Pharmaceuticals LTD; and Zymeworks, Inc. In addition, many universities and private and public research institutes are active in cancer research, the results of which may result in direct competition with our product candidates. For example, the German Center of Cancer Research and University Medical Center Heidelberg, the owners of the patent rights to PSMA 617 (which have been exclusively licensed to ABX and, in turn, exclusively sublicensed to us under the License Agreement), may continue to engage in research relating to RLTs or other cancer therapies, which could result in competition for 177Lu-PSMA 617 or other product candidates that we advance from PSMA 617.

In certain instances, the drugs which will compete with our product candidates are widely available or established, existing standards of care. To compete effectively with these drugs, our product candidates will need to demonstrate advantages that lead to improved clinical safety or efficacy compared to these competitive products. We cannot assure you that we will be able to achieve competitive advantages versus alternative drugs or therapies. If our competitors' market products are more effective, safer or less expensive than our product candidates or reach the market sooner than our product candidates, we may not achieve commercial success.

We believe that our ability to successfully compete will depend on, among other things:

- our ability to design and successfully execute appropriate clinical trials;
- our ability to recruit and enroll patients for our clinical trials;
- the results of our clinical trials and the efficacy and safety of our product candidates;
- the speed at which we develop our product candidates;

· achieving and maintaining compliance with regulatory requirements applicable to our business;

Table of Contents

- the timing and scope of regulatory approvals, including labeling;
- adequate levels of reimbursement under private and governmental health insurance plans, including Medicare;
- our ability to protect intellectual property rights related to our product candidates;
- our ability to commercialize and market any of our product candidates that may receive regulatory approval;
- our ability to have any partners manufacture and sell commercial quantities of any approved product candidates to the market;
- acceptance of our product candidates by physicians, other healthcare providers and patients; and
- the cost of treatment in relation to alternative therapies.

In addition, the biopharmaceutical industry is characterized by rapid technological change. Our future success will depend in large part on our ability to maintain a competitive position with respect to these technologies. Our competitors may render our technologies obsolete by advances in existing technological approaches or the development of new or different approaches, potentially eliminating the advantages in our drug discovery process that we believe we derive from our research approach and proprietary technologies. Also, because our research approach integrates many technologies, it may be difficult for us to stay abreast of the rapid changes in each technology. If we fail to stay at the forefront of technological change, we may be unable to compete effectively.

If we fail to attract and retain key management and scientific personnel, we may be unable to successfully develop or commercialize our product candidates.

Our success as a specialized scientific business depends on our continued ability to attract, retain and motivate highly qualified management and scientific and clinical personnel. The loss of the services of any of our senior management could delay or prevent the commercialization of our product candidates.

We may not be able to attract or retain qualified management and scientific personnel in the future due to the intense competition for a limited number of qualified personnel among biopharmaceutical, biotechnology, pharmaceutical and other businesses. In addition, the impact on employee morale experienced in connection with our workforce reduction in June 2017, in which we reduced our workforce by approximately 40%, could make it more difficult for us to retain current employees or to attract new employees when needed. If we are not able to attract and retain the necessary personnel to accomplish our business objectives, we may experience constraints that will impede the achievement of our research and development objectives, our ability to raise additional capital and our ability to implement our business strategy.

If we evolve from a company primarily involved in clinical development to a company also involved in commercialization, we may encounter difficulties in managing our growth and expanding our operations successfully.

If we are able to advance our product candidates through clinical trials, we will need to expand our development, regulatory, manufacturing, marketing and sales capabilities or contract with third parties to provide these capabilities for us. If our operations expand, we expect that we may need to manage additional relationships with such third parties, as well as additional collaborators and suppliers.

Maintaining these relationships and managing our future growth will impose significant added responsibilities on members of our management and other personnel. We must be able to: manage our development efforts effectively; manage our clinical trials effectively; hire, train and integrate additional management, development, administrative and

Table of Contents

sales and marketing personnel; improve our managerial, development, operational and finance systems; and expand our facilities, all of which may impose a strain on our administrative and operational infrastructure. We may also begin to expand our capabilities or enter into contractual relationships during the later stage clinical trial or regulatory approval process, and then have to reduce our capabilities or terminate those relationships if the trials or approval processes are terminated.

Even if we are able to obtain regulatory approval of our products, we may be unable to successfully market and sell them unless we establish sales, marketing and distribution capabilities.

We currently have no sales or distribution capabilities and only limited marketing capabilities. If any of our product candidates receive regulatory approval, we intend to build a sales and marketing organization with technical expertise and supporting distribution capabilities to commercialize our product candidates, which will be expensive and time consuming. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may choose to collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. To the extent that we enter into co-promotion or other licensing arrangements, our product revenue is likely to be lower than if we directly marketed or sold our products and will depend in whole or in part upon the efforts of such third parties, which may not be successful and are generally not within our control. If we are unable to enter into such arrangements on acceptable terms or at all, we may not be able to successfully commercialize any of our product candidates that receive regulatory approval. If we are not successful in commercializing our product candidates, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

We rely on third parties to conduct clinical trials for our product candidates and plan to rely on third parties to conduct future clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, it may cause delays in commencing and completing clinical trials of our product candidates or we may be unable to obtain regulatory approval for or commercialize our product candidates.

Clinical trials must meet applicable FDA and foreign regulatory requirements. We do not have the ability to independently conduct phase 2 or phase 3 clinical trials for any of our product candidates. We rely on third parties, such as medical institutions, clinical investigators and contract laboratories, to conduct all of our clinical trials of our product candidates; however, we remain responsible for ensuring that each of our clinical trials is conducted in accordance with its investigational plan and protocol. Moreover, the FDA and other regulatory authorities require us to comply with regulations and standards, commonly referred to as Good Clinical Practices, for conducting, monitoring, recording and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate and that the trial subjects are adequately informed of the potential risks of participating in clinical trials. Our reliance on third parties does not relieve us of these responsibilities and requirements.

We or the third parties we rely on may encounter problems in clinical trials that may cause us or the FDA or foreign regulatory agencies to delay, suspend or terminate our clinical trials at any phase. These problems could include the possibility that we may not be able to manufacture sufficient quantities of materials for use in our clinical trials, conduct clinical trials at our preferred sites, enroll a sufficient number of patients for our clinical trials at one or more sites, or begin or successfully complete clinical trials in a timely fashion, if at all. Furthermore, we, the FDA or foreign regulatory agencies may suspend clinical trials of our product candidates at any time if we or they believe the subjects participating in the trials are being exposed to unacceptable health risks, whether as a result of adverse events occurring in our trials or otherwise, or if we or they find deficiencies in the clinical trial process or conduct of the investigation.

The FDA and foreign regulatory agencies could also require additional clinical trials before or after granting marketing approval for any products, which would result in increased costs and significant delays in the development and commercialization of such products and could result in the withdrawal of such products from the market after obtaining marketing approval. Our failure to adequately demonstrate the safety and efficacy of a product candidate in clinical development could delay or prevent obtaining marketing approval of the product candidate and, after obtaining marketing approval, data from post-approval studies could result in the product being withdrawn from the market, either of which would have a material adverse effect on our business.

Table of Contents

We rely on third parties to manufacture and supply our product candidates.

We do not currently own or operate manufacturing facilities for the clinical or commercial production of our product candidates. We lack the resources and the capability to manufacture any of our product candidates on a clinical or commercial scale. Although we intend to enter into an agreement with ABX for the supply to us of PSMA 617, we do not have any long-term supply arrangements with any third-party manufacturers and we obtain our raw materials on a purchase order-basis. We expect to continue to depend on third-party contract manufacturers for the manufacture of our product candidates for the foreseeable future. If for some reason our contract manufacturers cannot perform as agreed, we may be unable to replace them in a timely manner and the production of our product candidates would be interrupted, resulting in delays in clinical trials and additional costs. We have no experience with managing the manufacturing of commercial quantities of any of our product candidates and scaling-up production to commercial quantities could take us significant time and result in significant costs. Switching manufacturers may be difficult because the number of potential manufacturers is limited and the FDA and other regulatory authorities must approve any replacement manufacturer prior to manufacturing our product candidates. Such approval would require new testing and compliance inspections. In addition, a new manufacturer would have to be educated in, or develop substantially equivalent processes for, production of our product candidates after receipt of regulatory approval to manufacture any of our product candidates.

To date, our product candidates have been manufactured in small quantities for pre-clinical studies and clinical trials by third-party manufacturers. If the FDA or other regulatory agencies approve any of our product candidates for commercial sale, we expect that we would continue to rely, at least initially, on third-party manufacturers to produce commercial quantities of any approved product candidates. These manufacturers may not be able to successfully increase the manufacturing capacity for any approved product candidates in a timely or economic manner, or at all. Significant scale-up of manufacturing may require additional validation studies, which the regulatory agencies must review and approve. Additionally, any third-party manufacturer we retain to manufacture our product candidates on a commercial scale must pass a pre-approval inspection for conformance to the cGMP before we can obtain approval of our product candidates. If we are unable to successfully increase the manufacturing capacity for a product candidate in conformance with cGMP, the regulatory approval or commercial launch of such products may be delayed or there may be a shortage in supply.

Our product candidates require precise, high quality manufacturing. Failure by our contract manufacturers to achieve and maintain high manufacturing standards could result in patient injury or death, product recalls or withdrawals, delays or failures in testing or delivery, cost overruns, or other problems that could seriously harm our business. Contract manufacturers may encounter difficulties involving production yields, quality control and assurance. These manufacturers are subject to ongoing periodic unannounced inspection by the FDA and corresponding state and non-U.S. authorities to ensure strict compliance with cGMP and other applicable government regulations and corresponding foreign standards; however, we do not have control over third-party manufacturers' compliance with these regulations and standards.

We are subject to risks associated with the availability of key raw materials, such as the radioisotopes used in the manufacture of our products.

The manufacture of our RLTs and companion imaging agents requires the use of raw materials which are subject, at times, to global supply constraints that have the potential to delay our work on the products incorporating those raw materials. For example, any limitation on our ability to source adequate supply of lutetium-177 for 177Lu-PSMA-617 could prevent us from gathering sufficient data in clinical trials, or to the extent that we obtain commercial approval for this product candidate, a limited supply may prevent us from meeting commercial demands. Supply constraints for lutetium-177 could also materially increase the manufacturing costs of 177Lu-PSMA-617, which would increase the cost of our clinical studies and reduce the commercial potential of the product candidate.

In addition, we plan to use etarfolatide that employs Tc-99m in our development of imaging capabilities and there have been historical periods in which global supply was not sufficient to satisfy worldwide demand for use in various nuclear medicine diagnostics utilized by healthcare providers. If we are not able to obtain sufficient quantities of Tc-99m for use in etarfolatide, we may not be able to gather sufficient data on etarfolatide to use in future clinical trials or to possibly seek the approval of etarfolatide. In addition, to the extent the approval of our product candidates depends on

Table of Contents

the screening and monitoring of the patient population with a companion imaging agent such as etarfolatide in our clinical trials, we would experience a corresponding delay in approval and commercialization of these product candidates if we are not able to obtain sufficient Tc-99m.

If a successful product liability claim or series of claims is brought against us for uninsured liabilities or in excess of insured liabilities, we could be forced to pay substantial damage awards.

The use of any of our product candidates in clinical trials, and the sale of any approved products, may expose us to product liability claims. We currently maintain product liability insurance coverage in an amount which we believe is adequate for our clinical trials currently in progress and those recently completed. We monitor the amount of coverage we maintain as the size and design of our clinical trials evolve and intend to adjust the amount of coverage we maintain accordingly. However, we cannot assure you that such insurance coverage will fully protect us against some or all of the claims to which we might become subject. We might not be able to maintain adequate insurance coverage at a reasonable cost or in sufficient amounts or scope to protect us against potential losses. In the event a claim is brought against us, we might be required to pay legal and other expenses to defend the claim, as well as uncovered damages awards resulting from a claim brought successfully against us. Furthermore, whether or not we are ultimately successful in defending any such claims, we might be required to direct financial and managerial resources to such defense and adverse publicity could result, all of which could harm our business.

Each of our product candidates will remain subject to ongoing regulatory review even if it receives marketing approval. If we or any collaborators and contractors fail to comply with continuing regulations, we or they may be subject to enforcement action that could adversely affect us.

If any of our product candidates become approved products, they will continue to be subject to pervasive regulation by the FDA and other regulatory authorities. We and any collaborators and contractors will continue to be subject to regulatory requirements governing among other things the manufacture, packaging, sale, promotion, adverse event reporting, storage and recordkeeping of our approved products. Although we have not received any notice that we are the subject of any regulatory enforcement action, it is possible that we may be in the future and that could have a material adverse effect on our business. We may be slow to adapt, or may never adapt, to changes in existing regulatory requirements or adoption of new regulatory requirements. If we or any collaborators or contractors fail to comply with the requirements of the FDA and other applicable governmental or regulatory authorities or previously unknown problems with our products, manufacturers or manufacturing processes are discovered, we or the collaborator or contractor could be subject to administrative or judicially imposed sanctions, including: fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

We deal with hazardous materials and must comply with environmental laws and regulations, which can be expensive and restrict how we do business.

