

ENDOCYTE INC

FORM 10-K (Annual Report)

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 001-35050

ENDOCYTE, INC.

(Exact name of Registrant as specified in its charter)

Delaware
*(State or other jurisdiction of
incorporation or organization)*

35-1969-140
*(I.R.S. Employer
Identification Number)*

**3000 Kent Avenue, Suite A1-100
West Lafayette, IN 47906**

(Address of Registrant's principal executive offices)

Registrant's telephone number, including area code: (765) 463-7175

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, \$.001 par value	NASDAQ Global Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the registrant's common stock, \$0.001 par value per share, held by non-affiliates of the registrant, based upon the closing price of the Common Stock on the Nasdaq Global Market on June 30, 2016, was approximately \$120.7 million (excludes shares of the registrant's common stock held as of such date by officers, directors and stockholders that the registrant has concluded are or were affiliates of the registrant, exclusion of such shares should not be construed to indicate that the holder of any such shares possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the registrant or that such person is controlled by or under common control with the registrant.)

Number of shares of the registrant's Common Stock, \$0.001 par value, outstanding on February 28, 2017: 42,470,874

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement to be delivered to stockholders in connection with the 2017 Annual Meeting of Stockholders are incorporated by reference into Part III of this Annual Report on Form 10-K.

ENDOCYTE, INC.
ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2016
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This annual report contains certain statements that are forward-looking statements within the meaning of federal securities laws. When used in this report, the words “may,” “will,” “should,” “could,” “would,” “anticipate,” “estimate,” “expect,” “plan,” “believe,” “predict,” “potential,” “project,” “target,” “forecast,” “intend” and similar expressions are intended to identify forward-looking statements. Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected. These risks and uncertainties include the important risks and uncertainties that may affect our future operations that we describe in Part I, Item 1A — Risk Factors of this report, including, but not limited to, statements regarding the progress and timing of clinical trials, the safety and efficacy of our product candidates, the goals of our development activities, estimates of the potential markets for our product candidates, estimates of the capacity of manufacturing and other facilities to support our product candidates, projected cash needs and our expected future revenues, operations, expenditures, and cash position. Readers of this report are cautioned not to place undue reliance on these forward-looking statements. While we believe the assumptions on which the forward-looking statements are based are reasonable, there can be no assurance that these forward-looking statements will prove to be accurate. This cautionary statement is applicable to all forward-looking statements contained in this report.

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PART I

Item 1. Business

Overview

We are a biopharmaceutical company developing targeted therapies for the treatment of cancer and inflammatory diseases. We use our proprietary technology to create novel small molecule drug conjugates, or SMDCs, and companion imaging agents. Our SMDCs actively target receptors that are over-expressed on diseased cells, relative to healthy cells. This targeted approach is designed to enable the treatment of patients with highly active drugs at greater doses, delivered more frequently, and over longer periods of time than would be possible with the untargeted drug alone. We are also developing companion imaging agents for each of our SMDCs that are designed to identify the patients whose disease over-expresses the target of the therapy and who are therefore likely to benefit from treatment. This combination of an SMDC with a companion imaging agent is designed to personalize the treatment of patients by delivering effective therapy, selectively to diseased cells, in the patients most likely to benefit. This approach is designed to yield multiple drug candidates that could treat disease through the following multiple mechanisms: by direct and targeted killing of diseased cells, by killing tumor-associated macrophages, or TAMs, which otherwise inhibit the immune system, or by activating the immune system directly by combining SMDCs with checkpoint inhibitors or our chimeric antigen receptor T-cell (CAR T-cell) immunotherapy approach.

Vintafolide in Lung Cancer . Our first generation SMDC, vintafolide, targets the folate receptor with the anti-cancer drug payload DAVLBH. The folate receptor is frequently over-expressed in some of the most prevalent and difficult to treat solid tumor indications. We identify the presence of the folate receptor in cancer patients by using etarfolatide, our proprietary companion imaging agent for vintafolide. We conducted a randomized phase 2b clinical trial called TARGET in folate receptor positive, or FR-positive, recurrent non-small cell lung cancer, or NSCLC, patients comparing single agent vintafolide, the combination of vintafolide and docetaxel, and single agent docetaxel. Docetaxel is a commonly used second-line chemotherapy approved by the U.S. Food and Drug Administration, or the FDA. We presented the final overall survival, or OS, data at the World Lung Cancer Conference in September 2015. At that meeting, we reported that vintafolide plus docetaxel improved median OS by 2.7 months in NSCLC regardless of histology (Median OS 11.5 vs. 8.8 months, OS HR=0.86, 95% CI [0.58, 1.26]). In the predefined subset analysis of patients with adenocarcinoma, which expresses higher levels of folate receptor, vintafolide plus docetaxel improved median OS by 5.9 months (12.5 vs. 6.6 months, HR=0.72, 95% CI [0.44, 1.16]). OS for vintafolide as a single agent was similar to docetaxel (OS 8.4 vs. 8.8 months, HR=1.02, 95% CI [0.70, 1.50]). The safety profiles of vintafolide alone and docetaxel alone were consistent with previous observations, but the combination of vintafolide and docetaxel resulted in higher rates of hematologic and peripheral neuropathy adverse events. Our current focus is on the development of our second generation folate targeted agent, EC1456, in second-line NSCLC and our first non-folate SMDC, EC1169, in advanced metastatic castration-resistant prostate cancer, or mCRPC, as discussed below.

EC1456 Phase I Trial . EC1456, our second generation SMDC, like vintafolide, also targets the folate receptor. However, the drug payload and linker system in EC1456 have been modified to increase the potency and stability of the conjugate. In pre-clinical models, EC1456's drug payload, tubulysin, has demonstrated a higher level of potency and less vulnerability to multi-drug resistance mechanisms compared to the drug payload in vintafolide. In some pre-clinical models in which vintafolide demonstrated no activity or there was a resistance to vintafolide, the folate tubulysin SMDC demonstrated activity. We are currently enrolling select FR-positive patients as determined by an etarfolatide scan in a phase 1b trial to evaluate EC1456 in up to 40 patients with NSCLC at the maximum clinical dose of 6.0 mg/m² for a twice per week dosing schedule. Patients included in this expansion phase of the trial will have received first-line chemotherapy and may have also been treated with anti-programmed cell death-1 receptor, or anti-PD-1, therapy. We are also exploring a more frequent dosing schedule, four times per week, in indications that are typically FR-positive, such as ovarian and endometrial cancers. We presented data regarding the phase 1 dose escalation trial for the treatment of advanced solid tumors with EC1456 at the European Society for Medical Oncology, or ESMO, 2016 Congress in October. In spite of the inclusion of patients in the dose escalation phase who were not selected as positive for the targeted folate receptor, most patients demonstrated stable disease as best response and several patients demonstrated a reduction in target tumor volume. EC1456 has progressed in the phase 1 trial to a dose that exceeds the dose of vintafolide delivered in trials to date. In the phase 1b trial, we will evaluate single agent tumor response in NSCLC,

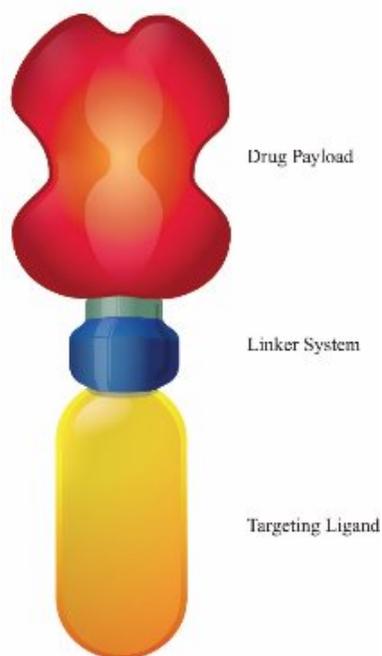
which will inform and may trigger additional work in combination therapies and indications such as triple-negative breast cancer, ovarian cancer, and endometrial cancer. We expect to provide safety and efficacy data updates for EC1456 in the first half of 2017. We are also currently conducting an ovarian cancer surgical study to assess various attributes of the drug release within targeted tumors.

EC1169 Phase I Trial. EC1169, our first non-folate SMDC, is a tubulysin therapeutic targeting prostate-specific membrane antigen, or PSMA. We are currently enrolling patients in a phase 1b trial to evaluate EC1169 in up to 100 second-line chemotherapy and taxane-naïve mCRPC patients at a maximum clinical once per week dose of 6.5 mg/m². We have developed a companion imaging agent, EC0652, to scan patients prior to therapy to identify the presence of PSMA. Patients are scanned with EC0652, and while we are not limiting enrollment based on the results of the scan, the primary endpoints of the trial are to be assessed in PSMA-positive patients. To date, EC0652 has shown the presence of PSMA in at least one lesion in all prostate cancer patients scanned, but variability in the intensity of PSMA presence allows for selection criteria designed to enrich the patient population. The primary endpoint of this expansion phase is progression-free survival, or PFS, measured at five months for taxane-naïve mCRPC patients and at three months for second-line chemotherapy patients, and the secondary endpoints, which will provide earlier insight into drug activity, include overall response rates as measured by Response Evaluation Criteria in Solid Tumors, or RECIST, 1.1 and prostate-specific antigen, or PSA. We presented data regarding the phase 1 dose escalation trial for the treatment of mCRPC with EC1169 at ESMO 2016 Congress in October. The data showed that total target tumor burden reduction was observed in 4 of the 6 patients with measurable soft tissue disease treated at doses of 3.8 mg/m² and higher. One of these patients demonstrated the first confirmed radiologic partial tumor response, or PR, as measured by RECIST 1.1 criteria. Two patients also demonstrated confirmed prostate specific antigen reductions of greater than 50%, one of whom went on to demonstrate the PR. We expect to provide safety and efficacy data updates regarding the phase 1b trial in the first half of 2017. Enrollment in an EC1169 receptor occupancy study is expected to begin in 2017 which is designed to provide insight into the drug's interaction with the target receptor. Data regarding the EC1169 receptor occupancy study is expected in the second half of 2017.

We currently have no commercial products and we have not received regulatory approval for, nor have we generated commercial revenue from, any of our product candidates.

Our Technology Platform

Our technology platform has enabled us to develop multiple new SMDCs for a range of disease indications. Each SMDC is comprised of three modules: a targeting ligand, a linker and a drug payload. Our companion imaging agents employ the same modular structure as our SMDCs, replacing the drug payload with an imaging agent.



Targeting Ligand. Our technology is founded on our high-affinity small molecule ligands that bind to over-expressed receptors on target cells, while largely avoiding healthy cells. We are developing a number of targeting ligands to address a broad range of cancers and inflammatory diseases.

Linker System. Our linker system attaches the targeting ligand to the drug payload or imaging agent. It is designed to be stable in the bloodstream, and to release the active drug from the targeting ligand when the SMDC is taken up by the diseased cell. The linker system can be customized for each SMDC and each companion imaging agent to improve its pharmacologic properties.

Drug Payload. This module is the biologically active component of our SMDCs. The majority of our drug payloads are highly active molecules that are too toxic to be administered in their untargeted forms at therapeutic dose levels. We are using drug payloads in our SMDCs that were shown in our in vitro pre-clinical studies to be between 10,000 and 100,000 times more potent than traditional cancer cell-killing drugs such as cisplatin.

With our modular approach, we use a variety of different targeting ligands, linker systems and drug payloads to create a pipeline of novel SMDC candidates for clinical development. For example, our PSMA targeting technology uses a targeting ligand that specifically binds to a receptor over-expressed on the surface of prostate cancer cells. We have developed alternative linker systems that modulate the pharmacologic and biodistribution properties of our SMDCs. We can also attach a wide variety of different drug payloads to our targeting ligands to address different disease indications. For example, we have SMDCs in pre-clinical development that incorporate proven anti-cancer and anti-inflammatory drug classes, such as microtubule destabilizers, DNA alkylators, proteasome inhibitors and mTOR inhibitors.

In addition, our SMDC platform can be applied in a CAR T-cell immunotherapy setting to create a unique therapeutic approach that involves the re-targeting of potent immune cells. This approach makes possible the engineering of a single universal CAR T-cell, which binds with very high affinity to a molecule designated as Fluorescein isothiocyanate, or FITC. These cells are then used to treat various cancer types when co-administered with bi-specific SMDC adaptor molecules. These unique bi-specific adaptors are constructed with a FITC molecule and a tumor-homing molecule to precisely bridge the universal CAR T-cell with the cancer cells, which causes localized T-cell activation. In March 2017, we announced our plan to collaborate with Seattle Children's Research Institute and Dr. Michael Jensen for the development of our SMDC platform in the CAR T-cell immunotherapy setting. The aim of the research collaboration is to join our SMDC bi-specific adaptor technology with the CAR T-cell immunotherapy research efforts at the Ben Towne Center for Childhood Cancer Research at Seattle Children's Research Institute, to move these potentially enabling technologies more quickly to patients in the clinic.

We own or have rights to over 400 issued patents and patent applications worldwide covering our core technology, SMDCs and companion imaging agents. Our U.S. patent covering our core technology, vintafolide, expires in 2026, and our U.S. patents covering etarfolatide expire in 2024. In 2012, the United States Patent and Trademark Office awarded us a patent with claims specifically directed to vintafolide entitled "Vitamin Receptor Binding Drug Delivery Conjugates." EC1456 and EC1169 patent applications were filed in 2013, and if granted, should expire no earlier than 2033.

Our Strategy

Our strategy is to develop and commercialize SMDCs to treat patients who suffer from a variety of cancers and inflammatory diseases that are not well addressed by currently available therapies. The critical components of our business strategy are to:

- **Develop folate-targeted SMDCs in multiple indications.** With the prevalence of folate receptor presence in the disease, NSCLC is a promising indication for folate targeted therapy. Our focus is on the development of our second generation folate targeted agent, EC1456. We are currently enrolling select FR-positive patients as determined by an etarfolatide scan in a phase 1b trial to evaluate EC1456 in up to 40 patients with NSCLC at the maximum clinical dose of 6.0 mg/m² for a twice per week dosing schedule. We are also exploring a more frequent dosing schedule, four times per week, in indications that are typically FR-positive, such as ovarian and endometrial cancers. In the phase 1b trial, we will evaluate single agent tumor response in NSCLC, which will inform and may trigger additional work in combination therapies and indications such as triple-negative breast cancer, ovarian cancer, and endometrial cancer. We expect to provide safety and efficacy data updates for EC1456 in the first half of 2017. We are also currently conducting an ovarian cancer surgical study to assess various attributes of the drug release within targeted tumors.
- **Develop EC1169 for Prostate Cancer.** We are currently enrolling patients in a phase 1b trial to evaluate EC1169 in up to 100 second-line chemotherapy and taxane-naïve mCRPC patients at a maximum clinical once per week dose of 6.5 mg/m². We have developed a companion imaging agent, EC0652, to scan patients prior to therapy to identify the presence of PSMA. To date, EC0652 has shown the presence of PSMA in at least one lesion in all prostate cancer patients scanned, but variability in the intensity of PSMA presence allows for selection criteria designed to enrich the patient population. We expect to provide safety and efficacy data updates regarding the phase 1b trial in the first half of 2017. Enrollment in an EC1169 receptor occupancy study is expected to begin in 2017, which is designed to provide insight into the drug's interaction with the target receptor. Data regarding the EC1169 receptor occupancy study is expected in the second half of 2017.
- **Build a pipeline of additional therapeutic SMDCs by leveraging our technology platform.** We believe that the modular approach of our technology platform will allow us to efficiently expand our pipeline of SMDC candidates featuring various combinations of our targeting ligands, linker systems and drug payloads. We are currently evaluating EC1456 and EC1169 in ongoing clinical trials. We have multiple additional therapeutic SMDCs in pre-clinical development. EC2629 is a folate-pro pyrrolbenzodiazepine, or proPBD, DNA crosslinker drug that targets cancer cells and TAMs. EC2319 is a folate-targeted SMDC that targets a potent anti-inflammatory drug payload to activated macrophage for the treatment of various inflammatory indications.

We are also developing a CAR-T application of SMDCs that involves the re-targeting of potent immune cells, which enables the utilization of a single CAR-T cell to target multiple cell targets using small molecule adaptors to bridge the CAR-T cells to diseased cells.

- ***Develop companion imaging agents for each of our therapies.*** We believe that there is a significant opportunity to create targeted therapies where individual patients are selected based upon the use of non-invasive diagnostic tools. Our companion imaging agents may lower the risk of development of our SMDCs by allowing us to select for our clinical trials only those patients whose disease over-expresses the receptor targeted by our SMDCs. This benefit may, following any regulatory approval, extend to clinical practice by giving physicians the information they need to prescribe our SMDCs to patients who are most likely to respond to our therapy. We are currently evaluating etarfolatide and EC0652 for the selection of patients for folate-targeted and PSMA-targeted therapies, respectively.
- ***Build commercial capabilities and partner to maximize the value of our SMDCs.*** We have retained all worldwide commercial rights to our SMDCs. If we obtain the required regulatory approvals to commercialize our oncology SMDCs in the United States, we intend to do so through our own focused sales force that we would build in connection with such commercialization efforts, or by co-promoting these SMDCs in collaboration with one or more larger pharmaceutical companies that have established capabilities in commercializing cancer therapies. Outside of the United States, we will consider partnering with established international pharmaceutical companies to maximize the value of our pipeline. In the large inflammatory disease markets, we expect to out-license our SMDCs, if approved, in order to mitigate their higher costs of development and commercialization.

Our Small Molecule Drug Conjugate (SMDC) Technology

Traditional cytotoxic cancer chemotherapies kill rapidly dividing cancer and normal cells in an indiscriminate manner, leading to significant toxicity in patients. The need for patients to recover from this toxicity can limit the ability to deliver effectively-dosed cancer therapy. In addition, cancer therapies for a given tumor type are generally selected based on observations of efficacy and toxicity in that patient population and not, in most cases, based on an understanding of the differences between tumors on a molecular level. In response to these limitations, a number of targeted therapies were developed to be more selective, including monoclonal antibody-based therapies. Due to their selectivity against certain cancers, antibody therapies have achieved tremendous therapeutic and financial success in recent years. According to Roche Holdings' publicly available information, the three largest cancer drugs in the world, Avastin, Herceptin and Rituxan, are monoclonal antibodies, with collective U.S. sales of \$9.2 billion in 2016.

For certain cancers, antibodies alone are not sufficiently effective to achieve meaningful clinical benefit. This limitation has led to the development of a new class of agents called antibody drug conjugates, or ADCs. ADCs are comprised of a monoclonal antibody, which is used to target the specific cancer, attached via a linker system to a cell-killing drug. In clinical trials, ADCs have enabled the targeted delivery of highly active anti-cancer drugs, improving response rates in several cancer indications, with generally less toxicity than standard chemotherapy. However, ADCs also have limitations. First, larger molecules, like ADCs, do not penetrate dense solid tumors as efficiently as small molecules, and as a result, ADC efficacy may be compromised due to limited accessibility to the target cells. Second, the slow clearance of antibodies from a patient's bloodstream following ADC treatment may lead to increased toxicity. Third, the longer half-life of ADCs has also limited the development of antibody-based imaging diagnostics due to the poor image quality associated with the high background noise caused by ADCs remaining in a patient's bloodstream. Fourth, ADCs are biologic molecules that are costly and often complex to manufacture.

We believe our SMDC platform represents a novel approach, comparable to ADCs, in its ability to deliver highly active drug payloads in a targeted manner, but also with a number of potential advantages:

- ***Small size to better penetrate solid tumors.*** We believe a key characteristic of our SMDCs is their ability to penetrate deeply into dense solid tumors. The targeting ligands for our SMDCs are approximately 300 times smaller in molecular weight than a typical antibody incorporated in ADCs. This may result in greater uptake and higher concentrations of these molecules within solid tumors.

- **Rapid clearance for reduced toxicity.** The circulating half-life of ADCs currently in development generally range from several hours to several days. In contrast, our SMDCs are engineered to provide rapid uptake in targeted cells and rapid clearance from the bloodstream with a half-life of approximately 20 minutes. As a result of this shorter half-life, we believe there is reduced risk that our SMDCs will release the unconjugated drug payload into the blood stream. The long circulating half-life of ADCs may provide a longer period for which they are available for cellular uptake, however our SMDCs can be delivered more frequently.
- **Companion imaging agents for targeted therapy.** A companion imaging agent can be created for each of our SMDCs. Because of the modular nature of our SMDC technology, the drug payload can be replaced with a radioisotope imaging agent, such as technetium-99m, or Tc-99m, that we employ in etarfolatide and EC0652, to create a companion imaging agent designed to target the same diseased cells as the SMDC. The companion imaging agent is intended to allow for real-time, full-body assessment of the receptor target without requiring an invasive tissue biopsy. Using full-body imaging, the receptor expression can be measured in every tumor and monitored throughout treatment. In our clinical trials that combined vintafolide with etarfolatide, we have seen correlations between favorable therapeutic outcomes and increased uptake of etarfolatide.
- **Cost-effective and simple to manufacture.** Given the increasing pressure on drug pricing posed by payors, costs of development and manufacturing are increasingly important. Our SMDCs are relatively simple to manufacture and do not have the complexity and expense of biological molecules, like antibodies and ADCs.

In pre-clinical studies, our SMDC therapies of vintafolide, EC1456 and EC1169, have been observed to eliminate human tumors in mice across multiple receptor positive tumor models, using regimens that caused little to no observable toxicity. In the same models, treatment at the maximum tolerated dose, or MTD, with the free drug, DAVLBH or tubulysin, generated only modest or temporary tumor responses at best, and always in association with substantial toxicity. In addition, SMDC therapies caused no anti-tumor responses in pre-clinical tumor models that did not express the target receptor, thus confirming the SMDC's specificity to the target receptor.

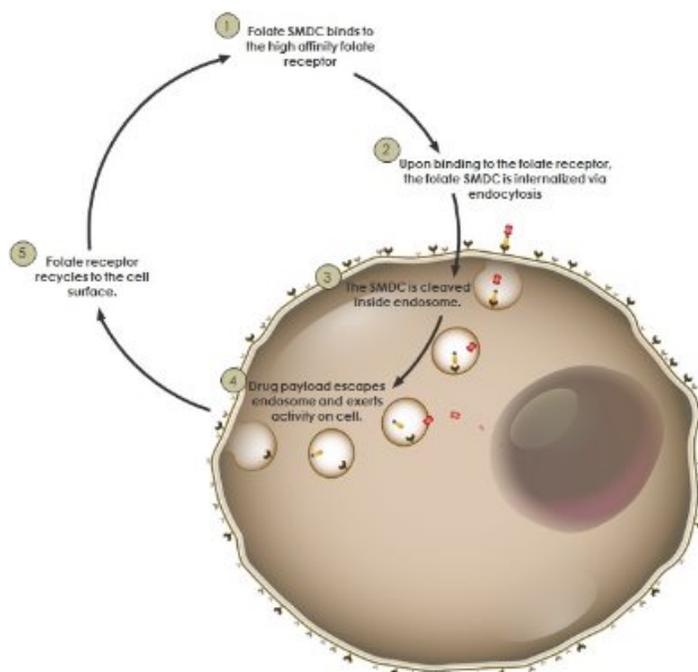
Our SMDCs have also been evaluated in pre-clinical models for activity in combination with several approved chemotherapeutic agents. For example, vintafolide has shown significant anti-tumor responses in animals when dosed in combination with approved drugs, such as pegylated liposomal doxorubicin, or PLD, cisplatin, topotecan, bevacizumab, docetaxel, carboplatin, erlotinib and paclitaxel protein-bound. The toxicity profile of both SMDCs, particularly their lack of hematologic toxicity, make these SMDCs good potential candidates for combination therapies.

Receptor Targets

We are developing SMDCs to identify a variety of cancer and other disease receptor targets in addition to folate receptor and PSMA receptor targets. These receptors are over-expressed on diseased cells. An SMDC binds to the receptor and is internalized through a process known as endocytosis.

Cellular Uptake of Folate

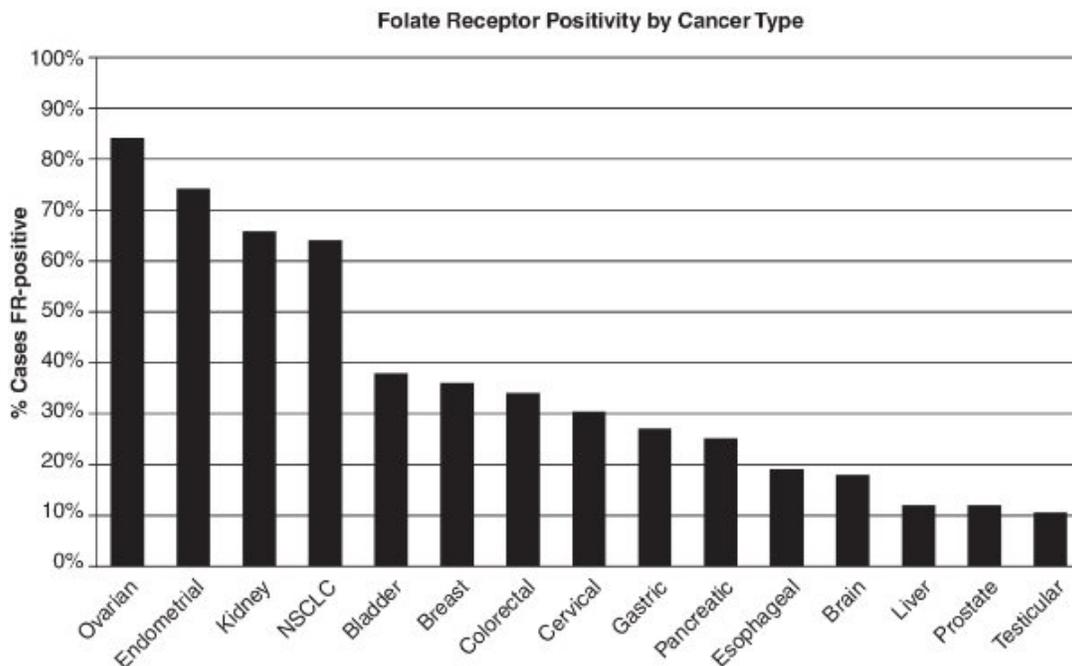
The following image depicts the process by which a human cell internalizes folate.