Our activities involve the controlled storage, use, and disposal of hazardous materials, including corrosive, explosive and flammable chemicals, biologic waste and various radioactive compounds. We are subject to federal, state, and local laws and regulations governing the use, manufacture, storage, handling, and disposal of these hazardous materials. Although we believe that our safety procedures for the handling and disposing of these materials comply with the standards prescribed by these laws and regulations, we cannot eliminate the risk of accidental contamination or injury from these materials.

In the event of an accident, state or federal authorities may curtail our use of these materials, and we could be liable for any civil damages, which may exceed our financial resources and may seriously harm our business. We currently maintain insurance covering hazardous waste clean-up costs in an amount we believe to be sufficient for typical risks regarding our handling of these materials, however, this amount of coverage may not be sufficient to cover extraordinary or unanticipated events. Additionally, an accident could damage, or force us to temporarily shut down, our operations.

Table of Contents

Risks Related to Intellectual Property

We may be at risk for cyber attacks or other security breaches that could compromise our intellectual property, trade secrets or other sensitive business information and expose us to liability, which would cause our business and reputation to suffer.

Cyber attacks or security breaches could compromise confidential, business critical information, cause a disruption in our operations, harm our reputation or increase our stock trading risk. We have attractive information assets, including intellectual property, trade secrets and other sensitive, business critical information, including personally identifiable information of our employees. Our employees, some of whom have access to such information, frequently receive "phishing" emails intended to trick recipients into surrendering their user names and passwords. Phishing is a fraud method in which the perpetrator sends out legitimate-looking emails in an attempt to gather personal, business, financial or other information from recipients. To date, we have found no evidence of unauthorized access to our employees' accounts, but cannot preclude the possibility that sensitive information has been accessed, publicly disclosed, lost or stolen.

We have cybersecurity technologies, processes and practices that are designed to protect networks, computers, programs and data from attack, damage or unauthorized access, but we cannot assure you that they will be effective or will work as designed. Our cybersecurity is continuously reviewed, maintained and upgraded in response to possible security breach incidents. Notwithstanding these measures, a cyber attack could compromise our networks and data centers and/or result in access, disclosure, or other loss of information, which could result in legal claims or proceedings, investigations, potential liabilities under laws that protect the privacy of personal information, delays and impediments to our discovery and development efforts, damage to our reputation and a negative impact on our financial results.

Our proprietary rights may not adequately protect our technologies and product candidates.

Our commercial success will depend in part on our ability to obtain additional patents and protect our existing patent position as well as our ability to maintain adequate protection of other intellectual property for our technologies, product candidates, and any future products in the United States and other countries. If we do not adequately protect our intellectual property, competitors may be able to use our technologies and erode or negate any competitive advantage we may have, which could harm our business and ability to achieve profitability. The laws of some foreign countries do not protect our proprietary rights to the same extent or in the same manner as U.S. laws, and we may encounter significant problems in protecting and defending our proprietary rights in these countries. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary technologies, product candidates and any future products are covered by valid and enforceable patents or are effectively maintained as trade secrets.

We apply for patents covering both our technologies and product candidates, as we deem appropriate. However, we may fail to apply for patents on important technologies or product candidates in a timely fashion, or at all. The existing patent rights that we own or license, and any future patents rights, may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products and technologies. We cannot be certain that patent applications will be approved or that any patents issued will adequately protect our or our licensors' intellectual property. With respect to PSMA 617 and CAR T-Cell therapies, for example, patents have yet to issue and the patents may not issue at all, or if they do issue, they may be challenged. In addition, we often do not ultimately control the patent prosecution of subject matter that we license from others, including those licensed from Purdue Research Foundation, a non-profit organization which manages the intellectual property of Purdue University. In addition, we have licensed intellectual property from other third parties, such as ABX, where we were not involved in preparing, drafting or filing the patent applications. Accordingly, we are unable to exercise the same degree of control

over this intellectual property as we would over our own and would need to involve such third parties in legal proceedings to enforce these intellectual property rights. Moreover, the patent positions of biopharmaceutical companies are highly uncertain and involve complex legal and factual questions for which important legal principles are often evolving and remain unresolved. As a result, the validity and enforceability of patents cannot be predicted with certainty. In addition, we do not know whether:

· we or our licensors were the first to make the inventions covered by each of our issued patents and pending patent applications;

Table of Contents

- we or our licensors were the first to file patent applications for these inventions;
- any of our product candidates will be Orange Book eligible;
- others will independently develop similar or alternative technologies or duplicate any of our technologies;
- any of our or our licensors' pending patent applications will result in issued patents;
- any of our or our licensors' patents will be valid or enforceable;
- any patents issued to us or our licensors and collaboration partners will provide us with any competitive advantages, or will be challenged by third parties;
- we will develop additional proprietary technologies that are patentable;
- the U.S. government will exercise any of its statutory rights to our intellectual property that was developed with government funding; or
- our business may infringe the patents or other proprietary rights of others.

The actual protection afforded by a patent varies based on products or processes, from country to country and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory related extensions, the availability of legal remedies in a particular country, the validity and enforceability of the patent and the financial ability of us or a third party to enforce the patent and other intellectual property. Our ability to maintain and solidify our proprietary position for our products will depend on our success in obtaining effective claims and enforcing those claims once granted. Our issued patents and those that may issue in the future, or those licensed to us, may be challenged, narrowed, invalidated or circumvented, and the rights granted under any issued patents may not provide us with proprietary protection or competitive advantages against competitors with similar products. Due to the extensive amount of time required for the development, testing and regulatory review of a potential product, it is possible that, before any of our product candidates can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of the patent.

We also rely upon unpatented proprietary know-how and continuing technological innovation and other trade secrets in connection with the development of our technologies and product candidates. While it is our policy to enter into agreements imposing confidentiality obligations upon our employees and third parties, including our collaboration partners, to protect our intellectual property, these confidentiality obligations may be breached, may not provide meaningful protection for our trade secrets or proprietary know-how, or adequate remedies may not be available in the event of an unauthorized access, use or disclosure of our trade secrets and know-how. In addition, others could obtain knowledge of our trade secrets through independent development or other access by legal means. Further, non-U.S. courts are sometimes less willing than U.S. courts to protect trade secrets.

The failure of patent rights or confidentiality agreements to protect our processes, technology, trade secrets or proprietary know-how or the failure of adequate legal remedies for related actions could have a material adverse effect on our business, results of operations, financial condition and liquidity.

The intellectual property protection for our product candidates is dependent on third parties.

While we do have the right and responsibility under the License Agreement to control the prosecution and maintenance of the patent rights covering PSMA 617, we are subject to certain consent and cooperation obligations to ABX and/or the owners of the patent rights. With respect to patent applications relating to our product candidates that incorporate patents licensed from Purdue Research Foundation, the right and obligation to prosecute and maintain the patents and patent applications covered by these license agreements are generally retained by Purdue Research Foundation. Generally, we do not have the right to prosecute and maintain such patents in our territories, unless Purdue

Table of Contents

Research Foundation elects not to file, prosecute or maintain any or all of such patents, however, our most recent master license agreement for future potential technology provides us lead prosecution responsibility. We would need to determine, with our other potential partners, who would be responsible for the prosecution of patents relating to any joint inventions. If any of our licensing partners who maintain such rights fail to appropriately prosecute and maintain patent protection for any of our product candidates, our ability to develop and commercialize those product candidates may be adversely affected and we may not be able to prevent competitors from making, using and selling competing products.

If we breach any of the agreements under which we license commercialization rights to our product candidates or technology from third parties, we could lose license rights that are important to our business.

We license the use, development and commercialization rights for some of our product candidates, and we expect to enter into similar licenses in the future. For example, we licensed exclusive worldwide rights from ABX and Purdue Research Foundation, pursuant to license agreements, which enables us to use PSMA 617 and adaptor controlled CAR T-Cell therapies, respectively, in the treatment of cancer. Under these licenses, we are subject to development and commercialization obligations, diligence obligations, sublicense revenue sharing requirements, royalty payments, and other obligations. If we fail to comply with any of these obligations or otherwise breach a license agreement or any other current or future licenses, our licensing partners may have the right to terminate the license in whole or in part or to terminate the exclusive nature of the license. In addition, if ABX fails to comply with its obligations under its license agreement with the owners of the patent rights covering PSMA 617, our rights under the License Agreement with ABX could be materially impaired. The loss of any current or future licenses or the exclusivity rights provided therein would materially harm our financial condition and operating results.

The patent protection for our product candidates may expire before we are able to maximize their commercial value, which may subject us to increased competition and reduce or eliminate our opportunity to generate product revenue.

The patents for our product candidates have varying expiration dates and, if these patents expire, we may be subject to increased competition and we may not be able to recover our development costs or market any of our approved products profitably. In some of the larger potential market territories, such as the United States and Europe, patent term extension or restoration may be available to compensate for time taken during aspects of the product's development and regulatory review. However, we cannot be certain that such an extension will be granted, or if granted, what the applicable time period or the scope of patent protection afforded during any extension period will be. In addition, even though some regulatory authorities may provide some other exclusivity for a product under their own laws and regulations, we may not be able to qualify the product or obtain the exclusive time period. If we are unable to obtain patent term extension/restoration or some other exclusivity, we could be subject to increased competition and our opportunity to establish or maintain product revenue could be substantially reduced or eliminated. Furthermore, we may not have sufficient time to recover our development costs prior to the expiration of patents.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on all of our product candidates throughout the world would be prohibitively expensive. Competitors may use our technologies in jurisdictions where there is no patent protection for our product candidates to develop their own products and further, may export otherwise infringing products to territories where there is patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have rights to any issued patents and our patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult to stop the infringement of the patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

Table of Contents

If we are sued for infringing intellectual property rights of third parties, litigation will be costly and time-consuming and could prevent us from developing or commercializing our product candidates.

Our commercial success depends, in part, on our not infringing the patents and proprietary rights of other parties and not breaching any collaboration or other agreements we have entered into with regard to our technologies and product candidates. Numerous third-party U.S. and non-U.S. issued patents and pending applications exist in the areas of targeted therapy and targeted diagnostics, including radioligand therapeutics, cytotoxic agents and other active compounds and formulations comprising such compounds.

Because patent applications can take several years to issue, if they are issued at all, there may currently be pending applications, unknown to us, that may result in issued patents that cover our technologies or product candidates. It is uncertain whether the issuance of any third-party patent would require us to alter our products or processes, obtain licenses or cease activities related to the development or commercialization of our product candidates. If we wish to use the technology or compound claimed in issued and unexpired patents owned by others, we may need to obtain a license from the owner, enter into litigation to challenge the validity of the patents or incur the risk of litigation in the event that the owner asserts that any of our product candidates infringe its patents. The failure to obtain a license to technology or the failure to challenge an issued patent that we may require to discover, develop or commercialize our products may have a material adverse impact on us.

There is a substantial amount of litigation involving intellectual property in the biopharmaceutical industry generally. If a third party asserts that our products or technologies infringe its patents or other proprietary rights, we could face a number of risks that could seriously harm our results of operations, financial condition and competitive position, including:

- infringement and other intellectual property claims, which would be costly and time-consuming to defend, whether or not the claims have merit, and which could delay the regulatory approval process and divert management's attention from our business;
- substantial damages for past infringement, which we may have to pay if a court determines that our product candidates or technologies infringe a third party's patent or other proprietary rights;
- a court prohibiting us from selling or licensing our technologies or our product candidates unless the third party licenses its patents or other proprietary rights to us on commercially reasonable terms, which it is not required to do;
- if a license is available from a third party, we may have to pay substantial royalties or lump sum payments or grant cross-licenses to our patents or other proprietary rights to obtain that license; and
- redesigning our products so they do not infringe, which may not be possible or may require substantial monetary expenditure and time.

Although we are not currently a party to any legal proceedings relating to our intellectual property, in the future, third parties may file claims asserting that our technologies or products infringe on their intellectual property. We cannot predict whether third parties will assert these claims against us or against the current or future licensors of technology licensed to us, or whether those claims will harm our business. If we are forced to defend against these claims, whether they are with or without any merit, whether they are resolved in favor of or against us or our licensors, we may face costly litigation and diversion of management's attention and resources. As a result of these disputes, we may have to develop costly non-infringing technology, or enter into licensing agreements. These agreements, if necessary, may be unavailable on terms acceptable to us, if at all, which could seriously harm our business or financial condition.

One or more third-party patents or patent applications may conflict with patent applications to which we have rights. Any such conflict may substantially reduce the coverage of any rights that may issue from the patent applications to which we have rights. If third parties file patent applications in technologies that also claim technology to which we have

22

Table of Contents

rights, we may have to participate in interference proceedings with the U.S. Patent and Trademark Office, or USPTO, or non-U.S. patent regulatory authorities, as applicable, to determine priority of invention.

We may become involved in lawsuits to enforce patents or other intellectual property rights, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe the patents or other intellectual property rights related to our product candidates. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. To the extent such claims relate to patent rights held by our licensors, they would have to file such an infringement lawsuit since we do not have the independent right to enforce those third parties' intellectual property. In addition, in an infringement proceeding, a court may decide that a patent is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that the patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of the patents at risk of being invalidated or interpreted narrowly and could put patent applications at risk of not issuing.