We select types of receptor targets on which to focus our development efforts through our biology screening system and the use of our companion imaging agents. The folate receptor is not significantly expressed on most normal tissues. Lung, brain, small intestine, kidney and activated macrophages are the normal tissues known to express the folate receptor. In the lung, brain and small intestine, the folate receptor does not face the bloodstream, thus these folate receptors are not accessible to our folate-targeted SMDCs. In the kidney, the folate receptor functions as a salvage receptor that captures folates and transports them back into the blood stream to prevent folate deficiency. Our drug payload does not appear to be released during this transport process and, as a result, we have not observed kidney toxicity with our folate-targeted SMDC therapies. Imaging is used to identify cellular targeting for specificity, thereby validating the receptor target as viable for potential therapy.

Market Opportunity for Folate Receptor Cancers

The graph below shows the percentage of patients with different cancer types that are known to over-express the folate receptor. We estimate, based on worldwide cancer incidences combined with our own imaging studies, that there are over one million newly diagnosed cancer patients per year in the United States, Europe and Japan whose tumors over-express the folate receptor.



Source: *American Cancer Society and Endocyte estimates based upon imaging studies and tissue biopsies.*

Companion Imaging Agents for Patient Selection

We believe the future of medicine includes not only safer and more effective drugs, but also the ability to identify the appropriate therapy for a particular patient. We are committed to this approach, which is commonly referred to as personalized medicine or precision medicine.

Our technology allows us to create companion imaging agents intended for use with each of our SMDCs. Because of the modular nature of our SMDC technology, the drug payload can be replaced with a radioisotope imaging agent, such as Tc-99m, which we employ in etarfolatide, to create a companion imaging agent designed to target the same diseased cells as the SMDC and is easily seen with widely available nuclear imaging equipment. The companion imaging agent allows for real-time, full-body assessment of the receptor target without requiring an invasive tissue biopsy. Using full-body imaging, the receptor expression can be measured in every tumor and monitored throughout treatment. Potential key advantages of companion imaging agents over tissue-based samples include:

- minimally invasive (not requiring biopsy);
- real-time assessment of tumor receptor expression (as opposed to analysis based on archived tissue);
- greater sensitivity because etarfolatide binds to all forms of the folate receptor (tissue sample analysis may understate folate receptor expression by not recognizing all forms of the folate receptor);

- greater specificity because etarfolatide distinguishes between those receptors accessible to folate in the blood and those not accessible (tissue sample analysis may overstate folate receptor expression); and
- full-body evaluation (as opposed to samples of tumor which may or may not be indicative of all areas of disease).

The information provided by our companion imaging agents is used throughout the development of every new SMDC. In both pre-clinical and clinical trials, a companion imaging agent is used to validate targeting of our SMDC to specific tissues and cells. These companion imaging agents also allow for the screening of large patient populations to select diseases where a high percentage of the patient population have tumors or diseased cells that over-express the molecular target. These companion imaging agents may also enable us to expand the use of our SMDCs to cancer indications where the percentage of patients who over-express a given receptor target of interest may be relatively low. If we obtain regulatory approval, we believe companion imaging agents, such as etarfolatide, will help to identify patients who will most likely benefit from treatment with our SMDCs. As a result, use of our companion imaging agents may broaden the commercial use of our SMDCs, if approved.

SMDC Pipeline

We have a pipeline of multiple SMDCs and companion imaging agents that are in varying stages of clinical and pre-clinical development, all of which use our platform SMDC targeting technology. A summary of our most advanced development pipeline SMDCs and companion imaging agents are as follows:

PROGRAM	INDICATION	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3
Oncology: Small Molecule Drug Conjugates (SMDCs)					
EC1169 Prostate-specific Membrane Antigen	Prostate Cancer	█	█		
EC1456 Folate Receptor (FR)	NSCLC	█	█		
Immuno-Oncology: SMDC and Cell-Based Therapy					
EC2629 FR-expressing Tumor Associated Macrophages + Tumor Cells	Solid Tumors	█			
Chimeric Antigen Receptor (CAR) T-Cell (Multiple FITC Adaptor Molecules)	<i>To Be Determined</i>	█			
Inflammation: SMDC					
EC2319 FR-expressing Activated Macrophages	<i>To Be Determined</i>	█			
Imaging: Companion Imaging Agents					
Folcepri® Folate Receptor	<i>To Be Determined</i>	█	█	█	█
^{99m}Tc -EC0652 Prostate-specific Membrane Antigen	Prostate Cancer	█	█		

EC1456

EC1456 is a second generation folate receptor-targeted SMDC. It is a conjugate of folate and an anti-cancer drug payload of tubulysin, a microtubule destabilizer that, in our in vitro models, showed more potency than DAVLBH. EC1456 is an investigational, proprietary, injectable SMDC consisting of folate (vitamin B9) linked to a potent cytotoxic agent, tubulysin B hydrazide, or TubBH. TubBH is a member of the tubulysin class of anti-neoplastic agents that inhibits the polymerization of tubulin into microtubules, a critical component during cell division. The targeting ligand folate, essential for cell division, has been established in vintafolide. EC1456 is the first SMDC with TubBH to enter clinical trials. Tubulysin alone is too toxic to be used in patients, rendering it impractical for therapeutic use. In contrast, our folate receptor-targeted tubulysin SMDC, EC1456, is curative in multiple xenograft models under conditions that produce no observable toxicities. EC1456 also employs a new spacer chemistry designed to reduce uptake in the liver which was believed to be the cause of dose limiting toxicities for vintafolide. EC1456 has progressed in a phase 1 trial to a dose that exceeds the dose of vintafolide delivered in trials to date.

Based on the assessment of the presence and intensity of the folate receptor, the estimate of the FR-positive patient population and responses of human tumor xenografts in animals, we have selected NSCLC, triple-negative breast cancer, ovarian cancer and endometrial cancer as possible indications for evaluation of EC1456. We are currently enrolling select FR-positive patients as determined by an etarfolatide scan in a phase 1b trial to evaluate EC1456 in up to 40 patients with NSCLC at the maximum clinical dose of 6.0 mg/m² for a twice per week dosing schedule. Patients included in this expansion phase of the trial will have received first-line chemotherapy and may have also been treated with anti-PD-1 therapy. We are also exploring a more frequent dosing schedule, four times per week, in indications that are typically FR-positive, such as ovarian and endometrial cancers. In the phase 1b trial, we will evaluate single agent tumor response in NSCLC, which will inform and may trigger additional work in combination therapies and indications such as triple-negative breast cancer, ovarian cancer, and endometrial cancer. We expect to provide safety and efficacy data updates for EC1456 in the first half of 2017. We are also currently conducting an ovarian cancer surgical study to assess various attributes of the drug release within targeted tumors.

EC1169 in Prostate Cancer

EC1169 is our first non-folate targeted SMDC and is designed to specifically target PSMA. PSMA is a cell surface protein found on nearly all prostate cancer cells. Similar to the folate receptor, PSMA has been shown to have an internalization signal that allows internalization of the protein on the cell surface into an endosomal compartment. EC1169 is designed to deliver a highly cytotoxic drug payload directly to PSMA receptors that are over-expressed on prostate cancer cells, with low toxicity to healthy cells. EC1169 consists of a targeting ligand, 2-[3-(1, 3-dicarboxy propyl)-ureido] pentanedioic acid, or DUPA, conjugated via a linker system to an anti-cancer drug payload, tubulysin. Tubulysin is a potent microtubule destabilizer. Because microtubules are critical for the separation of chromosomes during cell division, disruption of this microtubule system promotes cell death. Once EC1169 is internalized into the cell, the linker system is cleaved, releasing the tubulysin within the prostate cancer cell. In the development of EC1169, we are employing a companion imaging agent, EC0652, to help us better understand if we might be able to select patients that may respond better to treatment with EC1169.

In March 2014, the FDA accepted the investigational new drug application, or IND, that we filed for EC1169. EC1169 is currently being evaluated in a phase 1b trial in up to 100 second-line chemotherapy and taxane-naïve mCRPC patients at a maximum clinical once per week dose of 6.5 mg/m². We expect to provide safety and efficacy data updates regarding the phase 1b trial in the first half of 2017. Enrollment in an EC1169 receptor occupancy study is expected to begin in 2017 which is designed to provide insight into the drug's interaction with the target receptor. Data regarding the EC1169 receptor occupancy study is expected in the second half of 2017.

Vintafolide (EC145)

Vintafolide is designed to deliver a highly cytotoxic drug payload directly to folate receptors that are over-expressed on cancer cells, with low toxicity to healthy cells. Vintafolide consists of a targeting ligand, folate, conjugated via a linker system to an anti-cancer drug payload, DAVLBH. DAVLBH is derived from a proven class of anti-cancer drugs

and is a potent destabilizer of microtubules. In preclinical models, this agent demonstrated 73,000 times the potency of the widely used chemotherapy, cisplatin. Since microtubules are critical for the separation of chromosomes during cell division, disruption of this microtubule system with DAVLBH promotes cell death. As folate is required for cell division, many rapidly dividing cancer cell types have been found to over-express high-affinity folate receptors. In clinical trials using our companion imaging agent, etarfolatide, we found that ovarian, non-small cell lung, breast, colorectal, kidney, endometrial and other cancers over-express folate receptors. Vintafolide binds to these folate receptors on cancer cells with high-affinity and is internalized through a process known as endocytosis. Once vintafolide is inside the cell, the linker system is cleaved, releasing the active drug payload within the cancer cell.

Trial to Assess the benefit of folate- Receptor targeted Treatment of second-line NSCLC: Phase 2b Clinical Trial of Vintafolide for Second-Line NSCLC

The TARGET trial design was intended to evaluate the safety and efficacy of vintafolide in second-line NSCLC as a single agent and in combination with docetaxel, a commonly used second-line chemotherapy approved by the FDA. The study met the primary endpoint of PFS for the combination vintafolide plus docetaxel arm, and we communicated the detailed data, including updated overall survival, or OS, results at ESMO 2014 Congress in September 2014. At that meeting, we reported that patients in the predefined adenocarcinoma subgroup treated with the combination had a 27% reduction in risk of the disease worsening or death and a 30% reduction in the risk of death compared to docetaxel monotherapy. We presented the final OS data at the World Lung Cancer Conference in September 2015. At that meeting, we reported that vintafolide plus docetaxel improved median OS by 2.7 months in NSCLC regardless of histology (Median OS 11.5 vs. 8.8 months, OS HR=0.86, 95% CI [0.58, 1.26]). In the predefined subset analysis of patients with adenocarcinoma, which expresses higher levels of folate receptor, vintafolide plus docetaxel improved median OS by 5.9 months (12.5 vs. 6.6 months, HR=0.72, 95% CI [0.44, 1.16]). OS for vintafolide as a single agent was similar to docetaxel (OS 8.4 vs. 8.8 months, HR=1.02, 95% CI [0.70, 1.50]). The safety profiles of vintafolide alone and docetaxel alone were consistent with previous observations, but the combination of vintafolide and docetaxel resulted in higher rates of hematologic and peripheral neuropathy adverse events.

EC2629 in Cancer

EC2629 is a folate receptor-targeted SMDC in pre-clinical development. It is constructed with a very potent DNA crosslinking drug that can attack both cancer cells and TAMs. We have extensively tested EC2629 against multiple pre-clinical models and, to date, have seen curative activity with as little as one or two doses, which represents a significant improvement in activity when compared to other less potent and untargeted DNA-reactive drugs, such as platinum agents, which have historically shown significant activity against a variety of cancers under conditions of dose-limiting toxicity. Based on our positive pre-clinical findings, we expect to file an IND application for EC2629 in mid-2017 and expect to begin enrollment of a phase 1 trial in the second half of 2017.

EC2319 in Inflammation

EC2319 is a folate receptor-targeted SMDC in pre-clinical development for treatment in inflammatory diseases. Utilizing an identical strategy to that which we applied in the development of our oncology programs, SMDCs designed for treating inflammation may be constructed with more potent forms of known, active drugs, and then used along with companion imaging agents to provide personalized therapy. Using our folate receptor-targeted etarfolatide companion imaging agent in both pre-clinical and clinical trials, we have identified a number of diseases involving activated macrophages that over-express the folate receptor, including rheumatoid arthritis, osteoarthritis, inflammatory bowel disease and psoriasis.

In our pre-clinical models of rheumatoid arthritis, SMDCs targeted to activated macrophages resulted in significant reduction in inflammation and prevention of bone destruction that often accompanies this disease. EC2319 is a SMDC constructed with the targeting ligand, folate, and an inhibitor of cellular metabolism, called aminopterin. We observed in pre-clinical models that EC2319 was safe and reduced inflammation more than the most commonly prescribed anti-inflammatory agent, methotrexate, and the anti-TNF-alpha agent, etanercept. As a first step in development, EC2319 is being tested in a naturally occurring arthritic animal model to guide future development decisions.

EC0371 (Polycystic Kidney Disease)

EC0371 is a folate receptor-targeted SMDC in pre-clinical development for treatment of polycystic kidney disease, or PKD. This is an opportunity to provide a new treatment to a disease with a very high unmet need.

PKD affects approximately 650,000 people in the U.S., and over 12 million people worldwide suffer from PKD. There are no effective treatments for this disease. We have identified a receptor target and are performing pre-clinical testing in a variety of SMDCs with different drug payloads.

SMDC Bi-specific Adaptor Chimeric Antigen Receptor T-cell (CAR T-cell) Immunotherapy in Cancer

We are developing a unique therapeutic approach that involves the re-targeting of potent immune cells, called CAR T-cells, to fight cancer. Proprietary small molecule bi-specific “adaptor” molecules are used in combination with our universal CAR T-cells to effectively wake up a patient’s immune system with the hope of eliminating the malignant disease. The SMDC bi-specific adaptor CAR T-cell technology leverages our SMDC platform and prior immunotherapy clinical experience into a unique approach to potentially address some of the challenges of the current CAR T-cell technologies. This approach has been shown pre-clinically to address three key CAR T-cell issues by: (i) avoiding hyper-activation of CAR T-cells leading to a cytokine storm, (ii) enabling termination of CAR T-cell activity upon eradication of the tumor, and (iii) potentially enabling elimination of all cancer cells in heterogeneous solid tumors. In March 2017, we announced our plan to collaborate with Seattle Children’s Research Institute and Dr. Michael Jensen for the development of our SMDC platform in the CAR T-cell immunotherapy setting. The aim of the research collaboration is to join our SMDC bi-specific adaptor technology with the CAR T-cell immunotherapy research efforts at the Ben Towne Center for Childhood Cancer Research at Seattle Children’s Research Institute, to move these potentially enabling technologies more quickly to patients in the clinic.

Companion Imaging Agents

Etarfolatide: Lead Companion Imaging Agent for Folate-Targeted Therapies

Etarfolatide is the companion imaging agent for all of our SMDCs that target the folate receptor. Etarfolatide is a conjugate of the targeting ligand folate and the radioisotope imaging agent Tc-99m. Following intravenous administration, etarfolatide rapidly binds to tumors that over-express the folate receptor, allowing the treating physician to identify patients who are FR-positive and would be more likely to benefit from our targeted therapies. Etarfolatide enables high quality diagnostic scans in approximately one hour following its administration as a result of the quick clearance from the blood of etarfolatide not taken up by cells which over-express the folate receptor.

Etarfolatide Development Plan

In the U.S., etarfolatide is being developed under the FDA’s published guidance regarding usage of imaging agents for therapeutic management of patients. Consistent with this guidance, our development strategy for etarfolatide will be to show that the presence of etarfolatide uptake in tumors is predictive of improved therapeutic outcomes resulting from treatment with our SMDCs.

With an estimated incidence of over one million newly diagnosed cancer patients per year in the United States, Europe and Japan who have tumors that over-express the folate receptor, etarfolatide could, if approved, represent a substantial commercial opportunity for us as a screening diagnostic. Companion imaging agents are an important part of our development and commercial plan, which may allow us not only to provide a targeted therapy, but also a truly personalized and more effective therapy. This could benefit patients, doctors and payors by allowing doctors to select only patients who are most likely to benefit from our therapies.

We conducted an additional inter-reader analysis to further determine the reliability of etarfolatide. Five independent radiologists/nuclear medicine physicians read images from the PROCEED study, our phase 3 trial which evaluated the treatment of vintafolide in platinum-resistant ovarian cancer, or PROC, patients, and the evaluation resulted in a 76.7 percent agreement rate (0.69 Kappa) among all five readers in selecting patients with all target lesions

positive for the folate-receptor, FR (100%), and a 73.3 percent five reader agreement (0.71 Kappa) in selecting patients with at least one tumor positive for the folate-receptor, FR (10 – 100%). This provides evidence supporting the reliability of the etarfolatide scan process to consistently classify patients.

We have been capitalizing on advancements in imaging hardware and software to enhance patient selection. We are using hybrid SPECT cameras with built-in CT scanners to create relatively high resolution images. This improved clarity promotes quantification of tumor uptake, better assessment of potential heterogeneity within a single tumor, and the possibility to assess non-targeted disease. Better resolution has also led to our results becoming progressively more reproducible, with outstanding levels of concordance between independent readers. These enhancements will be incorporated into our clinical trials as we select patients most likely to benefit from therapy.

EC0652

In January 2013, we announced the achievement of key objectives in a phase 0 study of EC0652, a diagnostic imaging agent targeting PSMA, a protein expressed on cancer cells originating from the prostate as well as on tumor neovasculature. The prostate cancer imaging agent EC0652, also termed DUPA-^{99m}Tc, is a conjugate of the high affinity PSMA-targeting ligand DUPA to technetium 99m (^{99m}Tc). The discovery process utilized a unique structure-based drug design approach to synthesize the ideal targeting ligand for binding to PSMA. The corresponding SMDC, EC1169, utilizes the same targeting ligand. Based on the observed safety of the agent and its specificity for binding to diseased cells, we are advancing the development of both the diagnostic imaging agent, EC0652, and the corresponding therapeutic agent, EC1169, a proprietary PSMA-targeted SMDC linked with tubulysin. In March 2014, the FDA accepted the IND we filed for EC1169, and in July 2014, the FDA accepted the IND we filed for EC0652. We have initiated a phase I trial in advanced prostate cancer for EC1169, and we are imaging patients with EC0652.

Competition

The biotechnology and pharmaceutical industries are highly competitive. There are many pharmaceutical companies, biotechnology companies, public and private universities and research organizations actively engaged in the research and development of products that may be similar to our SMDCs. A number of multinational pharmaceutical companies and large biotechnology companies are pursuing the development of or are currently marketing pharmaceuticals that target NSCLC, prostate cancer, ovarian cancer and endometrial cancer, or other oncology pathways on which we are focusing. It is possible that the number of companies seeking to develop products and therapies for the treatment of unmet medical needs in oncology will increase.

Many of our competitors, either alone or with their strategic partners, have substantially greater financial, technical and human resources than we do and significantly greater experience in the discovery and development of drugs, obtaining FDA and other regulatory approvals of products and the commercialization of those products. Accordingly, our competitors may be more successful than we may be in obtaining approval for drugs and achieving widespread market acceptance. Our competitors' drugs may be more effective, or more effectively marketed and sold, than any drug we may commercialize and may render our product candidates obsolete or non-competitive before we can recover the expenses of developing and commercializing any of our product candidates. We anticipate that we will face intense and increasing competition as new drugs enter the market and advanced technologies become available.

Recent successes with targeted therapies in solid tumors, such as those found in colon, breast, lung and ovarian cancers, have led to a marked increase in research and development in targeted treatments for cancer. We are aware of multiple competitors with many advanced clinical trials and clinical data under review by regulatory authorities for potential commercial approval in triple-negative breast cancer, endometrial cancer and ovarian cancer, among others.

We are also aware of a number of companies that have ongoing programs to develop both small molecules and biologics to treat patients with NSCLC. NSCLC is at the forefront of patient segmentation based on therapeutic targets, restricting use of untargeted agents to patients without a detectable target mutation, later lines of therapy, or combination regimens. Epidermal growth factor receptor, or EGFR, positive patients and anaplastic lymphoma kinase, or ALK, positive patients are each sub-segments of NSCLC patients that have been bolstered with recent approvals of agents shown to benefit those who have progressed after treatment with first line, targeted agents (e.g. gefitinib or crizotinib).

AstraZeneca PLC received approval for its third-generation, small molecule, EGFR TKI osimertinib, which treats patients who have acquired secondary EGFR-T790M mutations following treatment with a first- or second-generation EGFR TKI. Ceritinib (Novartis AG) and alectinib (Roche Holdings' Genentech) are both approved in metastatic, ALK+ patients who have failed or become intolerant to crizotinib. Anti-programmed cell death-1 receptor (PD-1) inhibitors nivolumab and pembrolizumab from Bristol-Myers Squibb Company, and Merck & Co, Inc., respectively, have been granted FDA approval in second-line NSCLC. Pembrolizumab is the first PD-1 agent to gain approval in first-line NSCLC, but is restricted to patients that express >50% PD-L1 in their disease. Roche Holdings (atezolizumab), AstraZeneca PLC (durvalumab) and Merck KGaA/Pfizer (avelumab) are also aggressively developing PD-L1 agents. Atezolizumab is the first PD-L1 agent approved in NSCLC in patients that have failed platinum therapy or the appropriate targeted therapy regardless of PD-L1 expression. PD-1 is an inhibitory costimulatory molecule found on activated T cells. PD-L1 is a transmembrane protein ligand of PD-1. The formation of PD-1/PD-L1 complexes transmit an inhibitory signal which reduces the proliferation of activated T cells which has been shown to play a role in negatively impacting the body's ability to recognize and fight cancer. Anti-PD-1/PD-L1 agents are meaningfully changing the treatment paradigm in NSCLC and other cancer indications, and in turn may negatively affect our ability to effectively develop our SMDC therapeutics.

Other targeted therapies that have submitted New Drug Applications for NSCLC include MEK inhibitor trametinib (Novartis AG), dual EGFR/ALK inhibitor brigatinib (ARIAD Pharmaceuticals, Inc.) and BRAF inhibitor dabrafenib (Novartis AG). Phase 3 agents include CDK 4/6 Dual Inhibitor abemaciclib (Eli Lilly & Company), mutation-positive EGFR inhibitors olmutinib (Hanmi Pharmaceutical Co., Ltd.) and ASP8273 (Astellas Pharma, Inc.) and angiogenesis inhibitor (via VEGF/PDGF/FGF) nintedanib (Boehringer Ingelheim GmbH). Many more targeted agents are in phase 2 development by biotechnology and pharmaceutical firms including Amgen, Inc., Ariad Pharmaceuticals, Inc., AstraZeneca PLC, Bristol-Myers Squibb Company, Cadila Pharmaceuticals Ltd., Calithera Biosciences, Inc., Cellular Biomedicine Group, Inc., Eisai Co., Ltd., Eli Lilly & Company, Exelixis, Inc., Fortress Biotech, Inc., Helix BioPharma Corporation, Ignyta, Inc., Immunomedics, Inc., Incyte Corporation, Juno Therapeutics Inc., Kadmon Holdings, Inc., Kite Pharma, Inc., Merck & Co., Inc., Merrimack Pharmaceuticals, Inc., Mirati Therapeutics, MolMed S.p.A., Novartis AG, OncoMed Pharmaceuticals, Inc., Otsuka Holdings Co., Ltd., Pfizer Inc., Puma Biotechnology, Inc., Roche Holdings AG, Spectrum Pharmaceuticals, Inc., Syndax Pharmaceuticals, Inc., Takeda Pharmaceutical Company Ltd, and Verastem, Inc.

We are aware that mCRPC is a competitive market as well. Several recent approvals have added to the competition. The most recent approvals include Zytiga (Janssen Biotechnology, Inc.), Xtandi (Medivation/Astellas Pharma, Inc.), Taxotere (Sanofi Aventis), Jevtana (Sanofi), Provenge (Dendreon), and Xofigo (Bayer AG). We are also aware of a number of companies developing products to treat mCRPC. Some of these products in late-phase development include apalutamide (Johnson & Johnson), Prostavac (Bavarian Nordic GmbH), Lynparza (AstraZeneca PLC), ODM-201 (Orion/Bayer HealthCare), ProstAtak (Advantagene, Inc.), Yervoy (Bristol-Myers Squibb), Stapuldencel-T (Sotio Group), Custirsen (OncoGenex Pharmaceuticals, Inc.), and Masitinib (AB Science). Additional products with studies in the late-stage setting include DCVac/PCa (Sotio Group), and Tecentriq (Roche Holdings' Genentech).