Interference proceedings brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents and patent applications or those of our current or future licensors or collaborators. An unfavorable outcome could require us to cease using the technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if a prevailing party does not offer us a license on terms that are acceptable to us. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distraction of our management and other employees. We may not be able to prevent, alone or with our licensors or collaborators, misappropriation of our proprietary rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential and proprietary information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Risks Related to Ownership of Our Common Stock

The price of our common stock has been volatile and our shares may suffer a decline in value.

Since becoming a public company in February 2011, we have experienced volatility in the trading price of our common stock. Factors that could cause volatility in the market price of our common stock include, but are not limited to, the risk factors identified above as well as:

- results from, supplemental analyses of and any delays in, our current or planned clinical trials;
- announcements of approval or non-approval by any regulatory authorities of any of our product candidates, or delays in any regulatory authority review processes;
- other regulatory actions affecting us or our industry;
- litigation or public concern about the safety of our product candidates;
- failure or discontinuation of any of our research or clinical trial programs;
- withdrawal of regulatory approval applications;
- delays in the commercialization of our product candidates;

Table of Contents

- our ability to effectively partner with collaborators to develop or sell our products;
- market conditions in the pharmaceutical, biopharmaceutical and biotechnology sectors and issuance of new or changed securities analysts' reports or recommendations;
- actual and anticipated fluctuations in our quarterly operating results;
- developments or disputes concerning our intellectual property or other proprietary rights;
- introduction of technological innovations or new products by us or our competitors;
- issues in supply or manufacturing of our product candidates;
- market acceptance of our product candidates;
- deviations in our operating results from the estimates of securities analysts;
- coverage and reimbursement policies of governments and other third-party payors;
- sales of our common stock by our officers, directors or significant stockholders;
- price and volume fluctuations in the overall stock market from time to time;
- general economic conditions and trends;
- major catastrophic events;
- our ability to expand our operations, domestically and internationally, and the amount and timing of expenditures related to this expansion; and
- additions or departures of key personnel.

In addition, the stock markets in general, and the markets for biopharmaceutical, pharmaceutical and biotechnology stocks in particular, have experienced extreme volatility that has been often unrelated to the operating performance of the issuer. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action and other litigation against the issuer.

Sales of substantial amounts of our shares could adversely affect the market price of our common stock.

Sales of substantial amounts of our common stock in the public market, or the perception that these sales could occur, could cause the market price of our common stock to decline. These sales could also make it more difficult for us to raise capital by selling equity or equity-related securities in the future at a time and price that we deem appropriate.

As of October 10, 2017, there were 47,877,442 shares of our common stock outstanding. All of the outstanding shares are freely transferable without restriction under the Securities Act 1933, as amended, or the Securities Act, unless held by our "affiliates" as that term is used in Rule 144 promulgated under the Securities Act or unless issued in an unregistered offering. Such shares may be sold in the public market pursuant to Rule 144, another exemption from registration or an effective registration statement under the Securities Act.

Table of Contents

Our executive officers, directors and principal stockholders, if they choose to act together, have the ability to control all matters submitted to stockholders for approval and may take actions that may not be in the best interests of our other stockholders.

As of October 10, 2017, our executive officers, directors, stockholders who hold more than 5% of our outstanding common stock and their affiliates beneficially owned, in the aggregate, shares representing approximately 39% of our outstanding capital stock, which includes shares that the individuals and entities have the right to acquire within 60 days after October 10, 2017. As a result, if these stockholders were to act together, they would be able to control all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they act together, could control the election of directors and decisions on any merger, consolidation or sale of all or substantially all of our assets. This concentration of voting power could delay or prevent an acquisition of our company on terms that other stockholders may desire or result in management of our company with which our public stockholders disagree.

We do not intend to pay dividends on our common stock, and, consequently, your ability to achieve a return on your investment will depend on appreciation, if any, in the price of our common stock.

We have never declared or paid any cash dividend on our common stock and do not currently intend to do so for the foreseeable future. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business. In addition, any future debt financing arrangement may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Any return to stockholders will therefore be limited to the appreciation of their stock. Therefore, the success of an investment in shares of our common stock will depend upon any future appreciation in their value. There is no guarantee that shares of our common stock will appreciate in value or even maintain the price at which our stockholders have purchased their shares.

Provisions in our certificate of incorporation and bylaws and under Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Our certificate of incorporation and bylaws contain provisions that could depress the trading price of our common stock by acting to discourage, delay or prevent a change of control of our company or changes in our management that our stockholders may deem advantageous. These provisions include:

- establishing a classified board so that not all members of our Board of Directors are elected at one time;
- authorizing “blank check” preferred stock that our Board of Directors could issue to increase the number of outstanding shares to discourage a takeover attempt;
- eliminating the ability of stockholders to call a special stockholder meeting;
- eliminating the ability of stockholders to act by written consent;
- being subject to provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers;
- providing that our Board of Directors is expressly authorized to make, alter or repeal our bylaws; and
- establishing advance notice requirements for nominations for elections to our Board of Directors or for proposing other matters that can be acted upon by stockholders at stockholder meetings.

Table of Contents

If we fail to maintain proper internal controls, our ability to produce accurate financial statements or comply with applicable regulations could be impaired.

We are subject to the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, which requires management to assess and report annually on the effectiveness of internal control over financial reporting and identify any material weaknesses in internal control over financial reporting, and our independent registered public accounting firm to issue an attestation report as to the effectiveness of internal control over financial reporting.

If we identify one or more material weaknesses in our internal control over financial reporting, or if we are unable to conclude that we have effective internal control over financial reporting or if our independent auditors are unwilling or unable to provide us with an attestation report on the effectiveness of internal control over financial reporting, investors may lose confidence in our operating results, our stock price could decline and we may be subject to litigation or regulatory enforcement actions.

Our ability to use net operating losses to offset future taxable income is subject to certain limitations.

Under Section 382 of the U.S. Internal Revenue Code, or Code, a corporation that experiences a more-than 50 percent ownership change over a three-year testing period is subject to limitations on its ability to utilize its pre-change net operating losses to offset future taxable income. We experienced such an ownership change in August 2011. As a result, the future use of our net operating losses, after giving effect to net unrealized built-in gains, is currently limited to approximately $218.7 million for 2017. Any available but unused amounts will become available for use in all successive years, subject to certain limitations. Utilization of these net operating loss carryforwards would require us to generate future taxable income prior to their expiration. Furthermore, the utilization of the net operating loss carryforwards could be limited beyond our generation of taxable income if a change in the underlying ownership of our common stock has occurred, resulting in a limitation on the amounts that could be utilized in any given period under Section 382 of the Code. If not used, the net operating loss carryforwards will begin expiring in the year 2021. At December 31, 2016, we recorded a full valuation allowance against our deferred tax assets of approximately $106.7 million, as we believe it is more likely than not that the deferred tax assets will not be fully realized.

Table of Contents

CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Exchange Act. The forward looking statements involve substantial risks and uncertainties. All statements, other than statements related to present facts or current conditions or of historical facts, contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenues, and projected costs, prospects, plans and objectives of management, are forward looking statements. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “ongoing,” “plan,” “potential,” “predict,” “proj “will,” “would,” or the negative of these terms or other comparable terminology are intended to identify forward looking statements, although not all forward looking statements contain these identifying words. Any forward looking statements are qualified in their entirety by reference to the factors discussed throughout our SEC reports, and in particular those factors discussed under the heading “Risk Factors” beginning on page 7 of this prospectus and in the other documents incorporated herein by reference, as the same may be updated from time to time by our future filings under the Exchange Act.

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

Factors that could cause actual results to differ materially from those in the forward-looking statements include:

- we or our independent investigators may experience delays in the initiation or completion of clinical trials and our development programs (whether caused by competition, adverse events, patient enrollment rates, shortage of clinical trial materials, regulatory issues or other factors);
- data from prior clinical trials may not be indicative of subsequent clinical trial results;
- lack of safety and/or efficacy of our product candidates;
  - early stage pre-clinical data may not be indicative of subsequent data when expanded to additional pre-clinical models or to subsequent clinical data;
- evolving competitive activity and intellectual property landscape may impair our ability to capture value for our PSMA 617 license; and
- expectations and estimates could turn out to be incorrect, including estimates of the potential markets for our product candidates, estimates of the capacity of manufacturing and other facilities required to support our product candidates, projected cash needs, and expected future revenues, operations, expenditures and cash position.

Table of Contents

USE OF PROCEEDS

We intend to use the net proceeds from the sale of any securities offered by us for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include clinical, regulatory and product development activities, and for working capital, general and administrative expenses and other general corporate purposes. We may also use a portion of our net proceeds to acquire, invest in, or license complementary products, technologies or businesses or to make payments to ABX pursuant to the License Agreement. The amounts and timing of our expenditures will depend on numerous factors, including the scope of research and development efforts, the timing and success of our current and future clinical trials, and the timing of regulatory submissions. Accordingly, our management will have broad discretion over the use of the net proceeds from the sale of any securities offered by us.

We will not receive any proceeds from the resale of the Shares or the Warrant Shares by the selling stockholders. The Warrant is exercisable under certain circumstances on a cashless basis, and should a selling stockholder elect to exercise on a cashless basis, we will not receive any proceeds from such issuance of common stock. We cannot predict whether a holder of the Warrant will choose to exercise all or part of the Warrant, or if it will do so for cash or on a cashless basis. However, if the Warrant were exercised in full for cash, we would receive gross proceeds of approximately $1.0 million. We expect to use the proceeds received from the exercise of the Warrant, if any, for general corporate purposes.

RATIO OF EARNINGS TO FIXED CHARGES

The following table sets forth our ratio of earnings to fixed charges for the periods indicated.

	Six Months Ended	Year Ended December 31,				
	June 30, 2017	2016	2015	2014	2013	2012
Ratio of Earnings to Fixed Charges	N/A	N/A	N/A	44.7	N/A	N/A

For purposes of these ratios, (i) “earnings” consist of income before income taxes and fixed charges and (ii) “fixed charges” consist of interest expense, non-cash interest expense and an estimate of the portion of rental expense which is deemed to represent interest.

We did not record earnings for any of the fiscal years ended December 31, 2012, 2013, 2015 and 2016, or for the six months ended June 30, 2017. Accordingly, our earnings were insufficient to cover fixed charges for such periods, and we are unable to disclose a ratio of earnings to fixed charges for such periods. The dollar amount of the deficiency in earnings available for fixed charges for the fiscal years ended December 31, 2012, 2013, 2015 and 2016, and for the six months ended June 30, 2017, was approximately $17,292,000, $18,032,000, $41,270,000, $43,888,000 and $23,233,000, respectively.

SELLING STOCKHOLDERS

This prospectus covers the sale from time to time of up to 5,278,000 Shares and up to 722,000 Warrant Shares by the selling stockholders and their pledgees, donees, transferees or other successors-in-interest. None of the selling stockholders has, or within the past three years has had, any position, office or other material relationship with us.

The selling stockholders, or a predecessor in interest, acquired beneficial ownership of the Shares upon our issuance of 2,000,000 shares of our common stock when we entered into the License Agreement and upon the exercise in full

of a warrant to purchase 3,278,000 shares of our common stock, which warrant was also issued in connection with our entry into the License Agreement. The Warrant (pursuant to which 722,000 Warrant Shares are issuable) was also issued when we entered into the License Agreement, and may be exercised at any time prior to September 29, 2027 at an exercise price per share of $1.39. The selling stockholders have certain rights with respect to registration of the Shares and the Warrant Shares under the Securities Act pursuant to the terms of a registration rights agreement, or the Registration Rights Agreement, which is more fully described under “Description of Capital Stock – Registration Rights.” Pursuant to the Registration Rights Agreement, we agreed to register for resale the aggregate 6,000,000 Shares and Warrant Shares, or collectively the Registrable Securities, within 45 days of September 29, 2017.

Table of Contents

The following table sets forth the name of each selling stockholder, the number of shares of our common stock beneficially owned by each of the respective selling stockholders as of October 11, 2017, the number of shares that may be offered under this prospectus and the number and percentage of shares owned by the selling stockholders assuming all of the Registrable Securities are sold. Beneficial ownership is determined in accordance with Section 13(d) of the Exchange Act and generally includes voting or investment power with respect to the securities and includes any securities that grant the selling stockholder the right to acquire shares of our common stock within 60 days of October 11, 2017. The number of shares in the column "Number of Shares Being Offered" represents all of the shares of our common stock that a selling stockholder may offer under this prospectus. The selling stockholders may sell some, all or none of the Registrable Securities. We do not know how long the selling stockholders will hold the Registrable Securities before selling them, and we currently have no agreements, arrangements or understandings with the selling stockholders regarding the sale or other disposition of any of the Registrable Securities, except the Registration Rights Agreement. The Registrable Securities may be offered from time to time by the selling stockholders.

The information set forth below is based upon information obtained from the selling stockholders.