We are also aware of several ongoing clinical trials in the Phase I and Phase II mCRPC setting. These include, but are not limited to, ADXS31-142 (Advaxis), ASN001 (Asana BioSciences, LLC), ATL101 (ATLAB Pharma SAS), FG920 (Novartis), CV9104 (CureVac GmbH), EPI-506 (ESSA Pharma, Inc.), GVAX (Johnson & Johnson), KX01 (Athenex, Inc.), LY3023414 (Eli Lilly & Company), MEDI6469 (AstraZeneca), Niraparib (Tesarro, Inc.), Onapristone (Arno Therapeutics, Inc.), Osteodex (DexTech Medical AB), PSMA ADC (Progenics), Rubraca (Clovis Oncology), Seviteronel (Innocrin Pharmaceuticals), SHR3680 (Jiangsu Hengrui Medicine Co.), and TRC105 (TRACON Pharmaceuticals).

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 SMDCs and companion imaging agents;

- the speed at which we develop our SMDCs and companion imaging agents;
- achieving and maintaining compliance with regulatory requirements applicable to our business;
- 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 SMDCs and companion imaging agents;
- our ability to commercialize and market any of our products that may receive regulatory approval;
- our ability to have our partners manufacture and sell commercial quantities of any approved SMDCs and companion imaging agents to the market;
- acceptance of SMDCs and companion imaging agents 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 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. Technological advances or products developed by our competitors may render our SMDCs or companion imaging agents obsolete or less competitive.

Manufacturing

To date, our SMDCs and companion imaging agents have been manufactured in small and medium size quantities for pre-clinical studies, clinical trials and validation activities by third-party manufacturers and we intend to continue to do so in the future. We do not own or operate manufacturing facilities for the production of clinical or commercial quantities of our SMDC candidates. We currently have no plans to build our own clinical or commercial scale manufacturing capabilities. To meet our projected needs for pre-clinical development and clinical trials, third parties with whom we currently work have sufficient capacity, but they may need to increase their scale of production or we may need to secure alternate suppliers. We have identified several manufacturers that have the capacity to manufacture etarfolatide in the quantities that our development and future commercialization efforts, if any, may require. We have utilized two such suppliers to date. We expect to continue to depend on third-party contract manufacturers for the foreseeable future.

Our SMDCs and companion imaging agents 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.

Sales and Marketing

Our operations to date have been limited to organizing and staffing our company, acquiring, developing and securing our technology, undertaking pre-clinical testing and clinical studies of our SMDCs and companion imaging agents 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 take forward.

We entered into a license and commercialization agreement with Nihon Medi-Physic Co., LTD., or NMP, that grants NMP the right to develop and commercialize etarfolatide in Japan for use in connection with vintafolide in Japan. To date, the products have not been approved in Japan and no revenue has been recognized related to the regulatory milestones or royalties. We have retained all worldwide commercial rights to our SMDCs. If approved, we intend to commercialize our oncology SMDCs in the United States through our own focused sales force that we would build in connection with such commercialization efforts, or by co-promoting these SMDCs in collaboration with one or more larger pharmaceutical companies that have established capabilities in commercializing cancer therapies. Outside of the United States, we would consider partnering with established international pharmaceutical companies to maximize the value of our pipeline. In the large inflammatory disease markets, we currently expect to out-license our SMDCs in order to mitigate their higher costs of development and commercialization. With the exception of the rights granted to NMP with respect to etarfolatide in Japan, we have retained all worldwide commercial rights to etarfolatide, and, if approved, we intend to commercialize etarfolatide through our own sales force.

Research and Development, and Raw Materials

For information regarding the amount spent by us on company-sponsored research and development activities during each of the last three fiscal years, see Management's Discussion and Analysis of Financial Condition and Results of Operations herein.

We procure raw material components for our drug payloads, linkers, and spacers from a core group of principal suppliers. In order to meet our clinical trial needs, we are required to enter into agreements with third party manufacturing facilities for certain production needs and for fill and finish capabilities.

Employees

As of December 31, 2016, we had a total of 76 full-time employees, 60 of whom were engaged in research and development activities. None of our employees are represented by a labor union or subject to a collective bargaining agreement. We have not experienced a work stoppage and consider our relations with our employees to be good.

Government Regulation

Government authorities in the United States (including federal, state and local authorities) and in other countries extensively regulate, among other things, the manufacturing, research and clinical development, marketing, labeling and packaging, distribution, post-approval monitoring and reporting, advertising and promotion, and export and import of pharmaceutical products, such as those we are developing. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

United States Government Regulation

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and related regulations. Drugs are also subject to other federal, state and local statutes and regulations. Failure to comply with the applicable U.S. regulatory requirements at any time during the product development process, approval process or after approval may subject an applicant to administrative or judicial sanctions. These sanctions could include the imposition by the FDA or an Institutional Review Board, or IRB, of a clinical hold on trials, the FDA's refusal to approve pending applications or supplements, withdrawal of an approval, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties or criminal prosecution. Any agency or judicial enforcement action could have a material adverse effect on us.

The Investigational New Drug Process

An IND is a request for authorization from the FDA to administer an investigational drug to humans. Such authorization must be secured before commencing clinical trials of any new drug candidate in humans in the U.S.

The central focus of the initial IND submission is on the general investigational plan and the protocol(s) for human studies. The IND also includes results of animal studies or other human studies, as appropriate, as well as manufacturing information, analytical data and any available clinical data or literature to support the use of the investigational new drug. An IND must become effective before human clinical trials may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to the proposed clinical trials as outlined in the IND. In such a case, the IND may be placed on clinical hold until any outstanding concerns or questions are resolved.

Clinical trials involve the administration of the investigational drug to patients under the supervision of qualified investigators in accordance with Good Clinical Practices, or GCP. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, the parameters to be used in monitoring safety and the efficacy criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. Additionally, approval must also be obtained from each clinical site's IRB before the trials may be initiated. All participants in clinical trials must provide their informed consent in writing prior to their enrollment in the trial.

The clinical investigation of an investigational drug is generally divided into three phases. Although the phases are usually conducted sequentially, they may overlap or be combined. The three phases of a clinical investigation are as follows:

- **Phase 1.** Phase 1 involves the initial introduction of an investigational new drug into humans. Phase 1 clinical trials are typically closely monitored and may be conducted in patients with the target disease or condition or healthy volunteers. These studies are designed to evaluate the safety, tolerability, metabolism and pharmacologic actions of the investigational drug in humans, the side effects associated with increasing doses, and if possible, to gain early evidence on efficacy. During phase 1 clinical trials, sufficient information about the investigational drug's pharmacokinetics and pharmacologic effects may be obtained to permit the design of well-controlled and scientifically valid phase 2 clinical trials. The total number of participants included in phase 1 clinical trials varies, but generally ranges from 20 to 80.
- **Phase 2.** Phase 2 includes the clinical trials conducted to preliminarily or further evaluate the efficacy of the investigational drug for a particular indication in patients with the disease or condition under study, to further define safety, tolerability, and optimal dosage, and to identify possible adverse side effects and risks associated with the drug. Phase 2 clinical trials are typically well controlled, closely monitored and conducted in a limited patient population, usually involving no more than several hundred participants.
- **Phase 3.** Phase 3 clinical trials are generally controlled clinical trials conducted in an expanded patient population generally at geographically dispersed clinical trial sites. They are performed after preliminary evidence suggesting efficacy of the drug has been obtained, and are intended to further evaluate dosage, safety, and effectiveness to establish the overall benefit-risk relationship of the investigational drug, and to provide an adequate basis for product approval by the FDA. Phase 3 clinical trials usually involve several hundred to several thousand participants.

The decision to terminate development of an investigational drug may be made by either a health authority body such as the FDA or by us for various reasons. Additionally, some trials are overseen by an independent group of qualified experts organized by the trial sponsor, known as a Data Safety Monitoring Board, or DSMB, or committee. This group provides a recommendation of whether or not a trial may move forward at pre-specified check points based on access that only the DSMB maintains to available data from the trial. Suspension or termination of development during any phase of clinical trials can occur if it is determined that the participants or patients are being exposed to an

unacceptable health risk. We may decide to suspend or terminate development based on evolving business objectives and/or the competitive climate.

In addition, there are requirements and industry guidelines that require the posting of ongoing clinical trials on public registries and the disclosure of designated clinical trial results and related payments to healthcare professionals.

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, detailed investigational drug information is submitted to the FDA in the form of a New Drug Application, or NDA, except under limited circumstances, requesting approval to market the product for one or more indications.

The NDA Approval Process

In order to obtain approval to market a drug in the United States, an NDA must be submitted to the FDA that provides data establishing the safety and effectiveness of the investigational drug for the proposed indication to the FDA's satisfaction. The application includes all relevant data available from pertinent pre-clinical and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. Data can come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators.

The FDA will initially review the NDA for completeness before it accepts the NDA for filing. The FDA has 60 days from its receipt of an NDA to determine whether the application will be accepted for filing based on the agency's threshold determination that it is sufficiently complete to permit substantive review. After the NDA submission is accepted for filing, the FDA reviews the NDA to determine, among other things, whether the proposed product is safe and effective for its intended use, and whether the product is being manufactured in accordance with Current Good Manufacturing Practices, or cGMP, to assure and preserve the product's identity, strength, quality and purity. The FDA may refer applications for novel drug products or drug products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Based on phase 3 clinical trial results submitted in an NDA, upon the request of an applicant a priority review designation may be granted to a product by the FDA, which sets the target date for FDA action on the application at six months. Priority review is given where preliminary estimates indicate that a product, if approved, has the potential to provide a safe and effective therapy where no satisfactory alternative therapy exists, or a significant improvement compared to marketed products is possible. If criteria are not met for priority review, the standard FDA review period is ten months. The timing of the priority or standard review period begins after the initial 60 day decision regarding acceptability of the submission for filing and substantive review. Priority review designation does not change the scientific/medical standard for approval or the quality of evidence necessary to support approval. Other designations, such as breakthrough or fast track designation, are also potentially available and can help expedite development and approval of investigational new drugs.

Before approving an NDA, the FDA will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP. If the FDA determines the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

The testing and approval process for a drug requires substantial time, effort and financial resources and this process may take several years to complete. Data obtained from clinical activities are not always conclusive and may be

susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The FDA may not grant approval on a timely basis, or at all. We may encounter difficulties or unanticipated costs in our efforts to develop our SMDCs or companion imaging agents and secure necessary governmental approvals, which could delay or preclude us from marketing our products. Even if the FDA approves an SMDC or companion imaging agent, it may limit the approved indications for use or place other conditions on approval that could restrict commercial application, such as a requirement that we implement special risk management measures through a Risk Evaluation and Mitigation Strategy. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Post-Approval Regulation

After regulatory approval, if any, of a drug product is obtained, we would be required to comply with a number of post-approval requirements. For example, as a condition of approval of an NDA, the FDA may require post-marketing testing, including phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization. Regulatory approval of oncology products often requires that patients in clinical trials be followed for long periods to determine the OS benefit of the drug. The FDA has indicated to us that if we receive approval of a drug based on PFS data, we will be required to continue to follow patients in the registration trial to determine the OS benefit of the drug. In addition, as a holder of an approved NDA, we would be required to report, among other things, certain adverse reactions and production problems to the FDA, to provide updated safety and effectiveness information, and to comply with requirements concerning advertising and promotional labeling for any of our products. Also, quality control and manufacturing procedures must continue to conform to cGMP after approval to assure and preserve the drug product's identity, strength, quality and purity. The FDA periodically inspects manufacturing facilities to assess compliance with cGMP, which imposes extensive procedural, substantive and record-keeping requirements. In addition, changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

Europe/Rest of World Government Regulation

In addition to regulations in the United States, we are subject, either directly or through our distribution partners, to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products.

Whether or not we obtain FDA approval for a product, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In Europe, for example, a clinical trial application, or CTA, must be submitted to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the CTA is approved in accordance with a country's requirements, clinical trial development may proceed.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials are conducted in accordance with GCP and other applicable regulatory requirements.

To obtain regulatory approval of an investigational drug under European Union regulatory systems, we must submit a marketing authorization application to the European Medicines Agency, or EMA. This application is similar to the NDA in the United States, with the exception of, among other things, country-specific document requirements. Medicines can be authorized in the European Union by using either the centralized authorization procedure or national authorization procedures, and our SMDCs and companion imaging agents fall under the centralized authorization procedure.

The European Commission may grant conditional marketing authorization for a product that addresses an unmet medical need while additional development work is being completed. Conditional marketing authorization is subject to annual review, and such authorization may be limited or even withdrawn if subsequent development work is not satisfactory or fails to confirm the clinical benefit of the product.

The European Commission implemented the centralized procedure for the approval of human medicines to facilitate marketing authorizations that are valid throughout the European Union. This procedure results in a single marketing authorization issued by the European Commission that is valid across the European Union, as well as Iceland, Liechtenstein and Norway. The centralized procedure is compulsory for human medicines that are: derived from biotechnology processes, such as genetic engineering; contain a new active substance indicated for the treatment of certain diseases, such as HIV/AIDS, cancer, diabetes, neurodegenerative disorders or autoimmune diseases and other immune dysfunctions; and officially designated orphan medicines.

Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of a marketing authorization application is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the EMA's Committee for Medicinal Products for Human Use, or CHMP). Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is expected to be of a major public health interest, defined by three cumulative criteria: the seriousness of the disease to be treated; the absence or insufficiency of an appropriate alternative therapeutic approach; and anticipation of high therapeutic benefit. In this circumstance, EMA ensures that the opinion of the CHMP is given within 150 days.

For other countries outside of the European Union, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials must be conducted in accordance with GCP and the other applicable regulatory requirements.

If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Compliance

During all phases of development (pre- and post-marketing), failure to comply with the applicable regulatory requirements may result in administrative or judicial sanctions. These sanctions could include the following actions by the FDA or other regulatory authorities: imposition of a clinical hold on trials; refusal to approve pending applications; withdrawal of an approval; warning letters; product recalls; product seizures; total or partial suspension of production or distribution; product detention or refusal to permit the import or export of products; injunctions, fines, civil penalties or criminal prosecution. Any agency or judicial enforcement action could have a material adverse effect on us.

We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our SMDCs. Future FDA and state inspections or inspections by other regulatory authorities may identify compliance issues at our facilities or at the facilities of our contract manufacturers that may disrupt production or distribution, or require substantial resources to correct. In addition, discovery of previously unknown problems with a product or the failure to comply with applicable requirements may result in restrictions on a product, manufacturer or holder of an approved NDA, including withdrawal or recall of the product from the market or other voluntary, FDA-initiated or judicial action that could delay or prohibit further marketing. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, and also may require the implementation of other risk management measures. Also, new government requirements, including those resulting from new legislation, may be established, or the FDA's or other regulatory authorities' policies may change, which could delay or prevent regulatory approval of our products under development.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any drug products for which we obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we receive regulatory approval for commercial sale will depend in part on the availability of reimbursement from third-party payors. Third-party payors include government health programs, such as Medicare and Medicaid, managed care providers, private health insurers and other organizations. The process for determining whether a payor will provide coverage for a drug product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the drug product. Third-party payors may limit coverage to specific drug products on an approved list, or formulary, which might not include all of the FDA-approved drugs for a particular indication. Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA approvals. Our SMDCs may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

In 2003, the United States government enacted legislation providing a partial prescription drug benefit for Medicare recipients, which became effective at the beginning of 2006. Government payment for some of the costs of prescription drugs may increase demand for any products for which we receive marketing approval. However, to obtain payments under this program, we would be required to sell products to Medicare recipients through prescription drug plans operating pursuant to this legislation. These plans will likely negotiate discounted prices for our products. Federal, state and local governments in the United States continue to consider legislation to limit the growth of healthcare costs, including the cost of prescription drugs. The Patient Protection and Affordable Care Act, or PPACA, and its amendment, the Health Care and Education Reconciliation Act, were enacted in 2010. Since then, other legislative changes have been proposed and adopted, including the Budget Control Act of 2011, which resulted in reductions to Medicare payments to providers of 2% per fiscal year from April 2013 through 2024 unless additional congressional action is taken. Additionally, in January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers. We expect additional state and federal healthcare reform measures to be adopted in the future, which could limit payments or otherwise negatively impact reimbursement for pharmaceuticals such as the drug candidates that we are developing.

We also face uncertainties that might result from modification or repeal of any of the provisions of the PPACA, including as a result of current and future executive orders and legislative actions. We cannot predict what other healthcare programs and regulations will ultimately be implemented at the federal or state level or the effect of any future legislation or regulation in the United States may have on our business.

Different pricing and reimbursement schemes exist in other countries. In the European Union, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular SMDC to currently available therapies. Other member countries allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on healthcare costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, an increasing emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if

favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Other Healthcare Laws and Compliance Requirements

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration), other divisions of the U.S. Department of Health and Human Services (e.g., the Office of Inspector General), the U.S. Department of Justice and individual U.S. Attorney offices within the Department of Justice, and state and local governments. For example, sales, marketing and scientific/educational grant programs must comply with the anti-fraud and abuse provisions of the Social Security Act, the False Claims Act, the privacy provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended. Pricing and rebate programs must comply with the Medicaid rebate requirements of the Omnibus Budget Reconciliation Act of 1990, the Veterans Health Care Act of 1992 and the Patient Protection and Affordable Care Act, each as amended. If products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply. Under the Veterans Health Care Act, or VHCA, drug companies are required to offer certain drugs at a reduced price to a number of federal agencies including the U.S. Department of Veterans Affairs and the U.S. Department of Defense, the Public Health Service and certain private Public Health Service designated entities in order to participate in other federal funding programs including Medicare and Medicaid. Legislative changes purport to require that discounted prices be offered for certain U.S. Department of Defense purchases for its TRICARE program via a rebate system. Participation under the VHCA requires submission of pricing data and calculation of discounts and rebates pursuant to complex statutory formulas, as well as the entry into government procurement contracts governed by the Federal Acquisition Regulations.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of pharmaceutical products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities or register their sales representatives, as well as prohibiting pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and prohibiting certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

Patents and Proprietary Rights

Because of the length of time and expense associated with bringing new products to market, biopharmaceutical companies have traditionally placed considerable importance on obtaining and maintaining patent protection for significant new technologies, products and processes.

Our success depends in part on our ability to protect the proprietary nature of our SMDC candidates, technology, and know-how, to operate without infringing on the proprietary rights of others, and to prevent others from infringing our proprietary rights. As a matter of policy, we seek to protect our proprietary position by, among other methods, filing United States and foreign patent applications related to our proprietary technology, inventions and improvements that are important to the development of our business. We also rely on trade secrets, know-how, continuing technological innovation, and in-licensing opportunities to develop and maintain our proprietary position.

We have applied, and are applying, for patents directed to our three main areas of focus: anti-tumor therapeutics and diagnostics, anti-inflammation therapeutics and diagnostics and immunotherapy therapeutics and diagnostics, both in the United States and, when appropriate, in other countries. We own or have rights to over 400 issued patents and applications worldwide covering our core technology, SMDCs and companion imaging agents.

Several of the patents we own relate to vintafolide or etarfolatide compositions of matter. For example, patent number 7,601,332, or the '332 patent, entitled "Vitamin Receptor Binding Drug Delivery Conjugates," patent number 8,105,568 or the '568 patent, with the same title, patent number 7,128,893, or the '893 patent, entitled "Vitamin-Targeted Imaging Agents," patent number 7,862,798, or the '798 patent, also entitled "Vitamin-Targeted Imaging Agents" and patent number 8,313,728 with the same title, or the '728 patent, relate to these compounds. The '332 patent was issued on October 13, 2009 in the United States and is scheduled to expire in 2026. The '332 patent includes claims covering vintafolide, among other compounds. The '568 patent is a continuation to the '332 patent and claims the vintafolide structure specifically. In 2012, the United States Patent and Trademark Office, or the USPTO, awarded us the '568 patent. Additionally, we have filed continuation patent applications to the '568 patent and prosecution is ongoing. With respect to vintafolide coverage, we have patents issued in the United States, Canada, Japan, many European nations including Germany, Spain, France, the United Kingdom, and Italy, as well as Australia, China, India, Israel, New Zealand, Taiwan and South Africa. Applications are pending in the United States, Europe, Israel, Hong Kong, Argentina and Venezuela. We also have issued patents and pending applications directed to compositions of matter, pharmaceutical compositions, and methods for linking vitamins to drugs through our linker system. We also have filed several patent applications related to vintafolide specifically, such as, for example, using etarfolatide to predict patients' response to vintafolide and methods of treatment with the combination of vintafolide with docetaxel.

The '893 patent and '798 patent were issued on October 31, 2006 and on January 4, 2011, respectively, in the United States and are both scheduled to expire in 2024. The '893 patent and '798 patent include claims covering etarfolatide, among other compounds. Additional patents have issued which are continuations. The '798 patent was one such continuation application issued as a patent as was the '728 patent. Patent claims covering etarfolatide have issued outside of the United States. For example, we have obtained etarfolatide coverage in many European jurisdictions.

We have filed additional patent applications worldwide to protect additional innovations such as tubulysin conjugates, including EC1456, and conjugates directed to the PSMA, including EC0652 and EC1169. EC0652 is owned by the Purdue Research Foundation, a non-profit organization, which manages the intellectual property of Purdue University, and is exclusively licensed to us.

Based on research we fund at Purdue University, we have entered into three exclusive, worldwide in-licenses for a number of patents and patent applications owned by the Purdue Research Foundation related to select folate-targeted technology, select technology related to PSMA, and select technology related to other ligands. The folate-technology license was originally entered into on July 17, 1998 with an effective date as of December 21, 1995, and was restated on October 21, 1998. The PSMA license was entered into on March 1, 2010. The license to other technologies was entered into in 2014 with an effective date of July 1, 2013. Under these three licenses, over 80 patents and published applications are licensed to us.

We may terminate the Purdue Research Foundation licenses without cause with 60 days notice for the folate and PSMA licenses and three months notice for the license directed to other ligands. Purdue Research Foundation may terminate any of the licenses for material default by us which is not cured within 90 days notice, or upon 60 days notice, for the folate and PSMA licenses, in the event we fail to meet public demand for approved products covered by the licensed patents after a six month cure period following commercial introduction. The Purdue Research Foundation may terminate the license to other ligands if we fail to make a payment within 60 days of notice under the specific terms of the license. The folate and PSMA licenses also contain provisions allowing Purdue Research Foundation to terminate upon our bankruptcy. We have annual minimum royalty obligations to Purdue Research Foundation, as well as royalty obligations based on sales of products that are designed, developed or tested using the licensed technology, and milestone obligations based upon the achievement of specific scientific, clinical and regulatory milestones. See Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — *Contractual Obligations and Commitments* for a description of our payment obligations under the license agreements with the Purdue Research Foundation.

Most of our portfolio consists of intellectual property we exclusively license from Purdue Research Foundation or which we own ourselves. Generally, the intellectual property licensed from Purdue Research Foundation is early stage and relates to methods that were invented in the laboratory of Professor Philip Low. Internally, we typically develop

these methods further and refine them to determine the commercial applicability. Additionally, these early-stage patents often provide us protection from competitors while we evaluate commercial possibilities of a specific program. For example, some of the very early patents we licensed from Purdue Research Foundation covered methods of delivering folate attached to targeting ligand across a cell membrane. We were able to use the patent protection afforded by such early patents to develop folate conjugates, including the invention and clinical development, and in the future, the potential commercialization of our linker system incorporated in vintafolide.

Due to the use of federal funds in the development of some folate-related technology, the U.S. government has the irrevocable, royalty-free, paid-up right to practice and have practiced certain patents throughout the world, should it choose to exercise such rights.

Our development strategy also employs lifecycle management positions. For example, we explore the potential for filing patent applications claiming methods of treatment combining our molecules with other treatments. Such strategies may provide additional patent protection even after the expiration of composition of matter patent protection for our intellectual property. As a result, our general guiding strategy is to obtain patent coverage for innovations that show a clinical benefit to patients and an economic opportunity for us.

In addition, in October 2007, we entered into an exclusive worldwide license with R&D Biopharmaceuticals to research, develop, and commercialize products containing conjugates of folate receptor targeting compounds and tubulysin compounds. In February 2011, this licensing agreement was assigned by R&D Biopharmaceuticals to Trientlgasse.

Pursuant to a license agreement with Bristol-Myers Squibb, or BMS, we co-own several patent applications directed to epothilone with BMS. BMS notified us of their intent to terminate our license agreement in June 2010 and in July 2010 also notified us of their intent to abandon certain of the patent applications subject to the license related to folate conjugates with epothilone.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the earliest date of filing a non-provisional patent application. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in granting a patent, or may be shortened if a patent is terminally disclaimed over another patent.

The patent term of a patent that covers an FDA-approved drug may also be eligible for patent term extension, which permits patent term restoration as compensation for the patent term lost during the FDA regulatory review process. The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the expiration of the patent.

The length of the patent term extension is related to the length of time the drug is under regulatory review. Patent extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug may be extended. Similar provisions are available in Europe and other non-U.S. jurisdictions to extend the term of a patent that covers an approved drug. In the future, if our pharmaceutical products receive FDA approval, we expect to apply for patent term extensions on patents covering those products.

While we pursue patent protection and enforcement of our SMDC candidates and aspects of our technologies when appropriate, we also rely on trade secrets, know-how and continuing technological advancement to develop and maintain our competitive position. To protect this competitive position, we regularly enter into confidentiality and proprietary information agreements with third parties, including employees, independent contractors, suppliers and collaborators. Our employment policy requires each new employee to enter into an agreement containing provisions generally prohibiting the disclosure of confidential information to anyone outside of us and providing that any invention conceived by an employee within the scope of his or her employment duties is our exclusive property. We have a similar policy with respect to independent contractors, generally requiring independent contractors to enter into an agreement containing provisions generally prohibiting the disclosure of confidential information to anyone outside of us and providing that any invention conceived by an independent contractor within the scope of his or her services is our

exclusive property, with the exception of contracts with universities and colleges that may be unable to make such assignments. Furthermore, our know-how that is accessed by third parties through collaborations and research and development contracts and through our relationships with scientific consultants is generally protected through confidentiality agreements with the appropriate parties. We cannot, however, assure you that these protective arrangements will be honored by third parties, including employees, independent contractors, suppliers and collaborators, or that these arrangements will effectively protect our rights relating to unpatented proprietary information, trade secrets and know-how. In addition, we cannot assure you that other parties will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our proprietary information and technologies.

Additionally, there can be no assurance that our patents will provide significant protection, competitive advantage or commercial benefit. The validity and enforceability of patents issued to biopharmaceutical companies has proven highly uncertain. For example, legal considerations surrounding the validity of patents in the fields of biopharmaceuticals are in transition, and we cannot assure you that the historical legal standards surrounding questions of validity will continue to be applied or that current defenses relating to issued patents in these fields will be sufficient in the future. In addition, we cannot assure you as to the degree and range of protections any of our patents, if issued, may afford us or whether patents will be issued. For example, patents which may issue to us may be subjected to further governmental review that may ultimately result in the reduction of their scope of protection, and pending patent applications may have their requested breadth of protection significantly limited before being issued, if issued at all. Further, since publication of discoveries in scientific or patent literature often lags behind actual discoveries, we cannot assure you that we were the first creator of inventions covered by our pending patent applications, or that we were the first to file patent applications for these inventions.

Many biopharmaceutical companies and university and research institutions have filed patent applications or have received patents in our areas of product development. Many of these entities' applications, patents and other intellectual property rights could prevent us from obtaining patents or could call into question the validity of any of our patents, if issued, or could otherwise adversely affect our ability to develop, manufacture or commercialize SMDC candidates. In addition, certain parts of our technology originated from third-party sources. These third-party sources include academic, government and other research laboratories, as well as the public domain. If use of technology incorporated into or used to produce our SMDCs is challenged, or if a conflicting patent issued to others is upheld in the courts or if a conflicting patent application filed by others is issued as a patent and is upheld, we may be unable to market one or more of our SMDCs, or we may be required to obtain a license to market those SMDCs. To contend with these possibilities, we may have to enter into license agreements in the future with third parties for technologies that may be useful or necessary for the manufacture or commercialization of some of our SMDCs. In addition, we are routinely in discussions with academic and commercial entities that hold patents on technology or processes that we may find necessary in order to engage in some of our activities. However, we cannot assure you that these licenses, or any others that we may be required to obtain to market our SMDCs, will be available on commercially reasonable terms, if at all, or that we will be able to develop alternative technologies if we cannot obtain required licenses.

To protect our rights to any of our issued patents and proprietary information, we may need to litigate against infringing third parties, or avail ourselves of the courts or participate in hearings to determine the scope and validity of those patents or other proprietary rights. These types of proceedings are often costly and could be very time-consuming to us, and we cannot assure you that the deciding authorities will rule in our favor. An unfavorable decision could allow third parties to use our technology without being required to pay us licensing fees or may compel us to license needed technologies to avoid infringing third-party patent and proprietary rights, or even could result in the invalidation or a limitation in the scope of our patents or forfeiture of the rights associated with our patents or pending patent applications. Although we believe that we would have valid defenses to allegations that our current SMDCs, production methods and other activities infringe the valid and enforceable intellectual property rights of any third parties, we cannot be certain that a third party will not challenge our position in the future. Even if some of these activities were found to infringe a third party's patent rights, we may be found to be exempt from infringement under 35 U.S.C. §271(e) to the extent that these are found to be pre-commercialization activities related to our seeking regulatory approval for a SMDC. However, the scope of protection under 35 U.S.C. §271(e) is uncertain and we cannot assure you that any defense under 35 U.S.C. §271(e) would be successful. Further, the defense under 35 U.S.C. §271(e) is only available for pre-commercialization activities, and could not be used as a defense for sale and marketing of any of our SMDCs. There has been, and we

believe that there will continue to be, significant litigation in the biopharmaceutical and pharmaceutical industries regarding patent and other intellectual property rights.

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 executive offices are located at 3000 Kent Avenue, Suite A1-100, West Lafayette, Indiana 47906, and our telephone number is (765) 463-7175.

Available Information

Our Internet address is www.endocyte.com. We routinely post important information for investors on our website in the “Investors & News” section. We use this website as a means of disclosing material information in compliance with our disclosure obligations under Regulation FD. Accordingly, investors should monitor the “Investors & News” section of our website, in addition to following our press releases, Securities and Exchange Commission, or SEC, filings, public conference calls, presentations and webcasts. Investors can easily find or navigate to pertinent information about us, free of charge, on our website, including:

- our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or furnish it to the SEC;
- announcements of investor conferences and events at which our executives talk about our products and competitive strategies. Archives of some of these events are also available;
- press releases on quarterly earnings, product announcements, legal developments and other material news that we may post from time to time;
- corporate governance information, including our Corporate Governance Principles, Code of Ethics and Business Conduct, information concerning our Board of Directors and its committees, including the charters of the Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee, and other governance-related policies;
- stockholder services information, including ways to contact our transfer agent; and
- opportunities to sign up for email alerts and RSS feeds to have information provided in real time.

The information available on our website is not incorporated by reference in, or a part of, this or any other report we file with or furnish to the SEC.

The name “Endocyte” and our logo are our trademarks. All other trademarks and trade names appearing in this annual report are the property of their respective owners.

Executive Officers of the Registrant

The following table sets forth certain information concerning our executive officers as of March 1, 2017:

Name	Age	Position
Michael A. Sherman	50	President and Chief Executive Officer
Michael T. Andriole	44	Chief Financial Officer
Philip S. Low, Ph.D.	69	Chief Science Officer
Alison A. Armour, M.D.	53	Chief Medical Officer
Beth A. Taylor	51	Vice President of Finance and Chief Accounting Officer
Michael A. Brinkley	53	Vice President of Quality
Christopher P. Leamon, Ph.D.	50	Vice President of Research
Katherine K. Parker	52	Vice President of Human Resources

Michael A. Sherman has served as our President and Chief Executive Officer since June 2016. He served as our Chief Financial Officer from October 2006 to February 2017 and as our Chief Operating Officer from June 2014 to June 2016. From December 1994 to October 2006, Mr. Sherman served in various executive roles, but most recently as Vice President of Finance and Strategic Planning from May 2004 to October 2006, of Guidant Corporation, a cardiovascular device manufacturer acquired by Boston Scientific Corporation, a medical device company, in April 2006. Mr. Sherman serves on the Board of Directors of Mead Johnson Nutrition Company, a pediatric nutrition company. He also serves on the Indianapolis Children's Museum Board of Trustees. Mr. Sherman holds a B.A. in economics from DePauw University and an M.B.A. from the Amos Tuck School, Dartmouth College.

Michael T. Andriole has served as our Chief Financial Officer since February 2017. From June 2001 to February 2017, Mr. Andriole served in various executive roles at Eli Lilly and Company, a large pharmaceutical company that develops, manufactures and markets pharmaceutical products on a global basis, and most recently as Vice President, Corporate Business Development from June 2011 to February 2017. Previous roles included Director, European Development and Strategic Planning and Director, Corporate Finance and Investment Banking. Mr. Andriole holds a B.S. in Finance from Xavier University's Williams College of Business and an M.B.A. from Kelley School of Business, Indiana University.

Philip S. Low, Ph.D. is one of our founders and has served as our Chief Science Officer since April 1998 and as a member of our Board of Directors since December 1995. Dr. Low has served on the faculty at Purdue University since August 1976, where he is currently the Director of the Purdue Institute for Drug Discovery and the Ralph C. Corley Distinguished Professor of Chemistry. Dr. Low holds a B.S. in chemistry from Brigham Young University and a Ph.D. in biochemistry from the University of California, San Diego.

Alison A. Armour, M.D. has served as our Chief Medical Officer since August 2015. Prior to joining us, Dr. Armour served as Vice President of Oncology and led the Tykerb, a breast cancer drug, program at GlaxoSmithKline PLC and Novartis AG from August 2011 to July 2015. From August 2004 to August 2011 she was Global Medical Science Director at AstraZeneca PLC. Before joining the pharmaceutical industry, Dr. Armour established herself as a thought leader in medical and radiation oncology. Dr. Armour holds her B.Sc. in Biochemistry, M.B., Ch.B., MSc., and Doctorate of Medicine from the University of Glasgow, MRCP from the Member of the Royal College of Physicians Glasgow, and her FRCR from the Royal College of Radiologists London, UK.

Beth A. Taylor has served as our Vice President of Finance and Chief Accounting Officer since August 2016. She previously served as our Corporate Controller from January 2011 to August 2016. She served as Corporate Controller of Author Solutions, Inc. from December 2009 to December 2010, as Vice President of Accounting, Financial Reporting and Control at Harlan Laboratories, Inc. from July 2007 to May 2009 and in various roles at Republic Airways Holdings, Inc. from May 1999 through June 2007, including Vice President and Corporate Controller from August 2004 through June 2007. Ms. Taylor holds a B.S. in Accounting from Kelley School of Business, Indiana University.

Michael A. Brinkley has served as our Vice President of Quality since June 2013. From January 2012 to June 2013, Mr. Brinkley served as our Director of Quality. Prior to joining us, Mr. Brinkley was Director of Quality for JHP Pharmaceuticals from April 2010 to January 2012 and Vice President of Quality & Compliance for Boehringer-Ingelheim Chemicals, Inc. from January 2007 to February 2010. His background also includes experience in the pharmaceutical industry in analytical chemistry, microbiology, and quality assurance. Mr. Brinkley holds a B.S. in Microbiology from North Carolina State University and an MBA from University of North Carolina, Chapel Hill. Mr. Brinkley holds the following certifications: Certified Quality Auditor, Certified Manager of Quality/Organizational Excellence, Certified Clinical Research Associate and Six Sigma Black Belt.

Christopher P. Leamon, Ph.D. has served as our Vice President of Research since April 2000. From February 1999 to April 2000, Dr. Leamon served as our Director of Biology and Biochemistry. Prior to joining us, Dr. Leamon was employed in the pharmaceutical industry where he conducted discovery research in the field of peptide, oligonucleotide, liposome and DNA drug delivery for GlaxoWellcome, a healthcare company, and Isis Pharmaceuticals, a biomedical pharmaceutical company. Dr. Leamon holds a B.S. in chemistry from Baldwin Wallace College and a Ph.D. in biochemistry from Purdue University.

Katherine K. Parker has served as our Vice President of Human Resources since January 2015. From December 2013 to January 2015, she served as our Senior Director of Human Resources. Prior to December 2013, Ms. Parker served as Principal for Auxilius International, LLC from August 2010 to December 2013. She also has served as President/Owner of Auxilius Heavy Industries, LLC, a wind turbine maintenance, cleaning and repair company, from August 2013 to the present. Prior to her entrepreneurial endeavors, Ms. Parker worked at Hyundai Motor America for 21 years, most recently as Vice President of Human Resources and Administrative Services from April 2005 to April 2009. Ms. Parker holds a B.A. in history from the University of California, Los Angeles and an M.B.A. from California State University, Dominguez Hills.

Item 1A. Risk Factors

Risk factors which could cause actual results to differ from our expectations and which could negatively impact our financial condition and results of operations are discussed below and elsewhere in this report. 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. If any of the risks or uncertainties described below or any additional risks and uncertainties actually occur, our business, results of operations and financial condition could be materially and adversely affected.

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 year ended December 31, 2016, we had a net loss of \$43.9 million and a retained deficit of \$253.6 million. Revenue was consistent for the year ended December 31, 2016 compared to December 31, 2015, however, we had a significant decrease in revenue for the year ended December 31, 2015 compared to the year ended December 31, 2014 due to the termination of a collaboration. 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 SMDCs and companion imaging agents 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.

As of December 31, 2016, we have not derived any revenue from the sales of our products. Our operations to date have been limited to organizing and staffing our company, 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.

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

Although we have had SMDCs progress through certain clinical trials, our SMDCs may never receive regulatory approval or be successfully commercialized. We may fail to obtain necessary marketing approvals from the U.S. Food and Drug Administration, or 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 SMDCs through the necessary development activities. Even if any of our SMDCs 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.

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. We have completed two phase 2 single-arm and one phase 2 randomized clinical trials with vintafolide for the treatment of patients with platinum-resistant ovarian cancer, or PROC, and non-small cell lung cancer, or NSCLC. Our current focus is on the development of our second generation folate targeted agent, EC1456, in second-line NSCLC and our first non-folate SMDC agent, EC1169, in advanced metastatic castration-resistant prostate cancer, or mCRPC. In addition, we have other product candidates in the discovery and pre-clinical testing stages.

Positive results from pre-clinical studies and early clinical trials should not be relied upon as evidence that later-stage or large-scale clinical trials will succeed. Like us, 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.

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 our 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 SMDCs 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, we have a number of product candidates in our development pipeline, and while we invest in the technology and indications that we believe are most promising, financial and resource 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.

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. 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.

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.

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 significant 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, 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.

We are advancing multiple product candidates through 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 may enter.

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.

In addition, our operating plan may change as a result of many factors currently unknown to us, and we may need 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 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 AB Science, Advantagene, Inc., Advaxis, Inc., Amgen, Inc., Ariad Pharmaceuticals, Inc., Arno Therapeutics, Inc., Asana BioSciences, LLC, Astellas Pharma, Inc., AstraZeneca PLC, Athenex, Inc., ATLAB Pharma SAS, Bayer AG, Bavarian Nordic GmbH, Boehringer Ingelheim GmbH, Bristol-Myers Squibb Company, Cadila Pharmaceuticals Ltd., Calithera Biosciences, Inc., Cellular Biomedicine Group, Inc., Clovis Oncology, Inc., CureVac GmbH, DexTech Medical AB, Eisai Co., Ltd., Eli Lilly & Company, Exelixis, Inc., Fortress Biotech, Inc., Genentech, Inc., GlaxoSmithKline PLC, Helix BioPharma Corporation, Hanmi Pharmaceutical Co., Ltd., Ignyta, Inc., Immunomedics, Inc., Incyte Corporation, Innocrin Pharmaceuticals, Inc., Janssen Biotechnology, Inc., Jiangsu Hengrui Medicine Co., Johnson & Johnson, Juno Therapeutics Inc., Kadmon Holdings, Inc., Kite Pharma, Inc., Merck & Co., Inc., Merrimack Pharmaceuticals, Inc., Mirati Therapeutics, MolMed S.p.A., Novartis AG, OncoGenex Pharmaceuticals, Inc., OncoMed Pharmaceuticals, Inc., Otsuka Holdings Co., Pfizer, Inc., Progenics Pharmaceuticals, Inc., Puma Biotechnology, Inc., Roche Holdings, Sanofi, Sotio Group, Spectrum Pharmaceuticals, Inc., Syndax Pharmaceuticals, Inc., Takeda Pharmaceutical Company Ltd., Tesaro, Inc., TRACON Pharmaceuticals, Inc., and Verastem, Inc. In addition, many universities and U.S. private and public research institutes are active in cancer research, the results of which may result in direct competition with our product candidates.

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;
- 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. 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 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 likely have a material adverse effect on our business.

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. 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 technetium-99m.

Our etarfolatide companion imaging agent requires the use of the radioisotope technetium-99m, or Tc-99m, and there have been historical periods in which supply was not able to satisfy demand. Tc-99m for nuclear medicine purposes is usually extracted from Tc-99m generators, which contain molybdenum-99, or Mo-99, as the usual parent nuclide for Tc-99m. The majority of Mo-99 produced for Tc-99m medical use comes from fission of highly enriched uranium from only five reactors around the world located in Canada, Belgium, South Africa, the Netherlands and France. Although Tc-99m is used in various nuclear medicine diagnostics utilized by healthcare providers, Tc-99m has a very short half-life (6 hours). As a result, healthcare providers extract Tc-99m from generators which use Mo-99. Mo-99 itself has a short half-life (2.75 days) and is sent to the nuclear medicine pharmacy directly from one of the five reactors. Accordingly, Tc-99m diagnostics are made on-site at the clinic, and neither Tc-99m nor Mo-99 can be inventoried. Sources of Tc-99m may be insufficient for our clinical trial site needs due to its limited supply globally. For example, global shortages of Tc-99m emerged in the past few years because aging nuclear reactors in the Netherlands and Canada that provided about two-thirds of the world's supply of Mo-99 were shut down repeatedly for extended maintenance periods and two replacement Canadian reactors constructed in the 1990s were closed before beginning operation for safety reasons.

We use, and plan to continue to use, etarfolatide or other companion imaging agents that employ Tc-99m in our clinical trials. If our clinical trial sites 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 and as a result, the approval of etarfolatide may be delayed. In addition, to the extent the approval of our product candidates depends on 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 SMDCs 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.

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. Our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products and technologies. We cannot be certain that our patent applications will be approved or that any patents issued will adequately protect our intellectual property. For example, our issued patents do not claim composition of matter protection for the drug payloads connected to the linker system and targeting ligand modules of our SMDCs. In addition, we generally do not 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. 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 Purdue Research Foundation 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;
- 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 patents and our financial ability to enforce our patents 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 our patents 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.

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 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 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 Purdue Research Foundation, pursuant to a license agreement, which enables us to use and administer vintafolide in the treatment of cancer. Under this license, we are subject to commercialization and development obligations, diligence obligations, sublicense revenue sharing requirements, royalty payments, potential penalty payments and other obligations. If we fail to comply with any of these obligations or otherwise breach this 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. Generally, the loss of any current or future licenses or the exclusivity rights provided therein could 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. For example, one of our U.S. patents claims compounds encompassing vintafolide and is due to expire in 2026, and two of our other U.S. patents claim compounds encompassing etarfolatide and are due to expire in 2024. 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 our U.S. and non-U.S. 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 we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have 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 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 for us to stop the infringement of our 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.

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 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 competitor'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 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 our patents or other intellectual property rights, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or other intellectual property rights. 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 patents held by the Purdue Research Foundation, it would have to file such an infringement lawsuit since we do not have the independent right to enforce the Purdue Research Foundation's intellectual property. In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our 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 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 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;
- 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 manufacturing 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 December 31, 2016, we had 42,377,522 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. Shares held by our affiliates may be sold in the public market pursuant to Rule 144, another exemption from registration or an effective registration statement under the Securities Act.

Our directors, executive officers, and two largest stockholders have substantial control of our management and affairs, which could limit your ability to influence the outcome of key transactions, including a change of control.

Our directors, executive officers and our two largest stockholders and their affiliates, in the aggregate, beneficially owned approximately 31.6 percent of the outstanding shares of our common stock as of December 31, 2016. As a result, these stockholders, if acting together, could influence or control matters requiring approval by our stockholders, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. This concentration of ownership may have the effect of delaying, preventing or deterring a change of control of our company, could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and might affect the market price of our common stock.

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.

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 management’s assessment of 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 \$201.9 million for 2016 and \$16.8 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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our offices are located in two primary leased facilities, a 25,400 square foot facility in West Lafayette, Indiana in the Purdue University Research Park and a 7,600 square foot corporate office space in Indianapolis, Indiana. The West Lafayette facility includes both administrative and research laboratory space. The lease for this facility expires

December 31, 2017, and we do not foresee risk in obtaining an extension to this lease agreement on similar terms or having a disruption to our operations. The Indianapolis offices are used exclusively for corporate and administrative functions. The lease for this facility expires in February 2018. We believe the existing facilities are sufficient to meet our current and near-term needs.

Item 3. *Legal Proceedings*

See Note 15 — Commitments and Contingencies of the Notes to Consolidated Financial Statements contained in Part II, Item 8 herein for information regarding certain legal proceedings that were dismissed during 2016, which information is incorporated by reference herein.

Item 4. *Mine Safety Disclosures*

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information and Stockholders

Shares of our common stock are traded on The Nasdaq Global Market (symbol ECYT). The following table sets forth the high and low sale prices per share for our common stock on The Nasdaq Global Market for the periods indicated:

	<u>High</u>	<u>Low</u>
2015		
First Quarter	\$ 6.76	\$ 5.01
Second Quarter	\$ 6.58	\$ 5.13
Third Quarter	\$ 5.87	\$ 4.28
Fourth Quarter	\$ 5.63	\$ 3.83
2016		
First Quarter	\$ 3.99	\$ 2.65
Second Quarter	\$ 4.33	\$ 3.06
Third Quarter	\$ 3.38	\$ 2.90
Fourth Quarter	\$ 3.49	\$ 2.52

As of February 28, 2017, there were 83 stockholders of record of our common stock. The number of record holders is based upon the actual number of holders registered on the books of the company at such date and does not include holders of shares in "street name" or persons, partnerships, associations, corporations or other entities identified in security position listings maintained by depositories.

We have never declared or paid any dividends on our capital stock. We currently intend to retain all future earnings for the operation and expansion of our business and, therefore, we do not anticipate declaring or paying cash dividends for the foreseeable future. The payment of dividends will be at the discretion of our board of directors and will depend on our results of operations, capital requirements, financial condition, prospects, contractual arrangements, any limitations on payment of dividends in our future debt agreements, and other factors that our Board of Directors may deem relevant.

Unregistered Sales of Securities

We did not have any unregistered sales of securities in the fourth quarter of 2016.

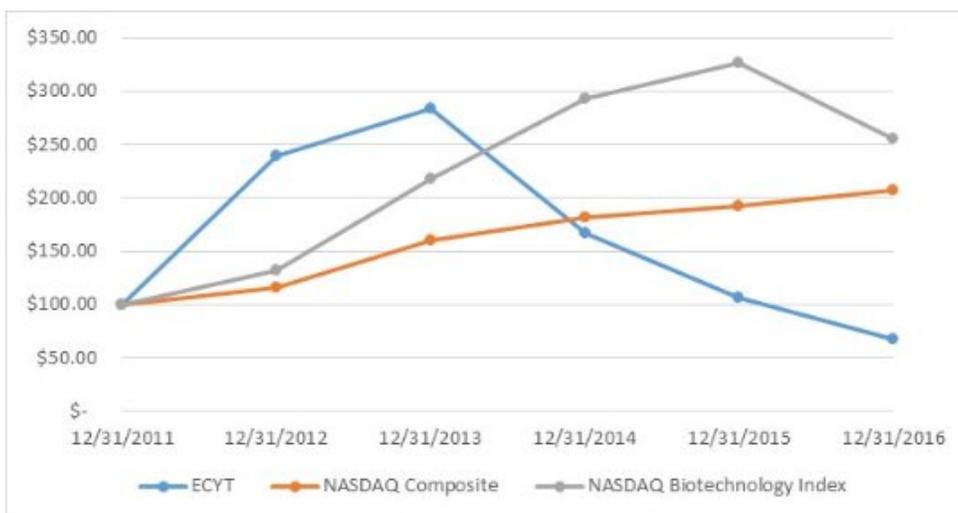
Issuer Purchases of Equity Securities

We did not repurchase any of our equity securities in the fourth quarter of 2016.

Comparative Stock Performance Graph

The information included under the heading "Comparative Stock Performance Graph" in this Item 5 of Part II of this Annual Report on Form 10-K shall not be deemed to be "soliciting material" or subject to Regulation 14A or 14C, shall not be deemed "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act or the Exchange Act.

Set forth below is a graph comparing the total cumulative returns of ECYT, the NASDAQ Composite Index and the NASDAQ Biotechnology Index. The graph assumes \$100 was invested on December 31, 2011 in our common stock and each of the indices and that all dividends, if any, are reinvested.



	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16
Endocyte, Inc.	\$ 100.00	\$ 238.83	\$ 284.04	\$ 167.29	\$ 106.65	\$ 67.82
NASDAQ Composite Index	\$ 100.00	\$ 115.91	\$ 160.32	\$ 181.80	\$ 192.21	\$ 206.63
NASDAQ Biotechnology Index	\$ 100.00	\$ 131.91	\$ 218.45	\$ 292.93	\$ 326.39	\$ 255.62

Item 6. Selected Financial Data

We have derived the selected statement of operations data for the years ended December 31, 2014, 2015 and 2016 and selected balance sheet data as of December 31, 2015 and 2016 from our audited financial statements and related notes included in this annual report. We have derived the selected statement of operations data for the years ended December 31, 2012 and 2013 and the selected balance sheet data as of December 31, 2012, 2013 and 2014 from our audited financial statements not included in this annual report. Our historical results are not necessarily indicative of the results to be expected for any future period. The following selected financial data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included elsewhere in this annual report.