Name of Beneficial Owner	Shares of Common Stock Beneficially Owned Prior to Offering	Number of Shares Being Offered	Shares of Common Stock Owned After Offering		
			Number	Percent	
Cambridge Isotope Laboratories, Inc. (1) (2)	2,722,000	2,722,000	—	—	%
ABX advanced biochemical compounds – Biomedizinische Forschungsreagenzien GmbH (2)	2,000,000	2,000,000	—	—	%
Peter Moll, PhD(3)	2,614,000	2,400,000	214,000	*	
Joel Bradley, PhD(4)	400,000	400,000	—	—	%
Peter Dodwell(5)	3,022,000	3,022,000	—	—	%
Maureen Duffy Abber(6)	350,000	350,000	—	—	%
Steven Igo(7)	50,000	50,000	—	—	%

*Less than 1%.

(1) Includes (i) 722,000 Warrant Shares issuable upon the exercise of the Warrant held by Cambridge Isotope Laboratories, Inc., or Cambridge, and (ii) 2,000,000 Shares held by ABX. Of the 722,000 Warrant Shares issuable upon the exercise of the Warrant held by Cambridge, Cambridge has agreed to transfer up to 500,000 Warrant Shares to Mr. Dodwell, up to 197,000 Warrant Shares to Ms. Abber, and up to 25,000 Warrant Shares to Mr. Igo, subject to each individual providing payment to Cambridge of the exercise price for their respective Warrant Shares at the time of such transfer. Such transfers are expected to occur at agreed upon intervals more than 60 days after October 11, 2017, but could be accelerated upon a change of control of Cambridge or the termination for any reason of such individuals' employment with Cambridge. Mr. Dodwell, in his capacity as President of Cambridge, has shared voting power with respect to the securities held by Cambridge.

(2) Cambridge owns all of the outstanding equity securities of ABX and has shared voting and sole investment power with respect to our securities held by ABX. Mr. Dodwell, in his capacity as President of Cambridge, also has shared voting power with respect to the securities held by ABX.

(3) Includes (i) 2,400,000 Shares held by Dr. Moll, the Managing Director of ABX, which are being registered pursuant to the registration statement of which this prospectus is a part, and (ii) 214,000 shares of our common

stock purchased in open market transactions.

(4) Consists of 400,000 Shares held by Dr. Bradley, the Chief Executive Officer of Cambridge.

(5) Includes (i) 722,000 Warrant Shares issuable upon the exercise of the Warrant held by Cambridge, (ii) 2,000,000 Shares held by ABX, and (iii) 300,000 Shares held by Mr. Dodwell. Mr. Dodwell, in his capacity as President of Cambridge, has shared voting power with respect to our securities held directly or indirectly by Cambridge. In addition, Mr. Dodwell has the right to acquire 500,000 of the Warrant Shares as described in Footnote 1 above. Mr. Dodwell disclaims beneficial ownership of the 2,000,000 Shares held by ABX and 222,000 of the Warrant Shares issuable upon the exercise of the Warrant held by Cambridge, as he only has the right to vote with respect to those shares in his capacity as President of Cambridge and does not expect to acquire any other rights to such shares.

(6) Includes (i) 197,000 Warrant Shares that Ms. Abber has the right to acquire (as described in Footnote 1 above), and (ii) 153,000 Shares held by Ms. Abber. Ms. Abber is Cambridge’s Vice President of Sales and Marketing.

Table of Contents

(7) Includes (i) 25,000 Warrant Shares that Mr. Igo has the right to acquire (as described in Footnote 1 above), and (ii) 25,000 Shares held by Mr. Igo. Mr. Igo is Cambridge's Vice President of Finance.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is not complete and may not contain all the information you should consider before investing in our capital stock. This description is summarized from, and qualified in its entirety by reference to, our amended and restated certificate of incorporation and amended and restated bylaws, copies of which are incorporated by reference as exhibits to the registration statement of which this prospectus is a part.

Authorized Capital Stock

Our authorized capital stock consists of 100,000,000 shares of common stock, par value $0.001 per share, and 10,000,000 shares of preferred stock, par value $0.001 per share. As of October 10, 2017, we had 47,877,442 shares of common stock outstanding and no shares of preferred stock outstanding.

Common Stock

Voting Rights and Election of Directors

Except as otherwise provided by law or by resolution adopted by the board of directors designating the rights, powers and preferences of any series of preferred stock, holders of our common stock have the exclusive right to vote for the election of directors and for all other purposes. All shares of common stock are entitled to one vote per share and do not have any cumulative voting rights.

An election of directors by our stockholders is determined by a plurality of the votes cast by the stockholders entitled to vote in the election. Except as otherwise required by our amended and restated certificate of incorporation, other matters are decided by the affirmative vote of a majority of the shares of common stock represented at a meeting and entitled to vote on the subject matter. Our directors may be removed by our stockholders only for cause.

Dividends

Subject to the rights, if any, of the holders of any outstanding series of preferred stock, holders of our common stock are entitled to receive dividends out of any of our funds legally available when, as and if declared by the board of directors.

Registration Rights

The Registration Rights Agreement requires us to register for resale under the Securities Act the aggregate 6,000,000 Registrable Securities within 45 days of September 29, 2017. After registration pursuant to these rights, the Registrable Securities will become freely tradable without restriction under the Securities Act.

The Registration Rights Agreement also requires us to use our commercially reasonable efforts to maintain the effectiveness of the registration statement until the earlier of the time when (i) none of the Registrable Securities are owned by ABX or a subsequent holder to whom the registration rights thereunder were assigned, which we hereinafter refer to as a Holder, or (ii) all of the Registrable Securities are freely tradable, without restriction, pursuant to Rule 144 under the Securities Act. In any registration made pursuant to the Registration Rights Agreement, all fees, costs and expenses of registrations will be borne by us, and all underwriting, broker or similar fees or commissions of any Holder will be borne by such Holder.

Under the Registration Rights Agreement, Holders are also entitled to certain piggyback registration rights. If we register any of our securities for our own account for purposes of a public offering, Holders are entitled to include their Registrable Securities in the registration upon written notice made within seven days after notice of such registration is

Table of Contents

given by us. Both we and the underwriters of any underwritten offering have the right to limit the number of shares registered by these Holders for marketing reasons, subject to limitations set forth in the Registration Rights Agreement.

The foregoing summary of the Registration Rights Agreement is qualified in its entirety by reference to the Registration Rights Agreement, a copy of which is incorporated by reference as an exhibit to the registration statement of which this prospectus is a part.

Other Rights and Preferences

Holders of common stock have no preemptive or conversion rights or other subscription rights.

Liquidation

Upon our liquidation, dissolution or winding-up, the holders of common stock would be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and the satisfaction of any liquidation preferences granted to the holders of outstanding shares of preferred stock.

Fully Paid and Non-Assessable

All outstanding shares of common stock are fully paid and non-assessable.

Listing

Our common stock is listed on The NASDAQ Global Market under the symbol “ECYT.” On October 11, 2017, the closing price for our common stock, as reported on The NASDAQ Global Market, was $4.83 per share.

Transfer Agent

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Preferred Stock

Our amended and restated certificate of incorporation provides that we may issue up to 10,000,000 shares of preferred stock in one or more series as may be determined by our board of directors. Our board of directors has broad discretionary authority with respect to the rights of any new series of preferred stock and may establish the following with respect to the shares in each series, without any vote or action of the stockholders:

- the number of shares;
- the designations, powers, preferences and relative participation, optional or other rights, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences; and
- any qualifications, limitations or restrictions.

We believe that the ability of our board of directors to issue one or more series of preferred stock provides us with flexibility in structuring possible future financings and acquisitions, and in meeting other corporate needs that may arise. The authorized shares of preferred stock, as well as authorized and unissued shares of common stock, are available for issuance without action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange or automated quotation system on which our securities may be listed or traded.

Our board of directors may authorize, without stockholder approval, the issuance of preferred stock with voting and conversion rights that could adversely affect the voting power and other rights of holders of common stock. Although our board of directors has no current intention of doing so, it could issue a series of preferred stock that could, depending

Table of Contents

on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt of our company. Our board of directors could also issue preferred stock having terms that could discourage an acquisition attempt through which an acquiror may be able to change the composition of our board of directors, including a tender offer or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which stockholders might receive a premium for their stock over the then-current market price. Any issuance of preferred stock therefore could have the effect of decreasing the market price of our common stock.

Anti Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

Delaware Law

We are subject to Section 203 of the Delaware General Corporation Law. Section 203 generally prohibits a public Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (but not the outstanding voting stock owned by the interested stockholder) (a) shares owned by persons who are directors and also officers and (b) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation having the effect of increasing the proportionate share of the stock owned by the interested stockholder, subject to exceptions; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person (i) who, together with affiliates and associates, owns 15% or more of a corporation’s voting stock or (ii) who is an affiliate of the corporation and owned, together with affiliates and associates, 15% or more of the corporation’s voting stock within three years prior to the determination of interested stockholder status.

A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted

Table of Contents

out of, and do not currently intend to opt out of, this provision. The statute could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us.

Certificate of Incorporation and Bylaws

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws may delay or discourage transactions involving an actual or potential change in control of our company or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change in control;
- provide that the authorized number of directors may be changed by resolution of the board of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- provide that our stockholders may only remove a director for cause;
- provide that a special meeting of stockholders may be called only by our chief executive officer, our president (in the absence of a chief executive officer), the chairperson of our board of directors or by our board of directors;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that our bylaws may be amended or repealed by our board of directors or the affirmative vote of the holders of at least two-thirds of the votes that all our stockholders would be entitled to cast in an election of directors;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner, and also specify requirements as to the form and content of a stockholder's notice; and
- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose).

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, and the addition of a provision permitting cumulative voting, would require approval by holders of at least two-thirds in voting power of the outstanding shares of stock entitled to vote thereon.

DESCRIPTION OF DEBT SECURITIES

This section describes the general terms and provisions of our debt securities, which could be senior debt securities or subordinated debt securities. A prospectus supplement will describe the specific terms of the debt securities offered through that prospectus supplement and any general terms outlined in this section that will not apply to those debt securities.

Table of Contents

The senior debt securities will be issued under an indenture, referred to herein as the "senior indenture," between us and the trustee named in the applicable prospectus supplement. The subordinated debt securities will be issued under an indenture, referred to herein as the "subordinated indenture," between us and the trustee named in the applicable prospectus supplement.

We have summarized the anticipated material terms and provisions of the senior and subordinated indentures in this section. We have also filed the form of the indentures summarized in this section as exhibits to the registration statement of which this prospectus is a part. You should read the applicable indenture for additional information before you buy any debt securities. The summary that follows includes references to section numbers of the indentures so that you can more easily locate these provisions.

General

The debt securities will be our direct unsecured obligations. Neither of the indentures limits the amount of debt securities that we may issue. Both indentures permit us to issue debt securities from time to time and debt securities issued under an indenture will be issued as part of a series that has been established by us under such indenture. (Section 301)

The senior debt securities will be unsecured and will rank equally with all of our other unsecured unsubordinated debt. The subordinated debt securities will be unsecured and will rank equally with all of our other subordinated debt securities and, together with such other subordinated debt securities, will be subordinated to all of our existing and future Senior Debt (as defined below). See "—Subordination" below.

The debt securities are our unsecured senior or subordinated debt securities, as the case may be, but our assets include equity in our subsidiaries. As a result, our ability to make payments on our debt securities may depend in part on our receipt of dividends, loan payments and other funds from our subsidiaries. In addition, if any of our subsidiaries becomes insolvent, the direct creditors of that subsidiary will have a prior claim on its assets. Our rights and the rights of our creditors, including your rights as an owner of our debt securities, will be subject to that prior claim, unless we are also a direct creditor of that subsidiary. This subordination of creditors of a parent company to prior claims of creditors of its subsidiaries is commonly referred to as structural subordination.

Unless otherwise specified in the applicable prospectus supplement, we may, without the consent of the holders of a series of debt securities, issue additional debt securities of that series having the same ranking and the same interest rate, maturity date and other terms (except for the price to public and issue date) as such debt securities. Any such additional debt securities, together with the initial debt securities, will constitute a single series of debt securities under the applicable indenture. No additional debt securities of a series may be issued if an event of default under the applicable indenture has occurred and is continuing with respect to that series of debt securities.