	Year Ended December 31,				
	2012	2013	2014	2015	2016
	(In thousands, except share and per share amounts)				
Statement of operations data:					
Total revenue	\$ 34,682	\$ 64,871	\$ 70,353	\$ 70	\$ 70
Operating expenses:					
Research and development	35,671	57,899	41,650	26,309	27,492
General and administrative	15,054	25,314	23,677	15,734	17,298
Total operating expenses	50,725	83,213	65,327	42,043	44,790
Income (loss) from operations	(16,043)	(18,342)	5,026	(41,973)	(44,720)
Other income (expense), net:					
Interest income (expense), net	(301)	464	578	652	861
Other income (expense), net	(948)	(154)	(145)	51	(29)
Total other income (expense), net	(1,249)	310	433	703	832
Income (loss) before income taxes	(17,292)	(18,032)	5,459	(41,270)	(43,888)
Income tax (benefit) expense ⁽¹⁾	—	—	—	—	—
Net income (loss)	\$ (17,292)	\$ (18,032)	\$ 5,459	\$ (41,270)	\$ (43,888)
Basic net income (loss) per share	\$ (0.48)	\$ (0.50)	\$ 0.14	\$ (0.98)	\$ (1.04)
Diluted net income (loss) per share	\$ (0.48)	\$ (0.50)	\$ 0.13	\$ (0.98)	\$ (1.04)
Shares used in computation of:					
Basic income (loss) per share ⁽²⁾	35,858,757	36,036,996	40,242,352	41,939,504	42,210,643
Diluted income (loss) per share ⁽²⁾	35,858,757	36,036,996	41,758,101	41,939,504	42,210,643

- (1) For 2014 we reported net income; however, we had no income tax expense that year due to net operating losses in prior years. We had no income tax expense in 2012, 2013, 2015 or 2016 because we incurred net losses in each of those years.
- (2) For 2012, 2013, 2015, and 2016, diluted weighted average common shares outstanding were identical to basic weighted-average common shares outstanding and diluted loss per share was identical to basic loss per share because common share equivalents were excluded from the calculations of diluted weighted-average common shares outstanding for those years, as their effect was anti-dilutive. For 2014, 1,515,749 shares were added to basic weighted-average common shares outstanding to calculate diluted weighted-average shares outstanding because of their dilutive effect.

	As of December 31,				
	2012	2013	2014	2015	2016
	(In thousands)				
Balance sheet data:					
Cash, cash equivalents and investments	\$ 201,378	\$ 148,853	\$ 206,831	\$ 173,600	\$ 138,207
Working capital	122,355	59,668	120,153	168,687	134,694
Total assets	214,079	162,858	212,801	178,386	143,494
Total debt	—	—	—	—	—
Total stockholders' equity	99,573	88,229	205,004	171,346	137,147

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and the related notes included in this annual report.

Overview

We are a biopharmaceutical company developing targeted therapies for the treatment of cancer and inflammatory diseases. We use our proprietary technology to create novel small molecule drug conjugates, or SMDCs, and companion imaging agents. Our SMDCs actively target receptors that are over-expressed on diseased cells, relative to healthy cells. This targeted approach is designed to enable the treatment of patients with highly active drugs at greater doses, delivered more frequently, and over longer periods of time than would be possible with the untargeted drug alone. We are also developing companion imaging agents for each of our SMDCs that are designed to identify the patients whose disease over-expresses the target of the therapy and who are therefore most likely to benefit from treatment. This combination of an SMDC with a companion imaging agent is designed to personalize the treatment of patients by delivering effective therapy, selectively to diseased cells, in the patients most likely to benefit. This approach is designed to yield multiple drug candidates that could treat disease through the following multiple mechanisms: by direct and targeted killing of diseased cells, by killing tumor-associated macrophages which otherwise inhibit the immune system, or by activating the immune system directly by combining SMDCs with checkpoint inhibitors or our chimeric antigen receptor T-cell (CAR T-cell) immunotherapy approach.

We had two wholly-owned subsidiaries, Endocyte Europe B.V. and Endocyte Europe GmbH, which were formed to assist with pre-commercial activity that subsequently ceased. We dissolved Endocyte Europe GmbH in the fourth quarter of 2015 and dissolved Endocyte Europe B.V. in the first quarter of 2016.

For the year ended December 31, 2016, we had a net loss of \$43.9 million and a retained deficit of \$253.6 million. We expect to continue to incur significant operating losses for the next several years as we pursue the advancement of our SMDCs and companion imaging agents through the research, development, regulatory and commercialization processes. During the years ended December 31, 2016 and 2015, our revenue related to the amortization of the \$1.0 million non-refundable upfront payment from Nihon Medi-Physic Co., LTD., or NMP, as well as annual minimum royalty payments received in 2015 and 2016.

Our operating costs were higher for the year ended December 31, 2016 compared to December 31, 2015, primarily as a result of an increase in research and development expenses related to EC1169, our first non-folate SMDC, and an increase in compensation expenses related to the resignation of our former Chief Executive Officer, P. Ron Ellis, in June of 2016, which were partially offset by (i) a decrease in research and development costs relating to our first generation SMDC, vintafolide, due to our close-out of the TARGET trial, the phase 2b trial of vintafolide for use in non-small cell lung cancer, or NSCLC, in 2015, (ii) a decrease in other employee compensation expense, and (iii) a decrease in legal and professional fees.

In May 2014, we stopped the PROCEED trial, our phase 3 clinical trial of vintafolide in platinum-resistant ovarian cancer, or PROC, because the treatment arm when compared to the control arm did not meet the pre-specified criteria for improvement in progression free survival, or PFS, even though the PFS and overall response rates for the treatment arm of the trial were similar to those of our prior phase 2 trial. In the year ended December 31, 2014, we recorded a charge of \$4.1 million for remaining expenses of the PROCEED trial, including site close-out expenses. In the year ended December 31, 2015, we recorded an additional charge of \$0.1 million for remaining expenses of the PROCEED trial, including additional site and patient expenses. We paid PROCEED trial termination expenses of \$2.8 million, \$1.4 million and \$30,800 in 2014, 2015 and 2016, respectively. At December 31, 2016, we had no remaining accrual balance related to the PROCEED trial termination.

We completed the close-out activities for the TARGET trial, a randomized phase 2b trial of vintafolide for use in NSCLC, during 2015 and announced the final results during the third quarter of 2015. We presented the final overall survival, or OS, data at the World Lung Cancer Conference in September 2015. At that meeting, we reported that vintafolide plus docetaxel improved median OS by 2.7 months in NSCLC regardless of histology (Median OS 11.5 vs. 8.8 months, OS HR=0.86, 95% CI [0.58, 1.26]). In the predefined subset analysis of patients with adenocarcinoma, which expresses higher levels of folate receptor, or FR, vintafolide plus docetaxel improved median OS by 5.9 months (12.5 vs. 6.6 months, HR=0.72, 95% CI [0.44, 1.16]). OS for vintafolide as a single agent was similar to docetaxel (OS 8.4 vs. 8.8 months, HR=1.02, 95% CI [0.70, 1.50]). The safety profiles of vintafolide alone and docetaxel alone were consistent with previous observations, but the combination of vintafolide and docetaxel resulted in higher rates of hematologic and peripheral neuropathy adverse events. Our current focus is on the development of our second generation folate targeted agent, EC1456, in second-line NSCLC and our first non-folate SMDC, EC1169, in advanced metastatic castration-resistant prostate cancer, or mCRPC, as discussed below.

Research and development expenses relating to EC1456 were relatively unchanged during the year ended December 31, 2016 compared to the year ended December 31, 2015. We are currently enrolling select FR positive patients as determined by an etarfolatide scan in a phase 1b trial to evaluate EC1456 in up to 40 patients with NSCLC at the maximum clinical dose of 6.0 mg/m² for a twice per week dosing schedule. Patients included in this expansion phase of the trial will have received first-line chemotherapy and may have also been treated with anti-PD-1 therapy. We are also exploring a more frequent dosing schedule, four times per week, in indications that are typically FR-positive, such as ovarian and endometrial cancers. We presented data regarding the phase 1 dose escalation trial for the treatment of advanced solid tumors with EC1456 at the European Society for Medical Oncology, or ESMO, 2016 Congress in October. In spite of the inclusion of patients in the dose escalation phase who were not selected as positive for the targeted folate receptor, most patients demonstrated stable disease as best response and several patients demonstrated a reduction in target tumor volume. EC1456 has progressed in the phase 1 trial to a dose that exceeds the dose of vintafolide delivered in trials to date. In the phase 1b trial, we will evaluate single agent tumor response in NSCLC, which will inform and may trigger additional work in combination therapies and indications such as triple-negative breast cancer, ovarian cancer, and endometrial cancer. We expect to provide safety and efficacy data updates for EC1456 in the first half of 2017. We are also currently conducting an ovarian cancer surgical study to assess various attributes of the drug release within targeted tumors.

Research and development expenses relating to EC1169 increased during the year ended December 31, 2016 compared to the year ended December 31, 2015, as we are currently enrolling patients in a phase 1b trial to evaluate EC1169 in up to 100 second-line chemotherapy and taxane-naïve mCRPC patients at a maximum clinical once per week dose of 6.5 mg/m². We have developed a companion imaging agent, EC0652, to scan patients prior to therapy to identify the presence of prostate-specific membrane antigen, or PSMA. Patients are scanned with EC0652, and while we are not limiting enrollment based on the results of the scan, the primary endpoints of the trial are to be assessed in PSMA-positive patients. To date, EC0652 has shown the presence of PSMA in at least one lesion in all prostate cancer patients scanned, but variability in the intensity of PSMA presence allows for selection criteria designed to enrich the patient population. We presented data regarding the phase 1 dose escalation trial for the treatment of mCRPC with EC1169 at ESMO 2016 Congress in October. The data showed that total target tumor burden reduction was observed in 4 of the 6 patients with measurable soft tissue disease treated at doses of 3.8 mg/m² and higher. One of these patients demonstrated the first confirmed radiologic partial tumor response, or PR, as measured by Response Evaluation Criteria in Solid Tumors, or RECIST, 1.1 criteria. Two patients also demonstrated confirmed prostate specific antigen reductions of greater than 50%, one of whom went on to demonstrate the PR. We expect to provide safety and efficacy data updates

regarding the phase 1b trial in the first half of 2017. Enrollment in an EC1169 receptor occupancy study is expected to begin in 2017, which is designed to provide insight into the drug's interaction with the target receptor. Data regarding the EC1169 receptor occupancy study is expected in the second half of 2017.

As of December 31, 2016, our cash, cash equivalents and investments were \$138.2 million. In April 2014, we completed a public offering of 5,175,000 shares of our common stock and received net proceeds of \$101.9 million. We believe that our current cash balance, including the proceeds from that offering, will be sufficient to fund our current operating plan, including the advancement of our pipeline.

Revenue

To date, we have generated no revenue from sales of our SMDCs or companion imaging agents. All of our revenue has been derived from license fees, research and development expense reimbursement, milestone payments and government grants.

In the future, we may generate revenue from a combination of direct sales of our SMDCs and companion imaging agents, license fees, research and development expense reimbursement, milestone payments and royalties in connection with strategic collaborations. We expect that any revenue we generate will fluctuate from quarter to quarter as a result of the timing and amount of license fees, achievement of performance-based milestones and other payments received under such collaborations, and the amount and timing of payments that we receive upon the sale of our SMDCs and companion imaging agents, to the extent any are successfully commercialized. If we or any strategic partners fail to complete the development of our SMDCs and companion imaging agents in a timely manner or at all, or fail to obtain regulatory approval for them, our ability to generate future revenue, and our results of operations and financial position, would be materially adversely affected.

Research and Development Expenses

Research and development expenses consist of expenses incurred in connection with the discovery and development of our SMDCs and companion imaging agents, including:

- employee-related expenses, which include salaries, benefits and stock-based compensation expense;
- facility costs related to research activities;
- expenses incurred under agreements with contract research organizations, investigative sites and consultants that conduct our clinical trials and a portion of our pre-clinical studies;
- the cost of acquiring and manufacturing clinical trial materials;
- license fees for and milestone payments related to in-licensed products and technology;
- costs associated with non-clinical activities and regulatory approvals; and
- research supplies.

We expense research and development costs as incurred. License fees and milestone payments related to in-licensed products and technology and research supplies are expensed if it is determined that they have no alternative future use.

Conducting a significant amount of research and development is central to our business model. Our SMDCs and companion imaging agents in later stages of clinical development generally have higher development costs than those in earlier stages of development, primarily due to the increased size and duration of late stage clinical trials. We plan to increase our research and development expenses for the foreseeable future due to the phase 1b trials for EC1456 and EC1169 and to further advance our earlier-stage research and development projects.

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Our internal resources, employees and infrastructure are not directly tied to any individual research project and are typically deployed across multiple projects. Through our clinical development programs, we are advancing our SMDCs and companion imaging agents in parallel for multiple therapeutic indications and through our pre-clinical development programs we are seeking to develop potential SMDCs and companion imaging agents for additional disease indications. The following table sets forth costs incurred on a program-specific basis for identified lead candidate SMDCs and companion imaging agents, excluding personnel-related costs. Discovery research includes such costs for projects where no lead candidate has yet been identified. All employee-related expenses for those employees working in research and development functions are included in research and development employee compensation.

	Year Ended December 31,		
	2014	2015	2016
	(in thousands)		
Vintafolide (EC145)	\$ 18,256	\$ 1,488	\$ (26)
Etarfolatide (EC20)	1,913	259	285
Folate-Tubulysin (EC1456)	1,118	3,488	3,452
PSMA Imaging (EC0652) and Therapeutic (EC1169)	1,289	1,231	3,952
Folate-Aminopterin (EC2319)	326	173	324
Folate-pro pyrrolobenzodiazepine, or proPBD, DNA Crosslinker (EC2629)	—	—	635
Discovery research	3,827	4,882	4,402
Research and development employee compensation	14,921	14,788	14,468
Total research and development expenses	\$ 41,650	\$ 26,309	\$ 27,492

The following table identifies the current status of our major research and development projects and our currently expected near-term milestone timing:

Project	Status	Expected Near-Term Milestones
Folate-targeted tubulysin therapeutic	Phase 1b	Enrolling NSCLC patients at the maximum clinical dose of 6.0 mg/m ² patients in a twice per week dosing schedule as well as exploring more frequent dosing schedule in indications that are typically FR-positive; safety and efficacy updates expected in first half of 2017
PSMA-targeted tubulysin therapeutic	Phase 1b	Enrolling both second-line chemotherapy and taxane-naïve mCRPC patients at a maximum clinical once per week dose of 6.5 mg/m ² ; safety and efficacy updates expected in first half of 2017
Folate inflammation therapeutic and companion imaging	Pre-Clinical	Continuation of pre-clinical evaluations
Folate-proPBD DNA-crosslinker	Pre-Clinical	Expect to file IND application in mid-2017; expect to begin enrollment in phase 1 clinical trial in second half of 2017
Chimeric antigen receptor T-cell (CAR T-cell) SMDC	Pre-Clinical	Completion of pre-clinical evaluations expected in second half of 2017

General and Administrative Expenses

General and administrative expenses consist principally of salaries, benefits and stock-based compensation for personnel in executive, finance, business development, commercial, legal and human resources functions. Other general and administrative expenses include facility costs related to administrative functions, patent filing and prosecution costs, and professional service fees. All employees in our commercial department were terminated during 2014 after we withdrew our conditional marketing applications in Europe. We incurred compensation expenses of \$2.8 million for noncash stock compensation and \$0.8 million for a cash payment related to the resignation of our former Chief Executive Officer, P. Ron Ellis, in June 2016.

Restructuring Costs included in Research and Development and General and Administrative Expenses

We terminated the PROCEED trial in May 2014 after the interim futility analysis indicated that vintafolide did not demonstrate efficacy on the pre-specified outcome of progression-free survival for the treatment of PROC. As a result, we ceased our pre-launch commercial activities and implemented staff reductions in Europe and in the U.S. All employee and contract termination expenses were recorded and paid in the year ended December 31, 2014. The PROCEED trial termination expenses were paid over the years ended December 31, 2014, 2015 and 2016. At December 31, 2016, we had no remaining accrual balance related to the PROCEED trial termination. See Note 16 of the Notes to Consolidated Financial Statements contained in Part II, Item 8 herein, for further information regarding restructuring costs.

Other Income (Expense), Net

Other income and expense consists primarily of gains or losses on disposal of equipment, charitable contributions, gains or losses on foreign currency exchange, and state franchise tax fees.

Interest Income, Net

Interest income consists of interest earned on our cash, cash equivalents and investments. The primary objective of our investment policy is capital preservation. Interest expense consists primarily of interest related to capital lease obligations.

Critical Accounting Policies and Significant Judgments and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities in our financial statements. On an ongoing basis, we evaluate our estimates and judgments, including those related to accrued expenses and stock-based compensation. We base our estimates on historical experience, known trends and events and various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

As part of the process of preparing our financial statements, we are required to estimate our accrued expenses. This process involves reviewing open contracts, identifying services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual cost. The majority of our service providers invoice us monthly in arrears for services performed. We estimate our accrued expenses as of each balance sheet date in our financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. Expense accruals related to clinical trial activity typically comprise the majority of these accruals. Examples of estimated expenses related to clinical trial activity include:

- fees paid to contract research organizations in connection with clinical trials; and
- fees paid to investigative sites in connection with clinical trials.

We base our expenses related to clinical trials on our estimates of the services received and efforts expended pursuant to contracts with multiple research institutions and contract research organizations that conduct and manage clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. Payments under certain contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, we estimate the time period over which services are performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of the effort varies from our estimate, we adjust the accrual accordingly.

Although our estimates in the past have not been materially different from amounts actually incurred, and we do not expect our estimates to be materially different from amounts actually incurred in the future, if our estimate of the status and timing of services performed differs from the actual status and timing of services performed, we may report amounts that are too high or too low in any particular period. In the event that a clinical trial is terminated early, we record, in the period of termination, an accrual for the estimated remaining costs to complete the trial. Based on our level of clinical trial expenses for the twelve months ended December 31, 2016, a five percent change in our estimate could result in an adjustment to our accrued clinical trial expense in future periods of approximately \$43,000.

Our significant accounting policies are described in more detail in Note 2 of the Notes to Consolidated Financial Statements contained in Part II, Item 8 herein. See also Note 10 of the Notes to Consolidated Financial Statements contained in Part II, Item 8 herein for further information regarding our stock-based compensation.

Results of Operations

Comparison of Years Ended December 31, 2015 and 2016

	<u>Year Ended December 31,</u>		<u>\$ Increase/ (Decrease)</u>	<u>% Increase/ (Decrease)</u>
	<u>2015</u>	<u>2016</u>		
	(In thousands)			
Statement of operations data:				
Collaboration revenue	\$ 70	\$ 70	\$ —	—
Operating expenses:				
Research and development	26,309	27,492	1,183	4 %
General and administrative	15,734	17,298	1,564	10 %
Total operating expenses	42,043	44,790	2,747	7 %
Loss from operations	(41,973)	(44,720)	(2,747)	(7)%
Interest income, net	652	861	209	32 %
Other income (expense), net	51	(29)	(80)	(157)%
Net loss	<u>\$ (41,270)</u>	<u>\$ (43,888)</u>	<u>\$ (2,618)</u>	(6)%

Revenue

Our revenue of \$70,000 in the years ended December 31, 2015 and 2016 related to the amortization of the \$1.0 million non-refundable upfront payment from NMP as well as annual minimum royalty payments received in 2015 and 2016.

Research and Development

The increase in research and development expenses for the year ended December 31, 2016 compared to the year ended December 31, 2015 was primarily attributable to an increase of \$2.7 million related to the phase 1 trial and the drug manufacturing expense for EC1169, and an increase of \$0.3 million related to general research and other pre-clinical work, partially offset by a decrease of \$1.5 million related to the TARGET trial which was completed in 2015, and a decrease of \$0.3 million in employee compensation.

Included in research and development expenses were stock-based compensation charges of \$4.4 million and \$4.2 million for the years ended December 31, 2015 and 2016, respectively.

Research and development expenses included expense of \$1.0 million and \$1.1 million for the years ended December 31, 2015 and 2016, respectively, for company-funded research at Purdue University, the primary employer of our Chief Science Officer.

General and Administrative

The increase in general and administrative expense in the year ended December 31, 2016 compared to the year ended December 31, 2015 was primarily attributable to a \$3.6 million increase in compensation expense related to the resignation of our former Chief Executive Officer, P. Ron Ellis, in June of 2016, partially offset primarily by a decrease in legal and professional fees of \$1.1 million and a decrease of \$0.5 million of other employee compensation expense.

Included in general and administrative expenses were stock-based compensation charges of \$2.5 million and \$5.0 million for the years ended December 31, 2015 and 2016, respectively.

Interest Income, Net

The increase in interest income, net in 2016 compared to 2015 resulted from an increase in the interest rate yield during the year ended December 31, 2016 as compared to the year ended December 31, 2015, partially offset by a decrease in the average short-term and long-term investment balances in the year ended December 31, 2016 as compared to the year ended December 31, 2015.

Other Income (Expense), Net

The increase in other expense, net in the year ended December 31, 2016 as compared to the year ended December 31, 2015 resulted primarily from a favorable vendor lawsuit settlement in the year ended December 31, 2015, that did not recur in the year ended December 31, 2016, which was partially offset by a loss on foreign currency exchange in the year ended December 31, 2015 as well as a decrease in charitable contributions in the year ended December 31, 2016 as compared to the year ended December 31, 2015.

Comparison of Years Ended December 31, 2014 and 2015

	<u>Year Ended December 31,</u>		<u>Increase/</u>	<u>%</u>
	<u>2014</u>	<u>2015</u>	<u>(Decrease)</u>	
	(In thousands)			
Statement of operations data:				
Revenue	\$ 70,353	\$ 70	\$ (70,283)	(100)%
Operating expenses:				
Research and development	41,650	26,309	(15,341)	(37)%
General and administrative	23,677	15,734	(7,943)	(34)%
Total operating expenses	65,327	42,043	(23,284)	(36)%
Income (loss) from operations	5,026	(41,973)	(46,999)	(935)%
Interest income, net	578	652	74	13 %
Other expense, net	(145)	51	196	135 %
Net income (loss)	<u>\$ 5,459</u>	<u>\$ (41,270)</u>	<u>\$ (46,729)</u>	(856)%

Revenue

The decrease in revenue in the year ended December 31, 2015 compared to the year ended December 31, 2014 was due to the termination of the Merck collaboration agreement in 2014. Our revenue of \$70.4 million recorded in the year ended December 31, 2014 related primarily to the collaboration with Merck, including the acceleration of the remaining balance of deferred revenue in the second quarter of 2014 due to the termination of the collaboration agreement with Merck. Of this revenue, \$46.9 million related to the amortization of the upfront license payment and a milestone payment, \$13.7 million related to the amortization of reimbursable research and development and general and administrative expenditures incurred in prior periods, and \$9.7 million related to reimbursable research and development and general and administrative expenditures incurred in 2014. Our revenue of \$70,000 in the year ended December 31, 2015 related to the amortization of the \$1.0 million non-refundable upfront payment from NMP as well as an annual minimum royalty payment received in the third quarter of 2015.

Research and Development

The decrease in research and development expenses for the year ended December 31, 2015 compared to the year ended December 31, 2014 was primarily attributable to a decrease of \$1.3 million related to the TARGET trial which is now complete, a decrease of \$15.1 million related to the PROCEED trial which was terminated in May 2014, including PROCEED trial termination costs of \$4.1 million in the year ended December 31, 2014, a decrease in manufacturing expenses of \$2.0 million for vintafolide and etarfolatide related to pre-commercial activity, and a decrease of \$0.3 million in employee compensation, partially offset by an increase of \$2.3 million related to the EC1456 dose escalation trial and the drug manufacturing expense of EC1456 as well as an increase of \$0.9 million in general discovery research.

Included in research and development expenses were stock-based compensation charges of \$4.7 million and \$4.4 million for the years ended December 31, 2014 and 2015, respectively.

Research and development expenses included expense of \$1.0 million for each of the years ended December 31, 2014 and 2015, for company-funded research at Purdue University, the primary employer of our Chief Science Officer.

General and Administrative

The decrease in general and administrative expense in the year ended December 31, 2015 compared to the year ended December 31, 2014 was attributable to the reduction in headcount and the termination of commercial activities following the withdrawal of the marketing applications in Europe, including restructuring costs of \$1.3 million in the year ended December 31, 2014, and a reduction in stock-based compensation primarily due to a reduction in stock price.

Included in general and administrative expenses were stock-based compensation charges of \$3.3 million and \$2.5 million for the years ended December 31, 2014 and 2015, respectively.

Interest Income, Net

The increase in interest income in 2015 compared to 2014 resulted from an increase in the average short-term and long-term investment balances as well as an increase in the interest rate yield during the year ended December 31, 2015 as compared to the year ended December 31, 2014.

Other Income (Expense), Net

The increase in other income, net in the year ended December 31, 2015 as compared to the year ended December 31, 2014 resulted primarily from a favorable vendor lawsuit settlement in the year ended December 31, 2015.