A prospectus supplement relating to a series of debt securities being offered will include specific terms relating to the offering. (Section 301) These terms will include some or all of the following:

- the title and type of the debt securities;
- any limit on the total principal amount of the debt securities of that series;
- the price at which the debt securities will be issued;
- the date or dates on which the principal of and premium, if any, on the debt securities will be payable;
- the maturity date or dates of the debt securities or the method by which those dates can be determined;
- if the debt securities will bear interest:

Table of Contents

- the interest rate on the debt securities or the method by which the interest rate may be determined;
- the date from which interest will accrue;
- the record and interest payment dates for the debt securities; and
- the first interest payment date;
- the place or places where:
- we can make payments on the debt securities;
- the debt securities can be surrendered for registration of transfer or exchange; and
- notices and demands can be given to us relating to the debt securities and under the applicable indenture;
- any optional redemption provisions that would permit us to elect redemption of the debt securities, or the holders of the debt securities to elect repayment of the debt securities, before their final maturity;
- any sinking fund provisions that would obligate us to redeem the debt securities before their final maturity;
- whether the debt securities will be convertible and, if so, the terms and conditions of any such conversion;
- if the debt securities will be issued in bearer form, the terms and provisions contained in the bearer securities and in the applicable indenture specifically relating to the bearer securities;
- whether all or part of the debt securities will not be issued as permanent global securities and the extent to which the description of the book-entry procedures described below under "—Book-Entry, Delivery and Form" will not apply to such global securities—a "global security" is a debt security that we issue in accordance with the applicable indenture to represent all or part of a series of debt securities;
- whether all or part of the debt securities will be issued in whole or in part as temporary global securities and, if so, the depositary for those temporary global securities and any special provisions dealing with the payment of interest and any terms relating to the ability to exchange interests in a temporary global security for interests in a permanent global security or for definitive debt securities;
- whether any additional amounts will be payable;
- the denominations of the debt securities, if other than $1,000 and any integral multiple thereof for registered securities, and $5,000 for bearer securities;
- any portion of the principal amount of debt securities that shall be payable upon acceleration;
- the currency or currencies in which the debt securities will be denominated and payable, if other than U.S. dollars and, if a composite currency, any special provisions relating thereto;
- any circumstances under which the debt securities may be paid in a currency other than the currency in which the debt securities are denominated and the manner in which the exchange rate shall be determined;
- whether the provisions described below under the heading "—Defeasance" will not apply to the debt securities;

Table of Contents

- any events of default that will apply to the debt securities in addition to those contained in the applicable indenture;
- any additions or changes to the covenants contained in the applicable indenture and the ability, if any, of the holders to waive our compliance with those additional or changed covenants;
- the identity of the trustee, security registrar and paying agent for the debt securities;
- any material tax implications of the debt securities;
- any special provisions relating to the payment of any additional amounts on the debt securities; and
- any other terms of the debt securities.

When we use the term "holder" in this prospectus with respect to a registered debt security, we mean the person in whose name such debt security is registered in the security register. (Section 101)

Exchange and Transfer

At the option of the holder, any debt securities of a series can be exchanged for other debt securities of that series so long as the other debt securities are denominated in authorized denominations and have the same aggregate principal amount and same terms as the debt securities that were surrendered for exchange, subject to limitations with respect to bearer securities in global form. The debt securities may be presented for registration of transfer, duly endorsed or accompanied by a satisfactory written instrument of transfer, at the office or agency maintained by us for that purpose in any place of payment that we may designate. However, holders of global securities may transfer and exchange global securities only in the manner and to the extent set forth under "—Book-Entry, Delivery and Form" below. There will be no service charge for any registration of transfer or exchange of the debt securities, but we may require holders to pay any tax or other governmental charge payable in connection with a transfer or exchange of the debt securities. (Sections 305, 1002) If the applicable prospectus supplement refers to any office or agency, in addition to the security registrar, initially designated by us where holders can surrender the debt securities for registration of transfer or exchange, we may at any time rescind the designation of any such office or agency or approve a change in the location. However, we will be required to maintain an office or agency in each place of payment for that series. (Section 1002)

We will not be required to:

- issue, register the transfer of or exchange debt securities to be redeemed for a period of 15 calendar days preceding the mailing of the relevant notice of redemption; or
- register the transfer of or exchange any registered debt security selected for redemption, in whole or in part, except the unredeemed or unpaid portion of that registered debt security being redeemed in part. (Section 305)

Interest and Principal Payments

Payments. Holders may present debt securities for payment of principal, premium, if any, and interest, if any, register the transfer of the debt securities and exchange the debt securities at the agency maintained by us for such purpose and identified in the applicable prospectus supplement. We refer to the applicable trustee acting in the capacity of a paying agent for the debt securities as the "paying agent."

Any money that we pay to the paying agent for the purpose of making payments on the debt securities and that remains unclaimed two years after the payments were due will, at our request, be returned to us and after that time any holder of a debt security can only look to us for the payments on the debt security. (Section 1003)

Table of Contents

Recipients of Payments. The paying agent will pay interest to the person in whose name the debt security is registered at the close of business on the applicable record date. However, upon maturity, redemption or repayment, the paying agent will pay any interest due to the person to whom it pays the principal of the debt security. The paying agent will make the payment on the date of maturity, redemption or repayment, whether or not that date is an interest payment date. An "interest payment date" for any debt security means a date on which, under the terms of that debt security, regularly scheduled interest is payable. (Section 307, 1003)

Book-Entry Debt Securities. The paying agent will make payments of principal, premium, if any, and interest, if any, to the account of The Depository Trust Company, referred to herein as "DTC," or other depositary specified in the applicable prospectus supplement, as holder of book-entry debt securities, by wire transfer of immediately available funds. The "depositary" means the depositary for global securities issued under the applicable indenture and, unless provided otherwise in the applicable prospectus supplement, means DTC. We expect that the depositary, upon receipt of any payment, will immediately credit its participants' accounts in amounts proportionate to their respective beneficial interests in the book-entry debt securities as shown on the records of the depositary. We also expect that payments by the depositary's participants to owners of beneficial interests in the book-entry debt securities will be governed by standing customer instructions and customary practices and will be the responsibility of those participants.

Certificated Debt Securities. Except as indicated below for payments of interest at maturity, redemption or repayment, the paying agent will make payments of interest either:

- by check mailed to the address of the person entitled to payment as shown on the security register; or
- by wire transfer to an account designated by a holder, if the holder has given written notice not later than 10 calendar days prior to the applicable interest payment date. (Section 307)

Redemption and Repayment of Debt Securities

Optional Redemption by Us. If applicable, the prospectus supplement will indicate the terms of our option to redeem the debt securities. We will mail a notice of redemption to each holder which, in the case of global securities, will be the depositary, as holder of the global securities, by first-class mail, postage prepaid, at least 30 days and not more than 60 days prior to the date fixed for redemption, or within the redemption notice period designated in the applicable prospectus supplement, to the address of each holder as that address appears upon the books maintained by the security registrar. (Section 1104)

A partial redemption of the debt securities may be effected by such method as required by us, the registrar or the trustee, and may provide for the selection for redemption of a portion of the principal amount of debt securities held by a holder equal to an authorized denomination. (Section 1107) If we redeem less than all of the debt securities and the debt securities are then held in book-entry form, the redemption will be made in accordance with the depositary's customary procedures. We have been advised that it is DTC's practice to determine by the lot the amount of each participant in the debt securities to be redeemed.

Unless we default in the payment of the redemption price, on and after the redemption date interest will cease to accrue on the debt securities called for redemption.

Repayment at Option of Holder. If applicable, the prospectus supplement relating to a series of debt securities will indicate that the holder has the option to have us repay a debt security of that series on a date or dates specified prior to its stated maturity date. Unless otherwise specified in the applicable prospectus supplement, the repayment price will be equal to 100% of the principal amount of the debt security, together with accrued interest to the date of repayment.

Each holder desiring to exercise such holder's option for repayment shall surrender the debt security to be repaid, together with written notice of the exercise, at least 30 days but not more than 45 days prior to the repayment date, at any of our offices or agencies in a place of payment, setting forth the principal amount of the debt security, the principal amount of the debt security to be repaid, and in the case of partial repayment, shall specify the denomination or

Table of Contents

denominations of the debt securities of the same series and the portion of the principal amount which is not to be repaid. (Section 1303)

Exercise of the repayment option by the holder of a debt security will be irrevocable. The holder may exercise the repayment option for less than the entire principal amount of the debt security but, in that event, the principal amount of the debt security remaining outstanding after repayment must be an authorized denomination. (Section 1303)

If a debt security is represented by a global security, the depositary or the depositary's nominee will be the holder of the debt security and therefore will be the only entity that can exercise a right to repayment. In order to ensure that the depositary's nominee will timely exercise a right to repayment of a particular debt security, the beneficial owner of the debt security must instruct the broker or other direct or indirect participant through which it holds an interest in the debt security to notify the depositary of its desire to exercise a right to repayment. Different firms have different cut-off times for accepting instructions from their customers and, accordingly, each beneficial owner should consult the broker or other direct or indirect participant through which it holds an interest in a debt security in order to ascertain the cut-off time by which an instruction must be given in order for timely notice to be delivered to the depositary.

We may purchase debt securities at any price in the open market or otherwise. Debt securities so purchased by us may, at our discretion, be held or resold or surrendered to the applicable trustee for cancellation.

Denominations

Unless we state otherwise in the applicable prospectus supplement, the debt securities may be issued in registered form in denominations of $1,000 each and integral multiples of $1,000 in excess thereof, or in bearer form in denominations of $5,000. (Section 302)

Consolidation, Merger or Sale

Each of the indentures permits a consolidation or merger between us and another entity, subject to certain conditions. They also permit the sale or transfer by us of all or substantially all of our property and assets. These transactions are permitted if:

- the resulting or acquiring entity, if other than us, is organized and existing under the laws of a domestic jurisdiction and assumes all of our responsibilities and liabilities under the applicable indenture, including the payment of all amounts due on the debt securities and performance of the covenants in the applicable indenture; and
- immediately after giving effect to the transaction, no event of default under the applicable indenture exists. (Section 801)

If we consolidate or merge with or into any other entity or sell or lease all or substantially all of our assets according to the terms and conditions of the indentures, the resulting or acquiring entity will be substituted for us in the indentures with the same effect as if it had been an original party to the indentures. As a result, such successor entity may exercise our rights and powers under the indentures, in our name and, except in the case of a lease of all or substantially all of our properties, we will be released from all our liabilities and obligations under the indentures and under the debt securities. (Section 802)

Modification and Waiver

Under each of the indentures, certain of our rights and obligations and certain of the rights of holders of the debt securities may be modified or amended with the consent of the holders of at least a majority of the aggregate principal amount of the outstanding debt securities of all series of debt securities affected by the modification or amendment,

38

Table of Contents

acting as one class. However, the following modifications and amendments will not be effective against any holder without its consent:

- a change in the stated maturity date of any payment of principal or interest;
- a reduction in payments due on the debt securities;
- a change in the place of payment or currency in which any payment on the debt securities is payable;
- a limitation of a holder's right to sue us for the enforcement of payments due on the debt securities;
- a reduction in the percentage of outstanding debt securities required to consent to a modification or amendment of the applicable indenture or required to consent to a waiver of compliance with certain provisions of the applicable indenture or certain defaults under the applicable indenture;
- a reduction in the requirements contained in the applicable indenture for quorum or voting;
- a limitation of a holder's right, if any, to repayment of debt securities at the holder's option; and
- a modification of any of the foregoing requirements contained in the applicable indenture. (Section 902)

Under each of the indentures, the holders of at least a majority of the aggregate principal amount of the outstanding debt securities of all series of debt securities affected by a particular covenant or condition, acting as one class, may, on behalf of all holders of such series of debt securities, waive compliance by us with any covenant or condition contained in the applicable indenture unless we specify that such covenant or condition cannot be so waived at the time we establish the series.

In addition, under each of the indentures, the holders of a majority in aggregate principal amount of the outstanding debt securities of any series of debt securities may, on behalf of all holders of that series, waive any past default under the applicable indenture, except:

- a default in the payment of the principal of or any premium or interest on any debt securities of that series; or
- a default under any provision of the applicable indenture which itself cannot be modified or amended without the consent of the holders of each outstanding debt security of that series. (Section 513)

Events of Default

Unless otherwise specified in the applicable prospectus supplement, an "event of default," when used in the senior indenture or the subordinated indenture with respect to any series of debt securities issued thereunder, means any of the following:

- failure to pay interest on any debt security of that series for 30 days after the payment is due;
- failure to pay the principal of or any premium on any debt security of that series when due;
- failure to deposit any sinking fund payment on debt securities of that series when due;
- failure to perform any other covenant in the applicable indenture that applies to debt securities of that series for 90 days after we have received written notice of the failure to perform in the manner specified in the applicable indenture;

Table of Contents

- certain events in bankruptcy, insolvency or reorganization; or
- any other event of default that may be specified for the debt securities of that series when that series is created. (Section 501)

If an event of default for any series of debt securities occurs and continues, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of the series may declare the entire principal of all the debt securities of that series to be due and payable immediately. If such a declaration occurs, the holders of a majority of the aggregate principal amount of the outstanding debt securities of that series can, subject to conditions, rescind the declaration. (Sections 502, 513)

Each of the indentures requires us to file an officers' certificate with the applicable trustee each year that states, to the knowledge of the certifying officers, whether or not any defaults exist under the terms of the applicable indenture. (Section 1005) The applicable trustee may withhold notice to the holders of debt securities of any default, except defaults in the payment of principal, premium, interest or any sinking fund installment, if it considers the withholding of notice to be in the interest of the holders. For purposes of this paragraph, "default" means any event which is, or after notice or lapse of time or both would become, an event of default under the applicable indenture with respect to the debt securities of the applicable series. (Section 602)

Other than its duties in the case of a default, a trustee is not obligated to exercise any of its rights or powers under the applicable indenture at the request, order or direction of any holders, unless the holders offer that trustee security or indemnity satisfactory to the trustee. (Sections 601, 603) If satisfactory indemnification is provided, then, subject to other rights of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series may, with respect to the debt securities of that series, direct the time, method and place of:

- conducting any proceeding for any remedy available to the trustee; or
- exercising any trust or power conferred upon the trustee. (Sections 512, 601)

The holder of a debt security of any series will have the right to begin any proceeding with respect to the applicable indenture or for any remedy only if:

- the holder has previously given the trustee written notice of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made a written request of, and offered reasonable indemnification to, the trustee to begin such proceeding;
- the trustee has not started such proceeding within 60 days after receiving the request; and
- the trustee has not received directions inconsistent with such request from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series during those 60 days. (Section 507)

However, the holder of any debt security will have an absolute right to receive payment of principal of and any premium and interest on the debt security when due and to institute suit to enforce this payment, subject to limitations with respect to subordinated debt securities.

Defeasance

Defeasance and Discharge. At the time that we establish a series of debt securities under the applicable indenture, we can provide that the debt securities of that series are subject to the defeasance and discharge provisions of that

Table of Contents

indenture. Unless we specify otherwise in the applicable prospectus supplement, the debt securities offered thereby will be subject to the defeasance and discharge provisions of the applicable indenture, and we will be discharged from our obligations on the debt securities of that series if:

- we deposit with the applicable trustee, in trust, sufficient money or, if the debt securities of that series are denominated and payable in U.S. dollars only, Eligible Instruments, to pay the principal, any interest, any premium and any other sums due on the debt securities of that series, such as sinking fund payments, on the dates the payments are due under the applicable indenture and the terms of the debt securities;
- we deliver to the applicable trustee an opinion of counsel that states that the holders of the debt securities of that series will not recognize income, gain or loss for federal income tax purposes as a result of the deposit and will be subject to federal income tax on the same amounts and in the same manner and at the same times as would have been the case if no deposit, defeasance and discharge had been made; and
- if the debt securities of that series are listed on any domestic or foreign securities exchange, the debt securities will not be delisted as a result of the deposit. (Section 403)

When we use the term “Eligible Instruments” in this section, we mean monetary assets, money market instruments and securities that are payable in U.S. dollars only and essentially risk free as to collection of principal and interest, including:

- monetary assets, money market instruments and securities that are payable in U.S. dollars only and essentially risk free as to collection of principal and interest; or
- direct obligations of the United States for the payment of which its full faith and credit is pledged, or obligations of a person controlled or supervised by and acting as an agency or instrumentality of the United States if the timely payment of the obligation is unconditionally guaranteed as a full faith and credit obligation by the United States. (Section 101)

In the event that we deposit money and/or Eligible Instruments in trust and discharge our obligations under a series of debt securities as described above, then:

- the applicable indenture, including, in the case of subordinated debt securities, the subordination provisions contained in the subordinated indenture, will no longer apply to the debt securities of that series; however, certain obligations to compensate, reimburse and indemnify the trustee, to register the transfer and exchange of debt securities, to replace lost, stolen or mutilated debt securities, to maintain paying agencies and the trust funds and to pay additional amounts, if any, required as a result of U.S. withholding taxes imposed on payments to non-U.S. persons will continue to apply; and
- holders of debt securities of that series can only look to the trust fund for payment of principal, any premium and any interest on the debt securities of that series. (Section 403)

Defeasance of Certain Covenants and Certain Events of Default. At the time that we establish a series of debt securities under the applicable indenture, we can provide that the debt securities of that series are subject to the covenant defeasance provisions of that indenture. Unless we specify otherwise in the applicable prospectus supplement, the debt securities offered thereby will be subject to the covenant defeasance provisions of the applicable indenture, and if we make the deposit and deliver the opinion of counsel described above in this section under the heading “—Defeasance and Discharge,” we will not have to comply with any covenant we designate when we establish the series of debt securities. In the event of a covenant defeasance, our obligations under the applicable indenture and the debt securities, other than with respect to the covenants specifically designated upon establishing the debt securities, will remain in effect. (Section 1501)

Table of Contents

If we exercise our option not to comply with certain covenants as described above and the debt securities of the series become immediately due and payable because an event of default has occurred, other than as a result of an event of default specifically relating to any of such covenants, the amount of money and/or Eligible Instruments on deposit with the applicable trustee will be sufficient to pay the principal, any interest, any premium and any other sums, due on the debt securities of that series, such as sinking fund payments, on the date the payments are due under the applicable indenture and the terms of the debt securities, but may not be sufficient to pay amounts due at the time of acceleration. However, we would remain liable for the balance of the payments. (Section 1501)

Subordination

The subordinated debt securities will be subordinate to all of our existing and future Senior Debt, as defined below. Our "Senior Debt" includes the senior debt securities and means the principal of, premium, if any, and interest on, rent under, and any other amounts payable on or in or in respect of any of our indebtedness (including, without limitation, any obligations in respect of such indebtedness and any interest accruing after the filing of a petition by or against us under any bankruptcy law, whether or not allowed as a claim after such filing in any proceeding under such bankruptcy law), whether outstanding on the date of the senior indenture or thereafter created, incurred, assumed, guaranteed or in effect guaranteed by us (including all deferrals, renewals, extensions, refinancings or refundings of, or amendments, modifications or supplements to the foregoing). However, Senior Debt does not include:

- any liability for federal, state, local or other taxes owed or owing by us;
- our indebtedness to any of our subsidiaries;
- our trade payables and accrued expenses (including, without limitation, accrued compensation) for goods, services or materials purchased or provided in the ordinary course of business; and
- any particular indebtedness in which the instrument creating or evidencing the same expressly provides that such indebtedness shall not be senior in right of payment to, or is pari passu with, or is subordinated or junior to, the subordinated debt securities. (Section 101 of the subordinated indenture)

If certain events in bankruptcy, insolvency or reorganization occur, we will first pay all Senior Debt, including any interest accrued after the events occur, in full before we make any payment or distribution, whether in cash, securities or other property, on account of the principal of or interest on the subordinated debt securities. In such an event, we will pay or deliver directly to the holders of Senior Debt any payment or distribution otherwise payable or deliverable to holders of the subordinated debt securities. We will make the payments to the holders of Senior Debt according to priorities existing among those holders until we have paid all Senior Debt, including accrued interest, in full. Notwithstanding the subordination provisions discussed in this paragraph, we may make payments or distributions on the subordinated debt securities so long as:

- the payments or distributions consist of securities issued by us or another company in connection with a plan of dissolution, reorganization, readjustment or winding up; and
- payment on those securities is subordinate to outstanding Senior Debt and any securities issued with respect to Senior Debt under such plan of dissolution, reorganization, readjustment or winding up at least to the same extent provided in the subordination provisions of the subordinated debt securities. (Section 1601 of the subordinated indenture)

If such events in bankruptcy, insolvency or reorganization occur, after we have paid in full all amounts owed on Senior Debt:

- the holders of subordinated debt securities,

Table of Contents

· together with the holders of any of our other obligations ranking equal with those subordinated debt securities, will be entitled to receive from our remaining assets any principal, premium or interest due at that time on the subordinated debt securities and such other obligations before we make any payment or other distribution on account of any of our capital stock or obligations ranking junior to those subordinated debt securities.

If we violate the subordinated indenture by making a payment or distribution to holders of the subordinated debt securities before we have paid all of the Senior Debt in full, then such holders of the subordinated debt securities will be deemed to have received the payments or distributions in trust for the benefit of, and will have to pay or transfer the payments or distributions to, the holders of the Senior Debt outstanding at the time. The payment or transfer to the holders of the Senior Debt will be made according to the priorities existing among those holders. Notwithstanding the subordination provisions discussed in this paragraph, holders of subordinated debt securities will not be required to pay, or transfer payments or distributions to, holders of Senior Debt so long as:

· the payments or distributions consist of securities issued by us or another company in connection with a plan of reorganization or readjustment; and
· payment on those securities is subordinated to outstanding Senior Debt and any securities issued with respect to Senior Debt under such plan of reorganization or readjustment at least to the same extent provided in the subordination provisions of those subordinated debt securities. (Section 1601 of the subordinated indenture)

Because of the subordination, if we become insolvent, holders of Senior Debt may receive more, ratably, and holders of the subordinated debt securities having a claim pursuant to those securities may receive less, ratably, than our other creditors.

We may modify or amend the subordinated indenture as provided under "—Modification and Waiver" above. However, the modification or amendment may not, without the consent of the holders of all Senior Debt outstanding, modify any of the provisions of the subordinated indenture relating to the subordination of the subordinated debt securities in a manner that would adversely affect the holders of Senior Debt. (Section 902 of the subordinated indenture)

Payment of Additional Amounts

Unless we specify otherwise in the applicable prospectus supplement, we will not pay any additional amounts on the debt securities offered thereby to compensate any beneficial owner for any United States tax withheld from payments on such debt securities.

Book-Entry, Delivery and Form

We have obtained the information in this section concerning DTC, Clearstream Banking S.A., or "Clearstream," and Euroclear Bank S.A./N.V., as operator of the Euroclear System, or "Euroclear," and the book-entry system and procedures from sources that we believe to be reliable, but we take no responsibility for the accuracy of this information. This information could change at any time. In addition, we have no control over DTC, Clearstream or Euroclear, or any of their participants, and therefore we take no responsibility for their activities.

Unless otherwise specified in the applicable prospectus supplement, the debt securities will be issued as fully registered global securities that will be deposited with, or on behalf of, DTC and registered, at the request of DTC, in the name of Cede & Co. Beneficial interests in the global securities will be represented through book-entry accounts of financial institutions acting on behalf of beneficial owners as direct or indirect participants in DTC. The direct and indirect participants will remain responsible for keeping account of their holdings on behalf of their customers. Investors may elect to hold their interests in the global securities through either DTC (in the United States) or (in Europe) through Clearstream or through Euroclear. Investors may hold their interests in the global securities directly if they are

43

Table of Contents

participants of such systems, or indirectly through organizations that are participants in these systems. Interests held through Clearstream and Euroclear will be recorded on DTC's books as being held by the U.S. Depositary for each of Clearstream and Euroclear (the "U.S. Depositaries"), which U.S. Depositaries will, in turn, hold interests on behalf of their participants' customers' securities accounts. Unless otherwise specified in the applicable prospectus supplement, beneficial interests in the global securities will be held in denominations of $1,000 and multiples of $1,000 in excess thereof. Except as set forth below, the global securities may be transferred, in whole and not in part, only to another nominee of DTC or to a successor of DTC or its nominee.

Debt securities represented by a global security can be exchanged for definitive securities in registered form only if:

- DTC notifies us that it is unwilling or unable to continue as depositary for that global security and we do not appoint a qualified successor depositary within 90 days after receiving that notice;
- at any time DTC ceases to be a clearing agency registered under the Exchange Act and we do not appoint a successor depositary within 90 days after becoming aware that DTC has ceased to be registered as a clearing agency;
- we in our sole discretion determine that such global security will be exchangeable for definitive securities in registered form or elect to terminate the book-entry system through DTC and notify the applicable trustee of our decision; or
- an event of default with respect to the debt securities represented by that global security has occurred and is continuing.

A global security that can be exchanged as described in the preceding sentence will be exchanged for definitive securities issued in authorized denominations in registered form for the same aggregate amount. The definitive securities will be registered in the names of the owners of the beneficial interests in the global security as directed by DTC.

We will make principal and interest payments on all debt securities represented by a global security to the paying agent which in turn will make payment to DTC or its nominee, as the case may be, as the sole registered owner and the sole holder of the debt securities represented by a global security for all purposes under the applicable indenture. Accordingly, we, the applicable trustee and any paying agent will have no responsibility or liability for:

- any aspect of DTC's records relating to, or payments made on account of, beneficial ownership interests in a debt security represented by a global security;
- any other aspect of the relationship between DTC and its participants or the relationship between those participants and the owners of beneficial interests in a global security held through those participants; or
- the maintenance, supervision or review of any of DTC's records relating to those beneficial ownership interests.

We understand that DTC's current practice is to credit direct participants' accounts on each payment date with payments in amounts proportionate to their respective beneficial interests in the principal amount of such global security as shown on DTC's records, upon DTC's receipt of funds and corresponding detail information. The underwriters or agents for the debt securities represented by a global security will initially designate the accounts to be credited. Payments by participants to owners of beneficial interests in a global security will be governed by standing instructions and customary practices, as is the case with securities held for customer accounts registered in "street name," and will be the sole responsibility of those participants, and not of DTC or its nominee, the trustee, any agent of ours, or us, subject to any statutory or regulatory requirements. Book-entry notes may be more difficult to pledge because of the lack of a physical note.