Liquidity and Capital Resources

We have funded our operations principally through sales of equity and debt securities, revenue from strategic collaborations, grants and loans. As of December 31, 2016, we had cash, cash equivalents and investments of \$138.2 million. The following table sets forth the primary sources and uses of cash for each of the periods set forth below:

	Year Ended December 31,		
	2014	2015	2016
	(in thousands)		
Net cash used in operating activities	\$ (42,206)	\$ (32,218)	\$ (34,651)
Net cash provided by (used in) investing activities	(68,560)	1,490	50,119
Net cash provided by financing activities	103,491	627	329
Effect of exchange rate	(38)	(1)	—
Net increase (decrease) in cash and cash equivalents	<u>\$ (7,313)</u>	<u>\$ (30,102)</u>	<u>\$ 15,797</u>

Operating Activities

The cash used in operating activities for the year ended December 31, 2014 primarily resulted from our net income adjusted for non-cash items and changes in operating assets and liabilities, including the decrease in deferred revenue related to the Merck collaboration that was fully recognized in 2014 due to the termination of the Merck agreement. The cash used in operating activities in the year ended December 31, 2015 primarily resulted from our net loss adjusted for non-cash items, primarily consisting of stock-based compensation, depreciation, accretion of bond premiums, and changes in operating assets and liabilities, primarily due to a decrease in the receivable from Merck relating to the former collaboration agreement and a decrease in clinical trial accruals due to closing out the PROCEED and TARGET trials. The cash used in operating activities for the year ended December 31, 2016 primarily resulted from our net loss adjusted for non-cash items, primarily consisting of stock-based compensation, depreciation, accretion of bond premiums, and changes in operating assets and liabilities.

Investing Activities

The cash used in investing activities for the year ended December 31, 2014 was due to \$149.4 million in purchases of investments using the net proceeds from the public stock offering in April 2014 and \$1.4 million of capital expenditures for equipment, which were partially offset by \$82.3 million in proceeds from the sale and maturity of investments. The cash provided by investing activities for the year ended December 31, 2015 was due to the net result of the sale, maturities and purchases of investments, which were partially offset by capital expenditures for equipment of \$0.3 million. The cash provided by investing activities for the year ended December 31, 2016 was due to the net result of the sale, maturities and purchases of investments, which was partially offset by capital expenditures for equipment of \$0.7 million. As our investments matured in the year ended December 31, 2016, a portion of these funds were used to fund operations and excess funds were maintained in shorter-term investment accounts due to the competitive nature of the interest rates.

Financing Activities

The cash provided by financing activities in 2014 primarily consisted of \$101.9 million in net proceeds from the April 2014 public offering and \$1.6 million in net proceeds from the exercise of stock options and purchases of stock under our employee stock purchase plan. The cash provided by financing activities in each of 2015 and 2016 primarily resulted from net proceeds from the exercise of stock options and purchases of stock under the ESPP.

Operating Capital Requirements

We anticipate that we will continue to incur significant operating losses for the next several years as we pursue the advancement of our SMDCs and companion imaging agents through the research, development, regulatory and, potentially, commercialization processes.

As of December 31, 2016, our cash, cash equivalents and investments were \$138.2 million. In April 2014, we completed a public offering of 5,175,000 shares of our common stock and received net proceeds of \$101.9 million. We believe that our current cash balance, including the proceeds from that offering, will be sufficient to fund our current operating plan, including the advancement of our pipeline.

Because of the numerous risks and uncertainties associated with research, development and commercialization of pharmaceutical products, we are unable to estimate the exact amounts of our working capital requirements. Our future funding requirements will depend on many factors, including but not limited to:

- the number and characteristics of the SMDCs and companion imaging diagnostics we pursue;
- the scope, progress, results and costs of researching and developing our SMDCs and companion imaging diagnostics and conducting pre-clinical and clinical trials;

- the timing of, and the costs involved in, obtaining regulatory approvals for our SMDCs and companion imaging diagnostics;
- the cost of commercialization activities if any of our SMDCs and companion imaging diagnostics are approved for sale, including marketing sales and distribution costs;
- the cost of manufacturing any SMDCs and companion imaging diagnostics we successfully commercialize;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims, including litigation costs and the outcome of such litigation; and
- the timing, receipt and amount of sales of, or royalties on, our SMDCs and companion imaging diagnostics, if any.

If our available cash, cash equivalents and investments are insufficient to satisfy our liquidity requirements, or if we develop additional opportunities to pursue, we may seek to sell additional equity or debt securities or obtain new loans or credit facilities. The sale of additional equity securities may result in additional dilution to our stockholders. If we raise additional funds through the issuance of debt securities or convertible preferred stock, these securities may have rights senior to those of our common stock and could contain covenants that would restrict our operations. We may require additional capital beyond our currently forecasted amounts. Any such required additional capital may not be available on reasonable terms, if at all. If we were unable to obtain additional financing, we may be required to reduce the scope of, delay or eliminate some or all of our planned research, development and commercialization activities, which could harm our business.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations at December 31, 2016:

	Total	Less than 1 Year	1 to 3 Years	3 to 5 Years	More than 5 Years
	(In thousands)				
Operating lease obligations	\$ 794	\$ 767	\$ 27	\$ —	\$ —
Total contractual cash obligations	\$ 794	\$ 767	\$ 27	\$ —	\$ —

In addition to the obligations shown in the above table, we have certain obligations under licensing agreements with third parties. In October 2007, we entered into an exclusive worldwide license with R&D Biopharmaceuticals to research, develop, and commercialize products containing conjugates of folate receptor targeting compounds and tubulysin compounds. In February 2011, this licensing agreement was assigned by R&D Biopharmaceuticals to Trientlgasse. Under this license agreement, we may be required to make \$5.9 million in additional contingent payments upon the achievement of specific scientific, clinical and regulatory milestones, in addition to royalties upon commercial sales. We paid an upfront fee of \$300,000 as research and development and pay \$25,000 in annual maintenance fees unless we pay a milestone in a given year. In 2014, we paid \$50,000 for the completion of toxicology studies in compliance with Good Laboratory Practice and \$100,000 for dosing the first human patient with PSMA tubulysin. We did not make any milestone payments in the years ended December 31, 2015 or 2016.

Pursuant to our exclusive license agreement with Purdue Research Foundation relating to folate, we are obligated to pay an annual minimum royalty of \$12,500 until commercial sales commence, following which time the payment of royalties with market rates will commence. We do not anticipate incurring liabilities for vintafolide royalty payments based on the estimated timing of when we may have commercial sales and the expiration of the applicable patents. Pursuant to our exclusive license agreement with Purdue Research Foundation relating to PSMA, we are obligated to pay minimum annual royalty payments of \$15,000 until commercial sales commence, following which time the payment of royalties with market rates will commence, along with a minimum annual royalty payment of \$100,000. In addition, a milestone payment of \$500,000 is payable upon approval of a new drug application in the U.S. and sales-based royalties are also payable at market rates when commercial sales commence. During 2014, we paid a penalty because we did not

meet one of the milestones related to the PSMA license agreement. During 2015, we accrued a penalty that was paid in the first quarter of 2016 because we did not meet the last milestone related to the PSMA license agreement. There are no material obligations greater than five years.

In 2014, we entered into a Master License Agreement with Purdue Research Foundation. Under this license, we have the right to exclusively license patents and technology discovered under company funded research at Purdue University. If we decide to move forward with development of one or more of these technologies, we will be obligated to make an acceptance payment, and we will also be obligated to make contingent payments upon the achievement of specific scientific, clinical and regulatory milestones. Certain scientific, clinical and regulatory milestones, in addition to internal resource targets, must be met by us to avoid fees as consideration for waivers of potentially missed milestones. We are obligated to pay annual minimum payments until commercial sales commence, following which time the payment of royalties with market rates will commence, along with an annual royalty payment.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under rules promulgated by the Securities and Exchange Commission.

Tax Loss Carryforwards

As of December 31, 2016, we had net operating loss carryforwards of approximately \$212.4 million and \$274.0 million for federal and state income taxes, respectively, that may be used to offset future taxable income. We also have research and development and orphan drug tax credit carryforwards of approximately \$10.9 million and \$7.2 million, respectively, to offset future federal income taxes and approximately \$3.3 million in research and development tax credit carryforwards to offset future state income taxes. We experienced an ownership change in August 2011. As a result, the future use of our net operating loss carryforwards, after giving effect to net unrealized built-in gains, will be limited to approximately \$201.9 million for 2016, and \$16.8 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. At December 31, 2016, we recorded a full valuation allowance against our net deferred tax assets of approximately \$106.7 million, as we believe it is more likely than not that the net deferred tax assets will not be fully realized.

Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*

We are exposed to market risk related to changes in interest rates. As of December 31, 2015 and December 31, 2016 we had cash, cash equivalents and investments of \$173.6 million and \$138.2 million, respectively. The investments consisted of U.S. government money market funds, U.S. Treasuries, U.S. Government agency obligations, U.S. corporate securities and cash equivalents. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our investments are in short-term marketable securities. Our short-term investments are subject to interest rate risk and will fall in value if market interest rates increase. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, an immediate 10 percent change in interest rates would not have a material effect on the fair market value of our portfolio. We have the ability to hold our short-investments until maturity, and therefore we do not expect that our results of operations or cash flows would be adversely affected by any change in market interest rates on our investments. We carry our investments based on publicly available information. We do not currently have any investment securities for which a market is not readily available or active.

We do not believe that any credit risk is likely to have a material impact on the value of our assets and liabilities.

Item 8. Financial Statements and Supplementary Data

ENDOCYTE, INC.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

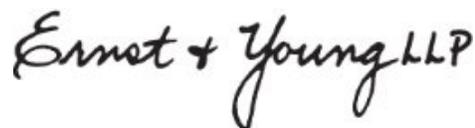
The Board of Directors and Stockholders of Endocyte, Inc.

We have audited the accompanying consolidated balance sheets of Endocyte, Inc. as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive income (loss), stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Endocyte, Inc. at December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Endocyte, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated March 13, 2017, expressed an unqualified opinion thereon.

The image shows a handwritten signature in black ink that reads "Ernst & Young LLP". The signature is written in a cursive, flowing style.

Indianapolis, Indiana
March 13, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders of Endocyte, Inc.

We have audited Endocyte, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). Endocyte, Inc.'s management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

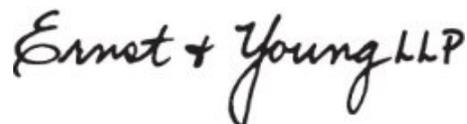
We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Endocyte, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the 2016 consolidated financial statements of Endocyte, Inc. and our report dated March 13, 2017 expressed an unqualified opinion thereon.

The signature of Ernst & Young LLP is written in a cursive, handwritten style in black ink.

Indianapolis, Indiana
March 13, 2017

ENDOCYTE, INC.
CONSOLIDATED BALANCE SHEETS

	<u>December 31,</u>	
	<u>2015</u>	<u>2016</u>
Assets		
Current assets:		
Cash and cash equivalents	\$ 15,431,622	\$ 31,228,192
Short-term investments	158,168,832	106,979,224
Receivables	8,678	55,074
Prepaid expenses	772,579	1,737,308
Other assets	493,863	255,912
Total current assets	174,875,574	140,255,710
Property and equipment, net	3,398,398	3,205,077
Other noncurrent assets	111,605	33,567
Total assets	<u>\$ 178,385,577</u>	<u>\$ 143,494,354</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 1,262,565	\$ 1,381,545
Accrued wages and benefits	3,272,237	2,705,475
Accrued clinical trial expenses	804,066	861,293
Accrued expenses and other liabilities	850,125	613,861
Total current liabilities	6,188,993	5,562,174
Other liabilities, net of current portion	18,503	2,873
Deferred revenue, net of current portion	831,944	781,944
Total liabilities	7,039,440	6,346,991
Stockholders' equity:		
Common stock: \$0.001 par value, 100,000,000 shares authorized; 42,034,733 and 42,377,522 shares issued and outstanding at December 31, 2015 and December 31, 2016	42,035	42,378
Additional paid-in capital	381,118,489	390,768,742
Accumulated other comprehensive loss	(79,399)	(41,196)
Retained deficit	(209,734,988)	(253,622,561)
Total stockholders' equity	171,346,137	137,147,363
Total liabilities and stockholders' equity	<u>\$ 178,385,577</u>	<u>\$ 143,494,354</u>

See accompanying notes.

ENDOCYTE, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

	Year Ended December 31,		
	2014	2015	2016
Revenue:			
Collaboration revenue	\$ 70,353,483	\$ 70,000	\$ 70,000
Total revenue	70,353,483	70,000	70,000
Operating expenses:			
Research and development	41,649,389	26,309,475	27,492,185
General and administrative	23,677,366	15,733,462	17,298,139
Total operating expenses	65,326,755	42,042,937	44,790,324
Income (loss) from operations	5,026,728	(41,972,937)	(44,720,324)
Other income (expense), net:			
Interest income, net	577,447	651,543	861,212
Other income (expense), net	(144,698)	51,645	(28,461)
Net income (loss)	5,459,477	(41,269,749)	(43,887,573)
Net income (loss) per share – basic	\$ 0.14	\$ (0.98)	\$ (1.04)
Net income (loss) per share – diluted	\$ 0.13	\$ (0.98)	\$ (1.04)
Items included in other comprehensive income (loss):			
Unrealized gain (loss) on foreign currency translation	(38,776)	50,592	—
Unrealized gain (loss) and amounts reclassified to net income (loss) on available-for-sale securities	(161,843)	13,937	38,203
Other comprehensive income (loss)	(200,619)	64,529	38,203
Comprehensive income (loss)	\$ 5,258,858	\$ (41,205,220)	\$ (43,849,370)
Weighted-average number of common shares used in net income (loss) per share calculation – basic	40,242,352	41,939,504	42,210,643
Weighted-average number of common shares used in net income (loss) per share calculation – diluted	41,758,101	41,939,504	42,210,643

See accompanying notes.

ENDOCYTE, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Deficit	Total
	Shares	Amount				
Balances December 31, 2013	36,155,509	\$ 36,156	\$ 262,060,590	\$ 56,691	\$ (173,924,716)	\$ 88,228,721
Exercise of stock options	399,654	400	1,290,486	—	—	1,290,886
Stock-based compensation	1,279	1	8,021,446	—	—	8,021,447
Employee stock purchase plan	53,250	53	299,176	—	—	299,229
Issuance of common stock in connection with secondary offering	5,175,000	5,175	101,899,802	—	—	101,904,977
Net income	—	—	—	—	5,459,477	5,459,477
Unrealized loss on foreign exchange translation	—	—	—	(38,776)	—	(38,776)
Unrealized loss on securities	—	—	—	(161,843)	—	(161,843)
Balances December 31, 2014	41,784,692	\$ 41,785	\$ 373,571,500	\$ (143,928)	\$ (168,465,239)	\$ 205,004,118
Exercise of stock options	146,046	146	379,144	—	—	379,290
Stock-based compensation	29,190	29	6,862,917	—	—	6,862,946
Employee stock purchase plan	74,805	75	304,928	—	—	305,003
Net loss	—	—	—	—	(41,269,749)	(41,269,749)
Net realized loss on foreign exchange translation	—	—	—	50,592	—	50,592
Unrealized gain on securities	—	—	—	13,937	—	13,937
Balances December 31, 2015	42,034,733	\$ 42,035	\$ 381,118,489	\$ (79,399)	\$ (209,734,988)	\$ 171,346,137
Exercise of stock options	129,638	130	260,952	—	—	261,082
Stock-based compensation	126,580	127	9,157,528	—	—	9,157,655
Employee stock purchase plan	86,571	86	231,773	—	—	231,859
Net loss	—	—	—	—	(43,887,573)	(43,887,573)
Unrealized gain on securities	—	—	—	38,203	—	38,203
Balances December 31, 2016	42,377,522	\$ 42,378	\$ 390,768,742	\$ (41,196)	\$ (253,622,561)	\$ 137,147,363

See accompanying notes.

ENDOCYTE, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2014	2015	2016
Operating activities			
Net income (loss)	\$ 5,459,477	\$ (41,269,749)	\$ (43,887,573)
Adjustments to reconcile net income (loss) to net cash used in operating activities:			
Depreciation	857,055	886,710	919,809
Stock-based compensation	8,025,261	6,920,220	9,322,127
Loss on disposal of property and equipment	6,100	10,639	—
Accretion of bond premium	1,615,063	1,310,238	395,116
Net realized foreign currency translation loss	—	51,944	—
Change in operating assets and liabilities:			
Receivables	5,490,605	856,372	191,555
Prepaid expenses and other assets	2,711,331	(96,582)	(517,318)
Accounts payable	(3,700,175)	(60,713)	(252,605)
Accrued wages, benefits and other liabilities	(2,923,537)	(777,204)	(771,866)
Deferred revenue	(59,746,948)	(50,000)	(50,000)
Net cash used in operating activities	(42,205,768)	(32,218,125)	(34,650,755)
Investing activities			
Purchases of property and equipment	(1,501,744)	(341,616)	(713,839)
Proceeds from disposal of property and equipment	10,000	—	—
Purchases of investments	(149,370,678)	(86,281,946)	(139,932,358)
Proceeds from sale and maturities of investments	82,302,191	88,114,199	190,765,053
Net cash provided by (used in) investing activities	(68,560,231)	1,490,637	50,118,856
Financing activities			
Stock repurchase	(3,814)	(57,274)	(164,472)
Proceeds from public offering	101,904,977	—	—
Proceeds from the exercise of stock options	1,290,886	379,290	261,082
Proceeds from stock purchases under employee stock purchase plan	299,229	305,003	231,859
Net cash provided by financing activities	103,491,278	627,019	328,469
Effect of exchange rate	(38,776)	(1,352)	—
Net increase (decrease) in cash and cash equivalents	(7,313,497)	(30,101,821)	15,796,570
Cash and cash equivalents at beginning of period	52,846,940	45,533,443	15,431,622
Cash and cash equivalents at end of period	\$ 45,533,443	\$ 15,431,622	\$ 31,228,192

See accompanying notes.

ENDOCYTE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of Business and Organization

Endocyte, Inc. (the “Company”) is a biopharmaceutical company developing targeted therapies for the treatment of cancer and inflammatory diseases. The Company uses its proprietary technology to create novel small molecule drug conjugates (“SMDCs”), and companion imaging agents. The SMDCs actively target receptors that are over-expressed on diseased cells, relative to healthy cells. This targeted approach is designed to enable the treatment of patients with a highly active drug at greater doses, delivered more frequently, and over longer periods of time than would be possible with the untargeted drug alone. The Company is also developing companion imaging agents for each of its SMDCs that are designed to identify the patients whose disease over-expresses the target of the therapy and who are therefore most likely to benefit from treatment.

The Company had two wholly-owned subsidiaries, Endocyte Europe B.V. and Endocyte Europe GmbH, which were formed to assist with the administration of applications with the European Commission (“EC”) and commercial pre-launch activities in Europe. The applications were withdrawn in May 2014 and the commercial pre-launch activities in Europe ceased. The Company dissolved Endocyte Europe GmbH in the fourth quarter of 2015 and dissolved Endocyte Europe B.V. in the first quarter of 2016.

Public Offerings

On April 2, 2014, the Company completed a public offering of 5,175,000 shares of its common stock in a public offering. Proceeds, net of underwriting discounts, commissions and other transaction costs, were \$101.9 million.

2. Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements include the accounts of Endocyte, Inc. and its subsidiaries and all intercompany amounts have been eliminated as of December 31, 2014 and 2015. The accompanying financial statements for the year ended December 31, 2016 include only the accounts of Endocyte, Inc. as the Company dissolved Endocyte Europe GmbH and Endocyte Europe B.V. in the fourth quarter of 2015 and the first quarter of 2016, respectively. There were no intercompany transactions in the year ended December 31, 2016 and no intercompany balances as of December 31, 2016. The consolidated financial statements are prepared in conformity with U.S. generally accepted accounting principles (“GAAP”). Subsequent events have been evaluated through the date of issuance, which is the same as the date this Form 10-K is filed with the Securities and Exchange Commission.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires the Company’s management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual amounts may differ from those estimates.

Cash and Cash Equivalents

The Company considers cash and all highly liquid investments with an original maturity of three months or less at the date of purchase to be cash equivalents. Cash equivalents consist primarily of FDIC insured deposits with multiple banks and money market instruments that are maintained by an investment manager.

ENDOCYTE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Investments

Investments consist primarily of investments in U.S. Treasuries, U.S. Government agency obligations and corporate debt securities, which could also include commercial paper, that are maintained by an investment manager. U.S. government agency investments relate to investments in Fannie Mae, Freddie Mac and Federal Home Loan Bank. Management determines the appropriate classification of marketable securities at the time of purchase and reevaluates such classification as of each balance sheet date. Available-for-sale securities are carried at fair value, with the unrealized gains and losses reported in other comprehensive income. Realized gains and losses and declines in value judged to be other-than-temporary on available-for-sale securities are included in other income. The Company considers and accounts for other-than-temporary impairments according to the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 320, *Investments — Debt and Equity Securities* (“ASC 320”). The cost of securities sold is based on the specific-identification method. Discounts and premiums on debt securities are amortized to interest income and expense over the term of the security.

Property and Equipment

Property and equipment are stated at cost and are being depreciated using the straight-line method over estimated useful lives, which range from three to seven years.

Licenses and Patents

Licenses and patent costs are expensed as incurred as the Company does not believe there is an alternate future use for the costs. Licenses are classified as research and development expenses and patents are classified as general and administrative expenses in the consolidated statements of operations.

Long-Lived Assets

The Company reviews long-lived assets, including property and equipment, for impairment when events or changes in business conditions indicate that their full carrying value may not be fully recoverable.

Leases

The Company evaluates all leases to determine whether they should be accounted for as operating or capital leases.

Revenue Recognition

The Company recognizes revenues from license and collaboration agreements when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the fee is fixed or determinable, and there is reasonable assurance that the related amounts are collectible in accordance with ASC Topic 605, *Revenue Recognition* (“ASC 605”). The Company’s license and collaboration agreements may contain multiple elements, including grants of licenses to intellectual property rights, agreement to provide research and development services and other deliverables. The deliverables under such arrangements are evaluated under ASC Subtopic 605-25, *Multiple-Element Arrangements* (“ASC 605-25”). Under ASC 605-25, each required deliverable is evaluated to determine whether it qualifies as a separate unit of accounting based on whether the deliverable has “stand-alone value” to the customer. The arrangement’s consideration that is fixed or determinable, excluding contingent milestone payments, is then allocated to each separate unit of accounting based on the relative selling price of each deliverable. In general, the consideration allocated to each unit of accounting is recognized as the related goods or services are delivered, limited to the consideration that is not contingent upon future deliverables.

Upfront payments for licensing the Company’s intellectual property are evaluated to determine if the licensee can

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obtain stand-alone value from the license separate from the value of the research and development services and other deliverables in the arrangement to be provided by the Company. If at the inception of an arrangement the Company determines that the license does not have stand-alone value separate from the research and development services or other deliverables, the license, services and other deliverables are combined as one unit of account and upfront payments are recorded as deferred revenue on the balance sheet and are recognized in a manner consistent with the final deliverable. Subsequent to the inception of an arrangement, the Company evaluates the remaining deliverables for separation as items in the arrangement are delivered. When stand-alone value is identified, the related consideration is recorded as revenue in the period in which the license or other intellectual property rights are delivered.

In those circumstances where research and development services or other deliverables are combined with the license, and multiple services are being performed such that a common output measure to determine a pattern of performance cannot be discerned, the Company recognizes amounts received on a straight line basis over the performance period. Such amounts are recorded as collaboration revenue. Any subsequent reimbursement payments, which are contingent upon the Company's future research and development expenditures, will be recorded as collaboration revenue and will be recognized on a straight-line basis over the performance period using the cumulative catch up method. The costs associated with these activities are reflected as a component of research and development expense in the statements of operations in the period incurred. In the event of an early termination of a collaboration agreement, any deferred revenue is recognized in the period in which all obligations of the Company under the agreement have been fulfilled.

Milestone payments under collaborative arrangements are triggered either by the results of the Company's research and development efforts, achievement of regulatory goals or by specified sales results by a third-party collaborator. Milestones related to the Company's development-based activities may include initiation of various phases of clinical trials and applications and acceptance for product approvals by regulatory agencies. Due to the uncertainty involved in meeting these development-based milestones, the determination is made at the inception of the collaboration agreement whether the development-based milestones are considered to be substantive (i.e. not just achieved through passage of time). In addition, the amounts of the payments assigned thereto are considered to be commensurate with the enhancement of the value of the delivered intellectual property as a result of the Company's performance. Because the Company's involvement is necessary to the achievement of development-based milestones, the Company would account for development-based milestones as revenue upon achievement of the substantive milestone events. Milestones related to sales-based activities may be triggered upon events such as first commercial sale of a product or when sales first achieve a defined level. Since these sales-based milestones would be achieved after the completion of the Company's development activities, the Company would account for the sales-based milestones in the same manner as royalties, with revenue recognized upon achievement of the milestone. Royalties based on reported sales of licensed products will be recognized based on contract terms when reported sales are reliably measurable and collectability is reasonably assured. To date, none of the Company's products have been approved and therefore the Company has not earned any royalty revenue from product sales. In territories where the Company and a collaborator may share profit, the revenue would be recorded in the period earned.