Table of Contents

DTC

So long as DTC or its nominee is the registered owner of a global security, DTC or its nominee, as the case may be, will be considered the sole owner and holder of the debt securities represented by that global security for all purposes of the debt securities. Owners of beneficial interests in the debt securities will not be entitled to have debt securities registered in their names, will not receive or be entitled to receive physical delivery of the debt securities in definitive form and will not be considered owners or holders of debt securities under the applicable indenture. Accordingly, each person owning a beneficial interest in a global security must rely on the procedures of DTC and, if that person is not a DTC participant, on the procedures of the participant through which that person owns its interest, to exercise any rights of a holder of debt securities. The laws of some jurisdictions may require that certain purchasers of securities take physical delivery of the securities in certificated form. These laws may impair the ability to transfer beneficial interests in a global security. Beneficial owners may experience delays in receiving distributions on their debt securities since distributions will initially be made to DTC and must then be transferred through the chain of intermediaries to the beneficial owner's account.

We understand that, under existing industry practices, if we request holders to take any action, or if an owner of a beneficial interest in a global security desires to take any action which a holder is entitled to take under the applicable indenture, then DTC would authorize the participants holding the relevant beneficial interests to take that action and those participants would authorize the beneficial owners owning through such participants to take that action or would otherwise act upon the instructions of beneficial owners owning through them.

Beneficial interests in a global security will be shown on, and transfers of those ownership interests will be effected only through, records maintained by DTC and its participants for that global security. The conveyance of notices and other communications by DTC to its participants and by its participants to owners of beneficial interests in the debt securities will be governed by arrangements among them, subject to any statutory or regulatory requirements in effect.

We understand that DTC is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered under the Exchange Act. DTC is a wholly owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries.

DTC holds the securities of its participants and facilitates the clearance and settlement of securities transactions among its participants in such securities through electronic book-entry changes in accounts of its participants. The electronic book-entry system eliminates the need for physical certificates. DTC's participants include securities brokers and dealers, including underwriters, banks, trust companies, clearing corporations and certain other organizations, some of which, and/or their representatives, own DTCC. Banks, brokers, dealers, trust companies and others that clear through or maintain a custodial relationship with a participant, either directly or indirectly, also have access to DTC's book-entry system. The rules applicable to DTC and its participants are on file with the SEC.

The above information with respect to DTC has been provided for informational purposes only and is not intended to serve as a representation, warranty or contract modification of any kind.

Clearstream

We understand that Clearstream was incorporated under the laws of Luxembourg as an international clearing system. Clearstream holds securities for its participating organizations, or "Clearstream Participants," and facilitates the clearance and settlement of securities transactions between Clearstream Participants through electronic book-entry

changes in accounts of Clearstream Participants, thereby eliminating the need for physical movement of certificates. Clearstream provides to Clearstream Participants, among other things, services for safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Clearstream interfaces with domestic securities markets in several countries. As a professional depositary, Clearstream is subject to regulation

Table of Contents

by the Luxembourg Commission for the Supervision of the Financial Sector (Commission de Surveillance du Secteur Financier). Clearstream Participants are recognized financial institutions around the world, including underwriters, securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Clearstream's U.S. Participants are limited to securities brokers and dealers and banks. Indirect access to Clearstream is also available to others, such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Clearstream Participant either directly or indirectly.

Distributions with respect to debt securities held beneficially through Clearstream will be credited to cash accounts of Clearstream Participants in accordance with its rules and procedures, to the extent received by the U.S. Depositary for Clearstream.

Euroclear

We understand that Euroclear was created in 1968 to hold securities for participants of Euroclear, or "Euroclear Participants," and to clear and settle transactions between Euroclear Participants through simultaneous electronic book-entry delivery against payment, thereby eliminating the need for physical movement of certificates and any risk from lack of simultaneous transfers of securities and cash. Euroclear performs various other services, including securities lending and borrowing and interacts with domestic markets in several countries. Euroclear is operated by Euroclear Bank S.A./N.V., or the "Euroclear Operator," under contract with Euroclear plc, a U.K. corporation. All operations are conducted by the Euroclear Operator, and all Euroclear securities clearance accounts and Euroclear cash accounts are accounts with the Euroclear Operator, not Euroclear plc. Euroclear plc establishes policy for Euroclear on behalf of Euroclear Participants. Euroclear Participants include banks, including central banks, securities brokers and dealers and other professional financial intermediaries. Indirect access to Euroclear is also available to other firms that clear through or maintain a custodial relationship with a Euroclear Participant, either directly or indirectly. Euroclear is an indirect participant in DTC.

The Euroclear Operator is a Belgian bank. As such it is regulated by the Belgian Banking and Finance Commission and the National Bank of Belgium.

Securities clearance accounts and cash accounts with the Euroclear Operator are governed by the Terms and Conditions Governing Use of Euroclear and the related Operating Procedures of the Euroclear System, and applicable Belgian law, which we will refer to herein as the "Terms and Conditions." The Terms and Conditions govern transfers of securities and cash within Euroclear, withdrawals of securities and cash from Euroclear, and receipts of payments with respect to securities in Euroclear. All securities in Euroclear are held on a fungible basis without attribution of specific certificates to specific securities clearance accounts. The Euroclear Operator acts under the Terms and Conditions only on behalf of Euroclear Participants, and has no record of or relationship with persons holding through Euroclear Participants.

Distributions with respect to debt securities held beneficially through Euroclear will be credited to the cash accounts of Euroclear Participants in accordance with the Terms and Conditions, to the extent received by the Euroclear Operator.

We further understand that investors that acquire, hold and transfer interests in the debt securities by book-entry through accounts with the Euroclear Operator or any other securities intermediary are subject to the laws and contractual provisions governing their relationship with their intermediary, as well as the laws and contractual provisions governing the relationship between such an intermediary and each other intermediary, if any, standing between themselves and the global securities.

Global Clearance and Settlement Procedures

Unless otherwise specified in the applicable prospectus supplement, initial settlement for the debt securities will be made in immediately available funds. Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules and will be settled in immediately available funds using DTC's Same-Day Funds Settlement System. Secondary market trading between Clearstream Participants and/or Euroclear Participants will occur

Table of Contents

in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear and will be settled using the procedures applicable to conventional eurobonds in immediately available funds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream Participants or Euroclear Participants, on the other, will be effected through DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. Depositary; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if the transaction meets its settlement requirements, deliver instructions to its U.S. Depositary to take action to effect final settlement on its behalf by delivering or receiving debt securities through DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream Participants and Euroclear Participants may not deliver instructions directly to their respective U.S. Depositaries.

Because of time-zone differences, credits of debt securities received through Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the business day following the DTC settlement date. Such credits or any transactions in such debt securities settled during such processing will be reported to the relevant Euroclear Participants or Clearstream Participants on such business day. Cash received in Clearstream or Euroclear as a result of sales of debt securities by or through a Clearstream Participant or a Euroclear Participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the business day following settlement in DTC.

If the debt securities are cleared only through Euroclear and Clearstream (and not DTC), you will be able to make and receive through Euroclear and Clearstream payments, deliveries, transfers, exchanges, notices, and other transactions involving any securities held through those systems only on days when those systems are open for business. Those systems may not be open for business on days when banks, brokers, and other institutions are open for business in the United States. In addition, because of time-zone differences, U.S. investors who hold their interests in the securities through these systems and wish to transfer their interests, or to receive or make a payment or delivery or exercise any other right with respect to their interests, on a particular day may find that the transaction will not be effected until the next business day in Luxembourg or Brussels, as applicable. Thus, U.S. investors who wish to exercise rights that expire on a particular day may need to act before the expiration date.

Although DTC, Clearstream and Euroclear have agreed to the foregoing procedures in order to facilitate transfers of debt securities among participants of DTC, Clearstream and Euroclear, they are under no obligation to perform or continue to perform such procedures and such procedures may be modified or discontinued at any time. Neither we nor any paying agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective direct or indirect participants of their obligations under the rules and procedures governing their operations.

Conversion and Exchange

If any offered debt securities are convertible at the option of the holders or exchangeable at our option, the prospectus supplement relating to those debt securities will include the terms and conditions governing any conversions and exchanges.

Governing Law

The indentures are, and the debt securities will be, governed by and will be construed in accordance with New York law.

DESCRIPTION OF WARRANTS

As of October 11, 2017, there were 756,647 shares of common stock that may be issued upon the exercise of outstanding warrants, all of which are presently exercisable. The Warrant is exercisable for 722,000 Warrant Shares at

Table of Contents

any time prior to September 29, 2027 at an exercise price per share of $1.39, while the other such warrant is exercisable for 34,647 shares of our common stock on or before December 31, 2017 at an exercise price per share of $8.12.

We may issue warrants for the purchase of shares of our common stock or preferred stock or of debt securities. We may issue warrants independently or together with other securities, and the warrants may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and the investors or a warrant agent. The following summary of material provisions of the warrants and warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. We urge you to read the applicable prospectus supplement and any related free writing prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

The particular terms of any issue of warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the number of shares of common stock or preferred stock purchasable upon the exercise of warrants to purchase such shares and the price at which such number of shares may be purchased upon such exercise;
- the designation, stated value and terms (including, without limitation, liquidation, dividend, conversion and voting rights) of the series of preferred stock purchasable upon exercise of warrants to purchase preferred stock;
- the principal amount of debt securities that may be purchased upon exercise of a debt warrant and the exercise price for the warrants, which may be payable in cash, securities or other property;
- the date, if any, on and after which the warrants and the related debt securities, preferred stock or common stock will be separately transferable;
- the terms of any rights to redeem or call the warrants;
- the date on which the right to exercise the warrants will commence and the date on which the right will expire;
- a discussion of certain United States federal income tax consequences applicable to the warrants; and
- any additional terms of the warrants, including terms, procedures, and limitations relating to the exchange, exercise and settlement of the warrants.

Holders of equity warrants will not be entitled to:

- vote, consent or receive dividends;
- receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter; or
- exercise any rights as stockholders of Endocyte.

Each warrant will entitle its holder to purchase the principal amount of debt securities or the number of shares of preferred stock or common stock at the exercise price set forth in, or calculable as set forth in, the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Table of Contents

A holder of warrant certificates may exchange them for new warrant certificates of different denominations, present them for registration of transfer and exercise them at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement. Until any warrants to purchase debt securities are exercised, the holder of the warrants will not have any rights of holders of the debt securities that can be purchased upon exercise, including any rights to receive payments of principal, premium or interest on the underlying debt securities or to enforce covenants in the applicable indenture. Until any warrants to purchase common stock or preferred stock are exercised, the holders of the warrants will not have any rights of holders of the underlying common stock or preferred stock, including any rights to receive dividends or payments upon any liquidation, dissolution or winding up on the common stock or preferred stock, if any.

DESCRIPTION OF RIGHTS

We may issue rights to purchase our common stock. The rights may or may not be transferable by the persons purchasing or receiving the rights. In connection with any rights offering, we may enter into a standby underwriting or other arrangement with one or more underwriters or other persons pursuant to which such underwriters or other persons would purchase any offered securities remaining unsubscribed for after such rights offering. Each series of rights will be issued under a separate rights agent agreement to be entered into between us and one or more banks, trust companies or other financial institutions, as rights agent, that we will name in the applicable prospectus supplement. The rights agent will act solely as our agent in connection with the rights and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights.

The prospectus supplement and any incorporated documents relating to any rights that we offer will include specific terms relating to the offering, including, among other matters:

- the date of determining the security holders entitled to the rights distribution;
- the aggregate number of rights issued and the aggregate number of shares of common stock purchasable upon exercise of the rights;
- the exercise price;
- the conditions to completion of the rights offering;
- the date on which the right to exercise the rights will commence and the date on which the rights will expire; and
- a discussion of certain United States federal income tax consequences applicable to the rights offering.

Each right would entitle the holder of the rights to purchase for cash shares of common stock at the exercise price set forth in the applicable prospectus supplement. Rights may be exercised at any time up to the close of business on the expiration date for the rights provided in the applicable prospectus supplement. After the close of business on the expiration date, all unexercised rights will become void.

If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than our security holders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements, as described in the applicable prospectus supplement.

DESCRIPTION OF UNITS

We may issue units consisting of any combination of the other types of securities offered under this prospectus in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we

Table of Contents

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

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

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

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

Table of Contents

PLAN OF DISTRIBUTION

We and/or the selling stockholders (which term as used herein includes their respective pledgees, donees, transferees or other successors-in-interest) may sell securities in any one or more of the following ways from time to time: (i) to or through agents; (ii) to or through underwriters (including through syndicates or acting alone for resale); (iii) to or through brokers or dealers; (iv) directly by us or the selling stockholders to purchasers, including through a specific bidding, auction or other process; (v) upon the exercise of subscription rights that may be distributed to our stockholders; (vi) through a combination of any of these methods of sale; or (vii) by any other method permitted by law. The applicable prospectus supplement and/or other offering material will contain the terms of the transaction, name or names of any underwriters, dealers, or agents and the respective amounts of securities underwritten or purchased by them, the initial public offering price of the securities, and the applicable agent's commission, dealer's purchase price or underwriter's discount. Any dealers and agents participating in the distribution of the securities may be deemed to be underwriters, and compensation received by them on resale of the securities may be deemed to be underwriting discounts.

Sales of the securities may be effected from time to time in one or more transactions, including negotiated transactions, (a) at a fixed price or prices, which may be changed; (b) at market prices prevailing at the time of sale; (c) at prices related to prevailing market prices; (d) at varying prices determined at the time of sale; or (e) at negotiated prices. Any initial offering price, dealer purchase price, discount or commission may be changed from time to time.