The Company often is required to make estimates regarding drug development and commercialization timelines for compounds being developed pursuant to a collaboration agreement. Because the drug development process is lengthy and the Company's collaboration agreements typically cover activities over several years, this approach often results in the deferral of significant amounts of revenue into future periods. In addition, because of the many risks and uncertainties associated with the development of drug candidates, the Company's estimates regarding the period of performance may change in the future. Any change in the Company's estimates or a termination of the arrangement could result in substantial changes to the period over which the revenues are recognized.

Research and Development Expenses

Research and development expenses represent costs associated with the ongoing development of SMDCs and

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companion imaging agents and include salaries and employee benefits, supplies, facility costs related to research activities, and expenses for clinical trials. The Company records accruals for clinical trial expenses based on the estimated amount of work completed. The Company monitors patient enrollment levels and related activities to the extent possible through internal reviews, correspondence, and discussions with research organizations. In the event that a clinical trial is terminated early, the Company records, in the period of termination, an accrual for the estimated remaining costs to complete the trial.

Upfront payments made in connection with business collaborations and research and development arrangements are evaluated under ASC Subtopic 730-20, *Research and Development Arrangements*. Upfront payments made in connection with business development collaborations are expensed as research and development costs, as the assets acquired do not have alternative future use. Amounts related to future research and development are capitalized as prepaid research and development and are expensed over the service period based upon the level of services provided. As of December 31, 2016, the Company had approximately \$1.0 million of capitalized research and development costs included in prepaid expenses.

Stock-Based Compensation

The Company accounts for its stock-based compensation pursuant to ASC Topic 718, *Compensation — Stock Compensation* (“ASC 718”), which requires the recognition of the fair value, or calculated value for nonpublic entities, of stock-based compensation in net income. Stock-based compensation consists of stock options, which are granted at exercise prices at or above the fair market value of the Company’s common stock on the dates of grant, service-based restricted stock units (“RSUs”), performance-based RSUs (“PRSUs”), and shares available for purchase under the Company’s 2010 Employee Stock Purchase Plan (“ESPP”). For PRSUs issued by the Company, stock-based compensation expense would be recognized if and when the Company determines that it is probable that the performance conditions will be achieved. For RSUs issued by the Company, stock-based compensation expense is recognized ratably over the service period. The Company recognizes compensation cost based on the grant-date fair value estimated in accordance with the provisions of ASC 718.

Net Income (Loss) Per Share

The Company calculates basic net income (loss) per share based on the weighted-average number of outstanding common shares. The Company calculates diluted net income (loss) per share based on the weighted-average number of outstanding common shares plus the effect of dilutive securities.

Income Taxes

The Company accounts for income taxes under the liability method in accordance with the provision of ASC Topic 740, *Income Taxes* (“ASC 740”). ASC 740 requires recognition of deferred taxes to provide for temporary differences between financial reporting and tax basis of assets and liabilities. Deferred taxes are measured using enacted tax rates expected to be in effect in a year in which the basis difference is expected to reverse. The Company continues to record a valuation allowance for the full amount of deferred tax assets, which would otherwise be recorded for tax benefits relating to operating loss and tax credit carryforwards, as realization of such deferred tax assets cannot be determined to be more likely than not.

The Company accounts for uncertain income tax positions recognized in the financial statements in accordance with Accounting Standards Update (“ASU”) No. 2009-06. This guidance prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return and provides guidance on derecognition of tax benefits, classification on the balance sheet, interest and penalties, accounting in interim periods, disclosure, and transition.

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Segment Information

Operating segments are defined as components of an enterprise engaging in business activities for which discrete financial information is available and regularly reviewed by the chief operating decision maker in deciding how to allocate resources and in assessing performance. The Company had performed clinical trials globally and established a subsidiary in The Netherlands to assist in the administration of filing applications in Europe and a subsidiary in Switzerland for commercial pre-launch activities in Europe. The applications filed in Europe were withdrawn in May 2014 and the pre-launch activities in Europe ceased. The Company dissolved Endocyte Europe GmbH in the fourth quarter of 2015 and dissolved Endocyte Europe B.V. in the first quarter of 2016. All long-lived assets are held in the U.S. The Company views its operations and manages its business in one operating segment.

3. New Accounting Pronouncements

Recently Issued Accounting Standards

In March 2016, the FASB issued ASU 2016-09, *Improvements to Employee Share-Based Payment Accounting*, an update to ASC 718. This guidance involves improving several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, classification on the statement of cash flows, and the forfeiture rate calculation. This update is effective for the Company for interim and annual reporting periods beginning January 1, 2017. The Company does not expect the adoption of this guidance to have a material impact on its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases*, an update to ASC Topic 842, *Leases*. This guidance requires lessees to recognize leases as assets and liabilities on their balance sheets but recognize expenses on their income statements in a manner similar to the current accounting guidance. For lessors, the guidance also modifies the classification criteria and the accounting for sales-type and direct finance leases. This update is effective for the Company for interim and annual reporting periods beginning January 1, 2019 unless it elects early adoption. The Company is currently evaluating the impact, if any, the adoption of this guidance will have on its consolidated financial statements.

In August 2014, the FASB issued ASU 2014-15 (Subtopic 205-40), *Presentation of Financial Statements — Going Concern*, which requires management to evaluate whether there is substantial doubt about an entity's ability to continue as a going concern and provide related footnote disclosures. This guidance is effective for the Company for interim and annual reporting periods beginning on or after December 15, 2016. The standard allows for either a full retrospective or modified retrospective transition method. For the year ended December 31, 2016, the Company evaluated its ability to continue as a going concern and noted no substantial doubt or disclosures necessary. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606), to clarify the principles used to recognize revenue for all entities. Under ASU 2014-09, an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In order to do so, an entity would follow the five-step process for in-scope transactions: 1) identify the contract with a customer, 2) identify the separate performance obligations in the contract, 3) determine the transaction price, 4) allocate the transaction price to the separate performance obligations in the contract, and 5) recognize revenue when (or as) the entity satisfies a performance obligation. In August 2015, the FASB issued ASU 2015-14, which defers the effective date of ASU 2014-09 by one year. Therefore, ASU 2014-09 will become effective for the Company for interim and annual reporting periods beginning after December 15, 2017. Early adoption is permitted, but not any earlier than the original effective date of December 15, 2016. An entity can apply the new revenue standard retrospectively to each prior reporting period

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presented or retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application in retained earnings. In April 2016, the FASB issued ASU 2016-10, an update to Topic 606, which clarifies how entities should identify performance obligations and evaluate licensing. In May 2016, the FASB issued ASU 2016-12, an update to Topic 606, which clarifies guidance on transition, collectability, noncash consideration and the presentation of sales and other similar taxes. In December 2016, the FASB issued ASU 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*, which affects narrow aspects of the guidance issued in ASU 2014-09. The Company is currently evaluating the impact, if any, the adoption of this guidance will have on its consolidated financial statements.

4. Net Income (Loss) per Share

Basic net income (loss) per share is calculated by dividing the net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding during the period, without consideration for common stock equivalents. Diluted net income (loss) per share is computed by dividing the net income (loss) attributable to common stockholders by the weighted-average number of common share equivalents outstanding for the period determined using the treasury-stock method and the if-converted method. For purposes of this calculation, stock options, warrants, PRSUs, RSUs and shares to be purchased under the Company's 2010 ESPP are considered to be common stock equivalents and are only included in the calculation of diluted net income (loss) per share when their effect is dilutive.

As of December 31, 2014, 2015 and 2016, the following number of potential common stock equivalents were outstanding:

Common stock equivalents

	Year Ended December 31,		
	2014	2015	2016
Outstanding common stock options	5,096,674	5,686,815	6,447,594
Outstanding warrants	34,647	34,647	34,647
Outstanding PRSUs	245,396	213,758	—
Outstanding RSUs	161,439	351,414	394,132
Shares to be purchased under the ESPP	2,894	4,236	4,394
Total	5,541,050	6,290,870	6,880,767

These common stock equivalents were excluded from the determination of diluted net loss per share for the years ended December 31, 2015 and December 31, 2016, due to their anti-dilutive effect on earnings.

The following weighted-average outstanding common stock options, warrants, RSUs and shares to be purchased under the ESPP were added to basic weighted-average common shares outstanding for the year ended December 31, 2014 to calculate diluted weighted-average shares outstanding because of their dilutive effect:

	Year Ended December 31, 2014
Outstanding common stock options	1,494,796
Outstanding warrants	5,433
Outstanding RSUs	14,128
Shares to be purchased under the ESPP	1,392
Total	1,515,749

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5. Other Comprehensive Income (Loss)

The accumulated balances related to each component of other comprehensive income (loss) were as follows:

	Foreign Currency Translation Gains (Losses)	Unrealized Net Gains (Losses) on Securities	Accumulated Other Comprehensive Gains (Losses)
Balance at December 31, 2013	\$ (11,816)	\$ 68,507	\$ 56,691
Unrealized loss	(38,776)	(165,285)	(204,061)
Net amount reclassified to net income	—	3,442	3,442
Other comprehensive loss	(38,776)	(161,843)	(200,619)
Balance at December 31, 2014	\$ (50,592)	\$ (93,336)	\$ (143,928)
Unrealized gain (loss)	(1,352)	18,841	17,489
Net amount reclassified to net loss	51,944	(4,904)	47,040
Other comprehensive income	50,592	13,937	64,529
Balance at December 31, 2015	\$ —	\$ (79,399)	\$ (79,399)
Unrealized gain	—	36,908	36,908
Net amount reclassified to net loss	—	1,295	1,295
Other comprehensive income	—	38,203	38,203
Balance at December 31, 2016	\$ —	\$ (41,196)	\$ (41,196)

The assets and liabilities of foreign operations were translated into U.S. dollars using the current exchange rate. For those operations, changes in exchange rates generally did not affect cash flows, which resulted in translation adjustments made in stockholders' equity rather than to net income (loss). The accumulated balance of translation adjustments for Endocyte Europe B.V. were reclassified out of accumulated other comprehensive income (loss) and recognized as foreign currency translation losses reported in other income (expense) as the Company determined that the liquidation of Endocyte Europe B.V. was substantially complete as of December 31, 2015. There were no transactions from foreign operations in the year ended December 31, 2016.

Reclassifications Out of Accumulated Other Comprehensive Income (Loss)

Details about Accumulated Other Comprehensive Income (Loss) Components	Amount Reclassified from Accumulated Other Comprehensive Income (Loss)			Affected Line Item in the Consolidated Statements of Operations and Comprehensive Income (Loss)
	Year Ended December 31, 2014	Year Ended December 31, 2015	Year Ended December 31, 2016	
Unrealized Net Gains (Losses) on Securities	\$ 3,442	\$ (4,904)	\$ 1,295	Other income (expense)
Foreign Currency Translation Losses	—	51,944	—	Other income (expense)
Total Reclassifications for the Period	\$ 3,442	\$ 47,040	\$ 1,295	

6. Investments

The Company applies the fair value measurement and disclosure provisions of ASC Topic 820, *Fair Value Measurements and Disclosures* ("ASC 820"). ASC 820, which defines fair value, establishes a framework for measuring fair value in GAAP, and expands disclosures about fair value measurements. Investments consist primarily of investments with original maturities greater than three months, but no longer than 24 months when purchased.

ASC 820 establishes a three-level valuation hierarchy for fair value measurements. These valuation techniques are

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based upon the transparency of inputs (observable and unobservable) to the valuation of an asset or liability as of the measurement date. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. These two types of inputs create the following fair value hierarchy:

Level 1 — Valuation is based on quoted prices for identical assets or liabilities in active markets.

Level 2 — Valuation is based on quoted prices for similar assets or liabilities in active markets, or other inputs that are observable for the asset or liability, either directly or indirectly, for the full term of the financial instrument.

Level 3 — Valuation is based upon other unobservable inputs that are significant to the fair value measurement.

The fair value of the Company's fixed income securities is based on a market approach using quoted market values.

The following table summarizes the fair value of cash and cash equivalents and investments as of December 31, 2015:

Description	Cost	Level 1	Level 2	Fair Value (Carrying Value)
Cash				
Cash	\$ 5,154,191	\$ 5,154,191	\$ —	\$ 5,154,191
Cash equivalents				
FDIC insured deposits and money market funds	10,277,431	10,277,431	—	10,277,431
Cash and cash equivalents	<u>\$ 15,431,622</u>	<u>\$ 15,431,622</u>	<u>\$ —</u>	<u>\$ 15,431,622</u>
Short-term investments (due within 1 year)				
U.S. government treasury obligations	\$ 73,593,081	\$ 73,560,085	\$ —	\$ 73,560,085
U.S. government agency obligations	55,702,099	55,670,043	—	55,670,043
Corporate obligations	28,953,051	—	28,938,704	28,938,704
Total short-term investments	<u>\$ 158,248,231</u>	<u>\$ 129,230,128</u>	<u>\$ 28,938,704</u>	<u>\$ 158,168,832</u>

The following table summarizes the fair value of cash and cash equivalents and investments as of December: 31, 2016:

Description	Cost	Level 1	Level 2	Fair Value (Carrying Value)
Cash				
Cash	\$ 6,249,703	\$ 6,249,703	\$ —	\$ 6,249,703
Cash equivalents				
FDIC insured deposits and money market funds	24,978,489	24,978,489	—	24,978,489
Cash and cash equivalents	<u>\$ 31,228,192</u>	<u>\$ 31,228,192</u>	<u>\$ —</u>	<u>\$ 31,228,192</u>
Short-term investments (due within 1 year)				
U.S. government treasury obligations	\$ 86,078,622	\$ 86,053,755	\$ —	\$ 86,053,755
Corporate obligations	20,941,799	—	20,925,469	20,925,469
Total short-term investments	<u>\$ 107,020,420</u>	<u>\$ 86,053,755</u>	<u>\$ 20,925,469</u>	<u>\$ 106,979,224</u>

All securities held at December 31, 2015 and 2016, were classified as available-for-sale as defined by ASC 320.

Total unrealized gross gains were \$5,690 and \$8,257 for the years ended December 31, 2015 and 2016, respectively. Total unrealized gross losses were \$85,089 and \$49,453 for the years ended December 31, 2015 and 2016, respectively.

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The Company does not consider any of the unrealized losses to be other-than-temporary impairments because the Company has the intent and ability to hold investments until they recover in value. Total realized gross gains were \$1,667 for the year ended December 31, 2015. There were no total realized gross gains for the year ended December 31, 2016. Total realized gross losses were \$53 for the year ended December 31, 2016. There were no total realized gross losses for the year ended December 31, 2015.

7. Property and Equipment

Property and equipment consisted of the following:

	Estimated Useful Lives	December 31,	
		2015	2016
Laboratory equipment	7	\$ 6,022,585	\$ 6,666,506
Office equipment and software	3 – 7	1,271,847	1,347,768
Leasehold improvements	7	408,153	424,176
Assets not in service		53,378	19,000
		7,755,963	8,457,450
Less accumulated depreciation		(4,357,565)	(5,252,373)
		<u>\$ 3,398,398</u>	<u>\$ 3,205,077</u>

Assets not in service represent new laboratory equipment, computer equipment and software that were not installed and ready to use at December 31, 2015 and 2016. The total amount of depreciation expense for the years ended December 31, 2014, 2015 and 2016 were \$857,055, \$886,710 and \$919,809, respectively.

8. Warrant

In 2007, the Company issued a warrant as consideration in connection with, among other things, its loan commitment from General Electric Capital Corporation to purchase Series C-3 convertible preferred stock, maturing on December 31, 2017. Upon closing of the initial public offering, this warrant was converted to a warrant to purchase 34,647 shares of common stock at an exercise price of \$8.12 per share and was reclassified to stockholders' equity. During 2015, General Electric Capital Corporation transferred its outstanding warrant to Healthcare Equity Holdings, LLC.

9. Leases

Future minimum lease payments for noncancellable operating leases as of December 31, 2016, are as follows:

2017	\$ 767,450
2018	26,677
2019	—
2020	—
2021	—
Thereafter	—
Total minimum lease payments	<u>\$ 794,127</u>

Rent expense for operating leases was \$866,768, \$736,249 and \$743,323 for the years ended December 31, 2014, 2015 and 2016, respectively.

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10. Stockholders' Equity***Stock-Based Compensation Plans***

The Company has had stock-based compensation plans since 1997. The awards made under the plans adopted in 1997 and 2007 consisted of stock options. The 2010 Equity Incentive Plan (the "2010 Plan"), which is the only plan under which awards may currently be made, authorizes awards in the form of stock options, stock appreciation rights, restricted stock, RSUs, PRSUs, and performance units and performance shares. Awards under the 2010 Plan may be made to employees, directors and certain consultants as determined by the compensation committee of the board of directors. There were 9,742,563 and 11,003,563 shares of common stock authorized and reserved under these plans at December 31, 2015 and December 31, 2016, respectively.

Stock Options

Under the various plans, employees have been granted incentive stock options, while directors and consultants have been granted non-qualified options. The plans allow the holder of an option to purchase common stock at the exercise price, which was at or above the fair value of the Company's common stock on the date of grant.

Generally, options granted under the 1997 and 2007 plans in connection with an employee's commencement of employment vest over a four-year period with one-half of the shares subject to the grant vesting after two years of employment and remaining options vesting monthly over the remainder of the four-year period. Options granted under the 1997 and 2007 plans for performance or promotions vest monthly over a four-year period. Generally, options granted under the 2010 Plan vest annually over a three-year or four-year period. Unexercised stock options terminate on the tenth anniversary date after the date of grant. The Company recognizes stock-based compensation expense over the requisite service period of the individual grantees, which generally equals the vesting period. The Company utilizes a Black-Scholes option-pricing model to estimate the value of stock options. The Black-Scholes model allows the use of a range of assumptions related to volatility, risk-free interest rate, employee exercise behavior and dividend yield. Expected volatilities used in the model beginning in 2015 are based on historical volatility of the Company's stock prices. Expected volatilities used in the model prior to 2015 were based on a combination of peer volatility and Company volatility.

The Company is using the "simplified" method for "plain vanilla" options to estimate the expected term of the stock option grants. Under this approach, the weighted-average expected life is presumed to be the average of the vesting term and the contractual term of the option. The risk-free interest rate assumption is derived from the weighted-average yield of a U.S. Treasury security with the same term as the expected life of the options, and the dividend yield assumption is based on historical experience and the Company's estimate of future dividend yields.

The weighted-average value of the individual options granted during 2014, 2015 and 2016 were determined using the following assumptions:

	<u>Year Ended December 31,</u>		
	<u>2014</u>	<u>2015</u>	<u>2016</u>
Expected volatility	102.86 %	106.38 %	98.83 %
Risk-free interest rate	1.98 %	1.55 %	1.47 %
Weighted-average expected life (in years)	6.6	6.4	6.6
Dividend yield	0.00 %	0.00 %	0.00 %

The resulting value of options granted was \$4,884,534 and \$2,838,053 for the years ended December 31, 2015 and 2016, respectively, which will be amortized into income over the remaining requisite service period. The Company executed a Separation Agreement and Release of Claims with its former Chief Executive Officer, P. Ron Ellis, in connection with his resignation from the Company in June 2016. Under this agreement and Mr. Ellis' original Severance

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Agreement, the Company incurred additional stock compensation expense of \$2,800,000 related to the modification of Mr. Ellis' options and RSUs. The vesting of each stock option and RSU, other than fully vested awards, was modified and the exercise period of each stock option was extended. In determining the additional expense related to the modification of Mr. Ellis' awards, the Company revalued the modified options in accordance with ASC 718 using the Black-Scholes model. The Company recognized total stock-based compensation cost, net of forfeitures, in the amount of \$8,025,261, \$6,920,220 and \$9,322,127 for the years ended December 31, 2014, 2015 and 2016, respectively.

The Company's stock option activity and related information are summarized as follows:

	<u>Options</u>	<u>Weighted-Average Exercise Price</u>	<u>Weighted-Average Remaining Contractual Term (In Years)</u>	<u>Aggregate Intrinsic Value</u>
Outstanding at January 1, 2014	5,246,465	\$ 6.76		
Granted during year	1,065,386	10.54		
Exercised during year	(399,654)	3.23		
Expired during year	(244,121)	9.17		
Forfeited during year	(571,402)	10.49		
Outstanding at December 31, 2014	<u>5,096,674</u>	\$ 7.29	6.87	\$ 6,329,518
Exercisable at December 31, 2014	<u>2,695,278</u>	5.89	5.68	4,986,059
Outstanding at January 1, 2015	5,096,674	7.29		
Granted during year	1,126,672	5.23		
Exercised during year	(146,046)	2.60		
Expired during year	(156,160)	11.03		
Forfeited during year	(234,325)	8.05		
Outstanding at December 31, 2015	<u>5,686,815</u>	\$ 6.87	6.52	\$ 1,432,306
Exercisable at December 31, 2015	<u>3,391,069</u>	6.46	5.37	1,333,875
Outstanding at January 1, 2016	5,686,815	6.87		
Granted during year	1,100,997	3.21		
Exercised during year	(129,638)	2.01		
Expired during year	(28,369)	7.65		
Forfeited during year	(182,211)	4.45		
Outstanding at December 31, 2016	<u>6,447,594</u>	\$ 6.41	6.17	\$ 33,283
Exercisable at December 31, 2016	<u>4,666,628</u>	6.76	5.34	33,283

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The following is a rollforward of the Company's nonvested stock options from January 1, 2014 to December 31, 2016.

	<u>Options</u>	<u>Weighted-Average Grant Date Value</u>
Nonvested stock options at January 1, 2014	2,977,027	\$ 6.62
Granted during year	1,065,386	8.62
Vested during year	(1,069,615)	6.61
Forfeited during year	(571,402)	8.36
Nonvested at December 31, 2014	<u>2,401,396</u>	\$ 7.07
Nonvested stock options at January 1, 2015	2,401,396	\$ 7.07
Granted during year	1,126,672	4.34
Vested during year	(997,997)	6.48
Forfeited during year	(234,325)	6.37
Nonvested at December 31, 2015	<u>2,295,746</u>	\$ 6.05
Nonvested stock options at January 1, 2016	2,295,746	\$ 6.05
Granted during year	1,100,997	2.58
Vested during year	(1,433,566)	5.74
Forfeited during year	(182,211)	3.57
Nonvested at December 31, 2016	<u>1,780,966</u>	\$ 4.41

The total grant date value of stock options vested during 2014, 2015 and 2016 was \$7,072,923, \$6,467,294 and \$8,233,220 respectively. As of December 31, 2015 and December 31, 2016, the total remaining unrecognized compensation cost, net of forfeitures, related to stock options granted was \$8.6 million and \$4.2 million respectively, each of which is expected to be recognized over a weighted average period of approximately 1.4 years. The intrinsic value of options exercised was \$396,619 and \$126,651 for the years ended December 31, 2015 and December 31, 2016, respectively.

Restricted Stock Units

In May 2011, the Company adopted and granted awards under a performance-based RSU program (the "2011 PRSU Program") under the 2010 Plan. As of December 31, 2016, the performance deadline of May 26, 2016 had passed and all PRSU awards had expired. Each unit represented an amount equal to one share of the Company's common stock.

The RSUs are service-based awards that will vest and be paid in the form of one share of the Company's common stock for each RSU, generally in three or four equal annual installments beginning on the first anniversary of the date of grant of the RSU. As of December 31, 2016, the Company had 394,132 RSU awards outstanding. As of December 31, 2015 and 2016, the total remaining unrecognized compensation cost, net of forfeitures, related to RSUs was \$1.6 million and \$1.1 million, respectively, which is expected to be recognized over a weighted average period of approximately 1.5 and 1.4 years, respectively.

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The following table sets forth the number of RSUs that were granted, vested and forfeited in the periods indicated:

	Restricted Stock Units	Weighted-Average Grant Date Fair Value
Outstanding at January 1, 2014	—	\$ —
Granted during year	196,710	11.11
Vested during year	(1,875)	11.11
Forfeited during year	(33,396)	11.11
Outstanding at December 31, 2014	161,439	\$ 11.11
Outstanding at January 1, 2015	161,439	11.11
Granted during year	260,976	5.17
Vested during year	(40,333)	11.11
Forfeited during year	(30,668)	8.07
Outstanding at December 31, 2015	351,414	7.03
Outstanding at January 1, 2016	351,414	\$ 7.03
Granted during year	254,538	3.21
Vested during year	(177,078)	6.71
Forfeited during year	(34,742)	4.13
Outstanding at December 31, 2016	394,132	\$ 4.96

Employee Stock Purchase Plan

Effective January 1, 2014, the Company implemented the ESPP. At January 1, 2016, 911,725 common shares were available for issuance under the ESPP. Shares may be issued under the ESPP twice a year. In the year ended December 31, 2016, plan participants purchased 86,571 shares of common stock under the ESPP at an average purchase price of \$2.68 per share. At December 31, 2016, 825,154 shares were available for issuance under the ESPP.