The securities may be distributed from time to time in one or more transactions, at negotiated prices, at a fixed price or fixed prices (that may be subject to change), at market prices prevailing at the time of sale, at various prices determined at the time of sale or at prices related to prevailing market prices.

Offers to purchase securities may be solicited directly by us or the selling stockholders or by agents designated by us or the selling stockholders from time to time. Any such agent may be deemed to be an underwriter, as that term is defined in the Securities Act, of the securities so offered and sold.

If underwriters or dealers acting as principal are utilized in the sale of any securities in respect of which this prospectus is being delivered, such securities will be acquired by the underwriters or dealers for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at fixed public offering prices or at varying prices determined by the underwriters or dealers at the time of sale. Securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more underwriters. If any underwriter or underwriters are utilized in the sale of securities, unless otherwise indicated in the applicable prospectus supplement and/or other offering material, the obligations of the underwriters are subject to certain conditions precedent, and the underwriters will be obligated to purchase all such securities if any are purchased.

If a dealer is utilized in the sale of the securities in respect of which this prospectus is delivered, we or the selling stockholders will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale. Transactions through brokers or dealers may include block trades in which brokers or dealers will attempt to sell shares as agent but may position and resell as principal to facilitate the transaction or in crosses, in which the same broker or dealer acts as agent on both sides of the trade. Any such dealer may be deemed to be an underwriter, as such term is defined in the Securities Act, of the securities so offered and sold. In addition, the selling stockholders may sell our securities in ordinary brokerage transactions or in transactions in which a broker solicits purchases.

Offers to purchase securities may be solicited directly by us or the selling stockholders and the sale thereof may be made directly to institutional investors or others, who may be deemed to be underwriters within the meaning of the

Securities Act with respect to any resale thereof.

If so indicated in the applicable prospectus supplement and/or other offering material, we or the selling stockholders may authorize agents and underwriters to solicit offers by certain institutions to purchase securities at the public offering price set forth in the applicable prospectus supplement and/or other offering material pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in the applicable prospectus supplement and/or

Table of Contents

other offering material. Such delayed delivery contracts will be subject only to those conditions set forth in the applicable prospectus supplement and/or other offering material.

Agents, underwriters and dealers may be entitled under relevant agreements to indemnification against certain liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which such agents, underwriters and dealers may be required to make in respect thereof. The terms and conditions of any indemnification or contribution will be described in the applicable prospectus supplement and/or other offering material.

We and/or the selling stockholders may also sell shares of our common stock through various arrangements involving mandatorily or optionally exchangeable securities, and this prospectus may be delivered in connection with those sales.

We and/or the selling stockholders may enter into derivative, sale or forward sale transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement and/or other offering material indicates, in connection with those transactions, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement and/or other offering material, including in short sale transactions and by issuing securities not covered by this prospectus but convertible into, or exchangeable for or representing beneficial interests in such securities covered by this prospectus, or the return of which is derived in whole or in part from the value of such securities. The third parties may use securities received under derivative, sale or forward sale transactions, or securities pledged by us or the selling stockholders or borrowed from us, the selling stockholders, or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us or the selling stockholders in settlement of those transactions to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement (or a post-effective amendment) and/or other offering material.

Additionally, the selling stockholders may engage in hedging transactions with broker-dealers in connection with distributions of shares or otherwise. In those transactions, broker-dealers may engage in short sales of shares in the course of hedging the positions they assume with the selling stockholders. The selling stockholders also may sell shares short and redeliver shares to close out such short positions. The selling stockholders may also enter into option or other transactions with broker-dealers which require the delivery of shares to the broker-dealer. The broker-dealer may then resell or otherwise transfer such shares pursuant to this prospectus. The selling stockholders also may loan or pledge shares, and the borrower or pledgee may sell or otherwise transfer the shares so loaned or pledged pursuant to this prospectus. Such borrower or pledgee also may transfer those shares to investors in our securities or in connection with the offering of other securities not covered by this prospectus.

Underwriters, broker-dealers or agents may receive compensation in the form of commissions, discounts or concessions from us or the selling stockholders. Underwriters, broker-dealers or agents may also receive compensation from the purchasers of shares for whom they act as agents or to whom they sell as principals, or both. Compensation as to a particular underwriter, broker-dealer or agent might be in excess of customary commissions and will be in amounts to be negotiated in connection with transactions involving shares. In effecting sales, broker-dealers may arrange for other broker-dealers to participate in the resales.

Each series of securities will be a new issue and, other than the common stock, which is listed on the NASDAQ Global Market, will have no established trading market. We may elect to list any series of securities on an exchange, and in the case of the common stock, on any additional or substitute exchange, but, unless otherwise specified in the applicable prospectus supplement and/or other offering material, we shall not be obligated to do so. No assurance can be given as to the liquidity of the trading market for any of the securities.

Agents, underwriters and dealers may engage in transactions with, or perform services for us, the selling stockholders, and our respective subsidiaries in the ordinary course of business.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the

Table of Contents

stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. An underwriter may carry out these transactions on the NASDAQ Global Market, any additional or substitute exchange on which our common stock is listed, in the over-the-counter market or otherwise. We do not make any representation or prediction as to the direction or magnitude of any effect that the transactions described above might have on the price of the securities. In addition, we do not make any representation that underwriters will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

The place and time of delivery for securities will be set forth in the accompanying prospectus supplement and/or other offering material for such securities.

The selling stockholders may also sell their shares in accordance with Rule 144 under the Securities Act or other applicable exemptions, rather than pursuant to this prospectus, regardless of whether the shares are covered by this prospectus.

To comply with applicable state securities laws, the securities offered by this prospectus will be sold, if necessary, in such jurisdictions only through registered or licensed brokers or dealers. In addition, securities may not be sold in some states unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Table of Contents

LEGAL MATTERS

Faegre Baker Daniels LLP, Indianapolis, Indiana, will pass upon the validity of the securities offered hereby. Additional legal matters may be passed upon for us, the selling stockholders or any underwriters, dealers or agents, by counsel named in the applicable prospectus supplement.

EXPERTS

Ernst and Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2016, and the effectiveness of our internal control over financial reporting as of December 31, 2016, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP’s report, given on their authority as experts in accounting and auditing.

Table of Contents

ENDOCYTE, INC.

$150,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

Rights

Units

Offered by Endocyte, Inc.

5,278,000 Shares of Common Stock

722,000 Shares of Common Stock Underlying Warrant

Offered by the Selling Stockholders

PROSPECTUS

, 2017

Table of Contents

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following is an estimate of the expenses (all of which are to be paid by the registrant) that we may incur in connection with the securities being registered hereby.

SEC registration fee	$ 22,395.06
Fees and expenses of the trustee	*
Printing expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
FINRA filing fees	*
The NASDAQ Global Market supplemental listing fee	*
Miscellaneous	*
Total	$ *

* These fees are calculated based on the securities offered and the number of issuances and accordingly cannot be estimated at this time.

Item 15. Indemnification of Directors and Officers

We are a corporation organized under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to an action by reason of the fact that he or she was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action if he or she acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of an action by or in right of the corporation, no indemnification may generally be made in respect of any claim as to which such person is adjudged to be liable to the corporation. Our amended and restated bylaws provide that we will indemnify and advance expenses to our directors and officers (and may choose to indemnify and advance expenses to other employees and other agents) to the fullest extent permitted by law; provided, however, that if we enter into an indemnification agreement with such directors or officers, such agreement controls.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- breach of a director's duty of loyalty to the corporation or its stockholders;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful stock repurchases or redemption of shares; or
- transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation limits the personal liability of our directors to the fullest extent permitted by law.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies such as injunctive relief or rescission.

Table of Contents

Section 145(g) of the Delaware General Corporation Law permits a corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation. Our amended and restated bylaws permit us to secure insurance on behalf of any officer, director, employee or agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether the Delaware General Corporation Law permits indemnification. We have obtained a directors' and officers' liability insurance policy.

We have entered into separate indemnification agreements with our directors and officers, in addition to the indemnification provisions set forth in our amended and restated certificate of incorporation and amended and restated bylaws. These agreements, among other things, require us to indemnify our directors and officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of his or her services as one of our directors or officers, including services provided to any subsidiary or any other company or enterprise to which the person provides services at our request.

Item 16. Exhibits

The list of exhibits to this registration statement appears immediately preceding the signature page and is incorporated into this Item 16 by reference.

Item 17. Undertakings

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

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
(ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
(iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;
provided, however, that paragraphs (a)(1)(i), (a)(1)(ii), and (a)(1)(iii) of this section do not apply if the information required to be included in a post effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

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

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

57

Table of Contents

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

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

(i) any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
(ii) any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
(iii) the portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
(iv) any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the

Table of Contents

opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(d) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the SEC under Section 305(b)(2) of the Trust Indenture Act.

Table of Contents

EXHIBIT INDEX

Exhibit No.	Description
1.1*	Form of Underwriting Agreement
4.1	Amended and Restated Certificate of Incorporation of Endocyte, Inc. (incorporated by reference to Exhibit 3.1 to Annual Report on Form 10_K for the year ended December 31, 2010 filed March 18, 2011).
4.2	Amended and Restated Bylaws of Endocyte, Inc. (incorporated by reference to Exhibit 3.2 to Annual Report on Form 10_K for the year ended December 31, 2010 filed on March 18, 2011)
4.3	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 of Amendment No. 3 to Form S_1 (Registration No. 333_168904) filed January 12, 2011)
4.4	Registration Rights Agreement, dated as of September 29, 2017, between Endocyte, Inc. and ABX advanced biochemical compounds – Biomedizinische Forschungsreagenzien_GmbH (incorporated by reference to Exhibit 4.2 to Current Report on Form 8_K filed October 2, 2017)
4.5	Form of Warrant to Purchase Shares of Common Stock, dated as of September 29, 2017 (incorporated by reference to Exhibit 4.1 to Current Report on Form 8_K filed October 2, 2017)
4.6*	Form of Preferred Stock Certificate
4.7	Form of Senior Indenture
4.8	Form of Subordinated Indenture
4.9*	Form of Senior Note
4.10*	Form of Subordinated Note
4.11*	Form of Warrant
4.12*	Form of Warrant Agreement
4.13*	Form of Rights Agent Agreement (including form of Rights Certificate)
4.14*	Form of Unit Agreement
5.1	Opinion of Faegre Baker Daniels LLP
12.1	Computation of Ratios of Earnings to Fixed Charges
23.1	Consent of Independent Registered Public Accounting Firm
23.2	Consent of Faegre Baker Daniels LLP (included in Exhibit 5.1 hereto)

24.1	Power of Attorney (included in Signatures)
25.1**	Statement of Eligibility on Form T 1 under the Trust Indenture Act of 1939, as amended, of the trustee, as trustee under the Senior Indenture filed as Exhibit 4.7 above
25.2**	Statement of Eligibility on Form T 1 under the Trust Indenture Act of 1939, as amended, of the trustee, as trustee under the Subordinated Indenture filed as Exhibit 4.8 above

* To be filed by amendment or incorporated by reference in connection with the offering of the securities

** To be filed pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939, as amended

Table of Contents

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S 3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in West Lafayette, Indiana, on this 12th day of October, 2017.

ENDOCYTE, INC.

By: /s/ Michael A. Sherman
Michael A. Sherman
President and Chief Executive Officer

Each person whose signature appears below constitutes and appoints Michael A. Sherman and Michael T. Andriole, or either of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to file and sign any and all amendments, including post-effective amendments and any registration statement for the same offering that is to be effective under Rule 462(b) of the Securities Act of 1933, to this registration statement, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes may lawfully do or cause to be done by virtue hereof. This power of attorney shall be governed by and construed with the laws of the State of Delaware and applicable federal securities laws.

Table of Contents

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

Signature	Title	Date
/s/ Michael A. Sherman Michael A. Sherman	Director and President and Chief Executive Officer (Principal Executive Officer)	October 12, 2017
/s/ Michael T. Andriole Michael T. Andriole	Chief Financial Officer (Principal Financial Officer)	October 12, 2017
/s/ Beth A. Taylor Beth A. Taylor	Vice President of Finance and Chief Accounting Officer (Principal Accounting Officer)	October 12, 2017
/s/ John C. Aplin John C. Aplin	Chairman of the Board of Directors	October 12, 2017
/s/ Philip S. Low Philip S. Low	Director and Chief Science Officer	October 12, 2017
/s/ Keith E. Brauer Keith E. Brauer	Director	October 12, 2017
/s/ Colin Goddard Colin Goddard	Director	October 12, 2017
/s/ Ann F. Hanham Ann F. Hanham	Director	October 12, 2017
/s/ Marc D. Kozin Marc D. Kozin	Director	October 12, 2017
/s/ Peter D. Meldrum Peter D. Meldrum	Director	October 12, 2017
/s/ Fred A. Middleton Fred A. Middleton	Director	October 12, 2017
/s/ Lesley Russell Lesley Russell	Director	October 12, 2017