11. Income Taxes

A reconciliation of the expected income tax benefit (expense) computed using the federal statutory income tax rate to the Company's effective income tax rate is as follows for the years ended December 31, 2014, 2015, and 2016:

	December 31,		
	2014	2015	2016
Income tax computed at federal statutory tax rate	34.0 %	34.0 %	34.0 %
State taxes, net of federal benefit	6.3 %	3.2 %	3.3 %
State taxes rate change, net of federal benefit	30.4 %	—	—
International operations	6.6 %	(4.8)%	(0.7)%
Research and development credits	(22.6)%	3.8 %	4.0 %
Orphan drug credits	(57.4)%	0.9 %	0.6 %
Equity compensation	16.6 %	(2.0)%	(3.7)%
Other	(2.1)%	—	—
Change in valuation allowance	(11.8)%	(35.1)%	(37.5)%
Total	—	—	—

At December 31, 2016, the Company had net operating loss carryforwards totaling approximately \$212,363,000 and \$273,989,000 for federal and state income taxes, respectively, that may be used to offset future taxable income. If not used, the net operating loss carryforwards and research and development credits will begin expiring in the year 2021. The Company has determined that it experienced a change in ownership as defined under Section 382 of the U.S. Internal Revenue Code (the "Code"), as a result of the public offering in August 2011. As a result, the future use of its

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net operating losses, after giving effect to net unrealized built-in gains, will be limited to approximately \$201,900,000 for 2016 and \$16,800,000 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 the Company to generate future taxable income prior to their expiration. Furthermore, the utilization of the net operating loss carryforwards could be limited beyond the Company's generation of taxable income if a change in the underlying ownership of the Company's 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.

Net deferred tax assets and liabilities are comprised of the following:

	December 31,	
	2015	2016
Deferred tax assets		
Net operating loss carryforwards	\$ 73,678,000	\$ 78,021,000
Research and development credit carryforwards	12,398,000	14,143,000
Orphan drug credit	6,815,000	7,235,000
Stock options	5,568,000	7,105,000
Other	235,000	562,000
Deferred tax assets	<u>98,694,000</u>	<u>107,066,000</u>
Deferred tax liabilities		
Deferred revenue	(8,049,000)	—
Property and equipment	(361,000)	(337,000)
Deferred tax liabilities	<u>\$ (8,410,000)</u>	<u>\$ (337,000)</u>
Net deferred tax asset before valuation allowance	\$ 90,284,000	\$ 106,729,000
Less valuation allowance	(90,284,000)	(106,729,000)
Net deferred tax assets	<u>\$ —</u>	<u>\$ —</u>

For the year ended December 31, 2016, net operating loss carryforwards in the table above have been reduced by \$3.4 million of uncertain tax liabilities. A reconciliation of the beginning and ending amount of the unrecognized tax positions is as follows:

	Unrecognized Tax Positions	
Balance at January 1, 2016	\$	—
Additions based on tax positions related to the current year		3,405,000
Additions for tax positions of prior years		—
Reductions for tax positions of prior years		—
Settlements		—
Balance at December 31, 2016	<u>\$</u>	<u>3,405,000</u>
Balance at December 31, 2016	\$	3,405,000

At December 31, 2016 there were no uncertain tax liabilities that if recognized would affect the annual effective tax rate. The Company does not recognize interest accrued related to unrecognized tax liabilities.

12. Collaborations

In October 2007, the Company entered into an exclusive worldwide license with R&D Biopharmaceuticals to research, develop, and commercialize products containing conjugates of folate receptor targeting compounds and tubulysin compounds. In February 2011, this licensing agreement was assigned by R&D Biopharmaceuticals to Trientlisse. The Company paid an upfront fee of \$300,000 as research and development and pays \$25,000 in annual

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maintenance fees unless a milestone is paid in a given year. In 2014, the Company paid \$50,000 for the completion of toxicology studies in compliance with Good Laboratory Practice and \$100,000 for dosing the first human patient with PSMA tubulysin. The Company could pay \$5,900,000 in additional contingent payments upon the achievement of specific scientific, clinical, and regulatory milestones, in addition to royalties upon commercial sales. All payments have been expensed as research and development as incurred, as there is no alternate future use for this technology.

In December 1995, as amended in October 1998, the Company entered into an exclusive license agreement with Purdue Research Foundation, which licenses the right under certain patents to the Company. The Company is obligated to pay an annual minimum royalty of \$12,500 until commercial sales commence, following which time the payment of single digit royalty rates will commence. All payments have been expensed as incurred. The Company does not anticipate incurring any liabilities for vintafolide royalty payments based on the estimated timing of when commercial sales would commence, if development were to continue, and the expiration of the applicable patents.

In December 2009, the Company entered into a financial term sheet to be incorporated into a written license agreement with Purdue Research Foundation for a patent related to prostate cancer. The agreement was signed and became effective on March 1, 2010. Pursuant to the exclusive license agreement, the Company is subject to minimum annual royalty payments of \$15,000, payable until first commercial sale, following which time the minimum annual royalty payments increase to \$100,000 and sales-based royalties are also payable at market rates when commercial sales commence. In addition, a milestone payment of \$500,000 is payable upon approval of a new drug application in the U.S. In 2014, the Company paid a penalty as a milestone was not met. In 2015, the Company accrued a penalty which was paid in the first quarter of 2016 as an additional milestone was not met.

In 2014, the Company entered into a Master License Agreement with Purdue Research Foundation. Under this license, the Company has the right to exclusively license patents and technology discovered under company funded research at Purdue University. If the Company decides to move forward with development of one or more of these technologies, the Company will be obligated to make an acceptance payment and the Company will also be obligated to make contingent payments upon the achievement of specific scientific, clinical and regulatory milestones. Certain scientific, clinical and regulatory milestones, in addition to internal resource targets must be met by the Company to avoid fees as consideration for waivers of potentially missed milestones. The Company is obligated to pay annual minimum payments until commercial sales commence, following which time the payments of royalties with market rates will commence, along with an annual royalty payment.

Merck Collaboration Agreement

In April 2012, the Company entered into a worldwide collaboration agreement with Merck Sharp & Dohme Research GmbH, a subsidiary of Merck & Co, Inc. ("Merck"), regarding the development and commercialization of vintafolide, which agreement was terminated by Merck effective September 15, 2014. As a result of the termination of the collaboration with Merck, the Company is no longer eligible for additional milestone payments from Merck. In addition, all obligations of the Company under the agreement have been fulfilled and the Company is not required to perform any additional services to Merck. Pursuant to the collaboration agreement, the Company received a \$120.0 million non-refundable upfront payment and a \$5.0 million milestone payment in 2012. Under the collaboration agreement, the Company was responsible for the majority of funding and completion of the Phase 3 PROCEED clinical trial of vintafolide for the treatment of patients with platinum-resistant ovarian cancer ("PROC"), which was terminated in May 2014. The Company was responsible for the execution of the Phase 2b TARGET trial of vintafolide for the treatment of second-line non-small cell lung cancer, which is now complete. Merck was responsible for the costs of the TARGET trial through September 15, 2014.

For revenue recognition purposes, the Company viewed the collaboration with Merck as a multiple element arrangement. Multiple element arrangements are analyzed to determine whether the various performance obligations, or elements, can be separated or whether they must be accounted for as a single unit of accounting. The Company evaluated

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whether the delivered elements under the arrangement had value on a stand-alone basis and whether objective and reliable evidence of fair value of the undelivered element existed. Deliverables that did not meet these criteria were not evaluated separately for the purpose of revenue recognition. For a single unit of accounting, payments received were recognized in a manner consistent with the final deliverable. The Company determined that the deliverables related to the collaboration with Merck, including the licenses granted to Merck, as well as the Company performance obligations to provide various research and development services, would be accounted for as a single unit of account. This determination was made because the successful development of the therapeutic drug, vintafolide, is dependent on the companion diagnostic, etarfolatide, to select patients who are most likely to receive the most benefit from vintafolide. Given the nature of the combined benefit of the companion diagnostic and the therapeutic drug, the research and development services provided by the Company were essential to the overall arrangement as the Company had significant knowledge and technical know-how that was important to realizing the value of the licenses granted. Subsequent to the inception of the Merck arrangement, the Company evaluated the remaining deliverables for separation as items in the arrangement were delivered.

The Company recognized the non-refundable \$120.0 million upfront payment, the \$5.0 million milestone payment and funding from the research and development services on a straight-line basis over the estimated performance period, which started at the date of execution of the agreement. Based on the termination of the PROCEED trial and receiving the notice of termination of the collaboration agreement in 2014, the Company concluded that all of its obligations under the agreement had been fulfilled and the Company was not required to perform any additional services to Merck, and as a result, the entire balance of deferred revenue related to the collaboration agreement was recognized in 2014. The Company recognized approximately \$70.3 million of revenue related to the Merck collaboration during 2014. Though accounted for as a single unit of account for presentation purposes, the Company made an allocation of revenue recognized as collaboration revenue between the license and the services. This allocation was based upon the relative selling price of each deliverable. For the year ended December 31, 2014, license revenue was approximately \$52.7 million, while research and development services revenue was approximately \$17.6 million of the collaboration revenue.

NMP License and Commercialization Agreement

In August 2013, the Company entered into a license and commercialization agreement with Nihon Medi-Physic Co., LTD. (“NMP”) that grants NMP the right to develop and commercialize etarfolatide in Japan for use in connection with vintafolide in Japan. The Company received a \$1.0 million non-refundable upfront payment, is eligible for up to \$4.5 million based on the successful achievement of regulatory goals for etarfolatide in five different cancer indications and is eligible to receive double-digit percentage royalties on sales of etarfolatide in Japan.

For revenue recognition purposes, the Company viewed the agreement with NMP as a multiple element arrangement. Multiple element arrangements are analyzed to determine whether the various performance obligations, or elements, can be separated or whether they must be accounted for as a single unit of accounting. The Company has identified the deliverables related to the collaboration with NMP, which include the license granted to NMP, as well as the obligation to provide pre-clinical and clinical supply of etarfolatide, to provide rights to NMP if a product is developed that replaces etarfolatide, the obligation for the Company to provide clinical data to NMP during the contract period and the coordination of development and commercialization efforts between the Company for vintafolide and NMP for etarfolatide in Japan. The Company’s deliverables will be accounted for as a single unit of account, therefore the non-refundable upfront payment is being recognized on a straight-line basis over the performance period. This determination was made because the successful development of etarfolatide in Japan requires the ongoing participation by the Company, including the development of the related therapeutic drug, vintafolide. The performance period over which the revenue will be recognized continues from the date of execution of the agreement through the end of 2033, the estimated termination date of the contract which is when the Company’s performance obligations will be completed. Any significant changes in the timing of the performance period could result in a change in the revenue recognition period. The Company had deferred revenue related to the agreement of approximately \$0.8 million at December 31, 2016. Subsequent to the inception of the NMP arrangement, the Company evaluates the remaining deliverables for

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separation as items in the arrangement are delivered.

The arrangement with NMP includes milestone payments of up to approximately \$4.5 million and the milestones are based on the commencement of clinical trials in Japan for specific and non-specific indications and filing for approval in Japan for specific and non-specific indications. The Company evaluated each of these milestone payments and believes that all of the milestones are substantive as there is substantial performance risk that must occur in order for them to be met because the Company must complete additional clinical trials which show a positive outcome or receive approval from a regulatory authority and would be commensurate with the enhancement of value of the underlying intellectual property. To date, the products have not been approved in Japan and no revenue has been recognized related to the regulatory milestones or royalties as continued development of vintafolide is still an opportunity that the Company could pursue in the future.

NMP has the right to terminate the collaboration agreement on 90 days notice prior to first commercial sale in Japan and six months notice after the first commercial sale in Japan. NMP also has the right to terminate the agreement on six months notice if the Company fails to launch vintafolide after receiving regulatory approval in Japan. NMP and the Company each have the right to terminate the agreement due to the material breach or insolvency of the other party. Upon termination of the agreement depending on the circumstances, the parties have varying rights and obligations with respect to licensing and related regulatory materials and data.

13. Related-Party Transactions

The Company funds research at Purdue University, the employer of one of its founders and current Chief Science Officer. Amounts included in research and development expenses were \$1,000,000, \$1,000,000 and \$1,069,000 for the years ended December 31, 2014, 2015 and 2016, respectively.

The Company leases a facility from Purdue Research Foundation, a nonprofit organization affiliated with Purdue University, the employer of the Company's Chief Science Officer. The prior lease agreements have generally been renewed annually, and the current lease agreement expires December 31, 2017 with an option to extend the term. The amounts paid to Purdue Research Foundation related to the lease of this facility were \$592,000, \$588,000 and \$597,000 for the years ended December 31, 2014, 2015 and 2016, respectively.

At December 31, 2016, the Company had a balance of \$182,000 in accounts payable and other liabilities due to Purdue University and Purdue Research Foundation related to the license agreements, the lease agreement and other operating expenses.

In September 2011, the Company entered into exclusive worldwide licenses with On Target Laboratories, L.L.C. ("On Target") to develop and commercialize products relating to the compound comprising the Company's Folate and DIPA ligands and other certain Licensed Patents. On Target's Chief Executive Officer is the brother of the Company's Chief Science Officer. On Target is solely responsible for conducting research and development, seeking regulatory approval and commercialization of products. The Company received nonrefundable upfront license fees totaling \$191,000 from On Target in December 2011. The Company has determined that the deliverables under this agreement do not meet the criteria required for separate accounting units for the purposes of revenue recognition, and as a result, the Company recognized revenue from non-refundable, upfront fees when the performance condition of delivering the licenses and certain consultation services had been achieved and there was reasonable assurance of collectability. If On Target fails to meet minimum spend requirements on research and development, the Company has the right to terminate the agreement. The Company will be entitled to receive minimum royalty payments annually based on net sales, but there is no guarantee that a commercial product will be developed and approved for commercial sales. The Company will also be entitled to reimbursement of expenses relating to patent expenses and payments to the inventors and Purdue University if certain milestones are met. During 2011, the Company received a \$50,000 reimbursement from On Target for payments made to inventors for issued patents. The Company received \$20,000 in annual maintenance license fees

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during each of 2014, 2015 and 2016, and received \$50,614, \$21,044 and \$14,397 for reimbursable research and development expenses for 2014, 2015 and 2016, respectively.

14. Retirement Plans

The Company maintains a 401(k) retirement savings plan to provide retirement benefits for substantially all of its employees. Participants in the plan may elect to contribute a portion of their annual compensation to the plan, limited to the maximum allowed by the Code. Prior to January 1, 2014 the Company did not match 401(k) contributions. Effective January 1, 2014, the Company implemented a matching contribution for the 401(k) contributions. For each of the years ended December 31, 2014, 2015 and 2016, the Company had approximately \$0.3 million of expense related to the 401(k) employer match.

15. Commitments and Contingencies

On June 24, 2014, a complaint in a securities class action lawsuit was filed against the Company and one of its former officers and directors in the United States District Court for the Southern District of Indiana under the following caption: *Tony Nguyen, on Behalf of Himself and All Others Similarly Situated v. Endocyte, Inc. and P. Ron Ellis* (the “Nguyen Litigation”). On July 13, 2014, a nearly identical complaint in a securities class action lawsuit was filed against the Company and one of its former officers and directors in the United States District Court for the Southern District of Indiana under the following caption: *Vivian Oh Revocable Trust, Individually and on Behalf of All Others Similarly Situated v. Endocyte, Inc. and P. Ron Ellis* (the “Oh Litigation”). On September 22, 2014, the court named a lead plaintiff (“Lead Plaintiff”) and consolidated the Nguyen Litigation and the Oh Litigation under the following caption: *Gopichand Vallabhaneni v. Endocyte, Inc. and P. Ron Ellis* (the “Vallabhaneni Litigation”). On November 17, 2014, Lead Plaintiff filed a consolidated amended securities class action complaint (the “Amended Complaint”) against the Company, P. Ron Ellis, Beth Taylor, Michael A. Sherman, John C. Aplin, Philip S. Low, Keith E. Brauer, Ann F. Hanham, Marc Kozin, Peter D. Meldrum, Fred A. Middleton, Lesley Russell (the “Individual Defendants” and collectively with the Company, the “Endocyte Defendants”), and Credit Suisse Securities (USA) LLC and Citigroup Global Markets Inc. (the “Underwriter Defendants”). The court dismissed the lawsuit without prejudice on January 4, 2016, but granted Lead Plaintiff until February 1, 2016 to demonstrate sufficient facts to justify an amended pleading. Lead Plaintiff did not respond, and on February 2, 2016, the court amended the dismissal to be with prejudice and a final order was so entered. Lead Plaintiff appealed the final judgment on March 1, 2016. On March 31, 2016, the appeal was voluntarily dismissed, with prejudice.

On September 23, 2014, a complaint in a shareholder derivative lawsuit was filed against all but one of the Company’s current directors and one of its former directors in the United States District Court for the Southern District of Indiana under the following caption: *William Moore, Derivatively on Behalf of Nominal Defendant Endocyte, Inc. v. John C. Aplin, et al.* (the “Moore Litigation”). The Company was named as a nominal defendant in the case. On October 31, 2014, a complaint in a shareholder derivative lawsuit nearly identical to the Moore Litigation was filed against all but one of the Company’s current directors and one of its former directors in the United States District Court for the Southern District of Indiana under the following caption: *Victor Veloso, Derivatively on Behalf of Endocyte, Inc. v. John C. Aplin, et al.* (the “Veloso Litigation”). The Company was named as a nominal defendant in the case. On December 31, 2014, the court appointed co-lead counsel and consolidated the Moore Litigation with the Veloso Litigation under the following caption: *In re Endocyte, Inc. Derivative Litigation* (the “Endocyte Derivative Litigation”). The lawsuit was voluntarily dismissed without prejudice on April 19, 2016.

On November 6, 2014, a complaint was filed against the Company, one of its current executive officers, one of its former executive officers, Merck and one of Merck’s officers in the Superior Court of Tippecanoe County, Indiana under the following caption: *Mohamad Hage and Jamele Hage v. Endocyte, Inc., P. Ron Ellis, Mike A. Sherman, Eric Rubin and Merck & Co., Inc.* (the “Hage Litigation”). On July 21, 2016, the lawsuit was voluntarily dismissed, with prejudice.

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16. Restructuring Costs

The Company terminated the PROCEED trial in May 2014 after the interim futility analysis indicated that vintafolide did not demonstrate efficacy on the pre-specified outcome of progression-free survival for the treatment of PROC. As a result, the Company ceased its pre-launch commercial activities in Europe and implemented staff reductions in Europe and in the U.S. All employee and contract termination expenses were recorded and paid in the year ended December 31, 2014. The PROCEED trial termination expenses were paid over the years ended December 31, 2014, 2015 and 2016. At December 31, 2016, the Company had no remaining accrual balance related to the PROCEED trial termination.

The following table summarizes the restructuring accruals for the years ended December 31, 2014, 2015 and 2016:

	Employee and Contract Termination Accrual	PROCEED Trial Termination Accrual	Total
Balance, January 1, 2014	\$ —	\$ —	\$ —
Charges for the year ended December 31, 2014	1,300,000	4,100,000	5,400,000
Amounts paid in the year ended December 31, 2014	(1,300,000)	(2,800,000)	(4,100,000)
Balance, December 31, 2014	\$ —	\$ 1,300,000	\$ 1,300,000
Balance, January 1, 2015	—	1,300,000	1,300,000
Revised estimates in the year ended December 31, 2015	—	134,000	134,000
Amounts paid in the year ended December 31, 2015	—	(1,387,400)	(1,387,400)
Balance, December 31, 2015	\$ —	\$ 46,600	\$ 46,600
Balance, January 1, 2016	\$ —	\$ 46,600	\$ 46,600
Revised estimates in the year ended December 31, 2016	—	(15,800)	(15,800)
Amounts paid in the year ended December 31, 2016	—	(30,800)	(30,800)
Balance, December 31, 2016	\$ —	\$ —	\$ —

17. Selected Quarterly Financial Data (unaudited)

The following tables summarize the unaudited statements of operations for each quarter of 2016 and 2015 (in thousands except share and per share amounts):

	Quarters Ended			
	March 31,	June 30,	September 30,	December 31,
2016				
Revenue	\$ 12	\$ 13	\$ 33	\$ 12
Operating expenses:				
Research and development	6,531	6,788	5,985	8,188
General and administrative	3,820	7,394	2,988	3,096
Loss from operations	(10,339)	(14,169)	(8,940)	(11,272)
Interest income, net	189	208	232	232
Other expense, net	(3)	(1)	—	(25)
Net loss	\$ (10,153)	\$ (13,962)	\$ (8,708)	\$ (11,065)
Net loss per share-basic and diluted ^{(1) (2)}	\$ (0.24)	\$ (0.33)	\$ (0.21)	\$ (0.26)
Weighted average common shares outstanding – basic and diluted ⁽²⁾	42,109,828	42,178,537	42,263,311	42,289,453

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	Quarters Ended			
	March 31,	June 30,	September 30,	December 31,
2015				
Revenue	\$ 12	\$ 13	\$ 33	\$ 12
Operating expenses:				
Research and development	6,617	6,724	6,582	6,386
General and administrative	4,360	4,071	3,776	3,527
Loss from operations	(10,965)	(10,782)	(10,325)	(9,901)
Interest income, net	152	185	153	162
Other income (expense), net	(57)	(7)	170	(55)
Net loss	<u>\$ (10,870)</u>	<u>\$ (10,604)</u>	<u>\$ (10,002)</u>	<u>\$ (9,794)</u>
Net loss per share-basic and diluted ⁽¹⁾ ⁽²⁾	\$ (0.26)	\$ (0.25)	\$ (0.24)	\$ (0.23)
Weighted average common shares outstanding – basic and diluted ⁽²⁾	\$ 41,857,905	\$ 41,939,052	\$ 41,974,518	\$ 41,984,763

- (1) Per common share amounts for the quarters and full years have been calculated separately. Accordingly, the sum of quarterly amounts may not equal the annual amount due to differences in the weighted average common shares outstanding during each period, principally due to the effect of share issuances by the Company during the year.
- (2) Diluted weighted average common shares outstanding are identical to basic weighted average common shares outstanding and diluted net loss per share is identical to basic net loss per share for all quarters of 2015 and 2016 because common share equivalents are excluded from the calculations of diluted weighted average common shares outstanding for those quarters, as their effect is anti-dilutive.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

As of December 31, 2016, management, with the participation of our Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to our management, including the Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding required disclosures. Because of inherent limitations, any controls and procedures, no matter how well designed and operated, can provide only reasonable, and not absolute, assurance of achieving the desired control objective. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2016, the design and operation of our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There has been no change in our internal control over financial reporting during the quarter ended December 31, 2016, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) of the Exchange Act. Internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on criteria established in the *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Management's assessment included evaluation of such elements as the design and operating effectiveness of key financial reporting controls, process documentation, accounting policies, and our overall control environment. Based on this evaluation, our management concluded that, as of December 31, 2016, our internal control over financial reporting was effective based on such criteria.

Attestation on Internal Control over Financial Reporting

Ernst & Young LLP, our independent registered public accounting firm, has audited our consolidated financial statements for the year ended December 31, 2016 and has issued an audit report on the effectiveness of the Company's internal control over financial reporting as of December 31, 2016, which is included in Item 8 of this Annual Report on Form 10-K.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

Directors

The information required by this item is set forth in our definitive Proxy Statement to be used in connection with the 2017 Annual Meeting of Stockholders (the “2017 Proxy Statement”) and incorporated herein by reference.

Executive Officers

Information regarding our executive officers is set forth in Item 1 of Part I of this annual report under the caption “Executive Officers of the Registrant.”

Code of Business Conduct and Ethics

We have adopted a code of business conduct and ethics that applies to all of our directors and officers and other employees, including our principal executive officer, principal financial officer and principal accounting officer. This code is publicly available through the Investors & News section of our website at www.endocyte.com. To the extent permissible under applicable law, the rules of the SEC or NASDAQ listing standards, we intend to post on our website any amendment to the code of business conduct and ethics, or any grant of a waiver from a provision of the code of business conduct and ethics, that requires disclosure under applicable law, the rules of the SEC or NASDAQ listing standards.

Audit Committee

The information required by this item relating to our audit committee is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Section 16(a) Beneficial Ownership Reporting Compliance

The information required by this item relating to our compliance with Section 16(a) of the Exchange Act is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Corporate Governance

The information required by this item relating to the procedures by which stockholders may recommend nominees to the board of directors is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item with respect to security ownership of certain beneficial owners and management is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Equity Compensation Plan Information

The following table provides information regarding our equity compensation plans as of December 31, 2016:

Plan Category	Equity Compensation Plan Information		
	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
Equity compensation plans approved by security holders:	6,841,726 ⁽²⁾	\$ 6.41 ⁽³⁾	3,185,933 ⁽⁴⁾
Equity compensation plans not approved by security holders:	—	—	—
Total	6,841,726	\$ 6.41	3,185,933

- (1) Consists of the 2007 Stock Plan, the 2010 Equity Incentive Plan, and the 2010 Employee Stock Purchase Plan (“ESPP”).
- (2) Includes shares which may be issued pursuant to:
- 6,447,594 outstanding stock options; and
 - 394,132 outstanding restricted stock units, or RSUs.
- (3) Represents the weighted average exercise price of outstanding stock options. Does not take into account the outstanding RSUs which, once earned and vested, will be settled in shares of our common stock on a one-for-one basis at no additional cost.
- (4) Consists of shares available for awards under the 2010 Equity Incentive Plan and shares available for purchase under the ESPP. As of December 31, 2016 there were no shares available for awards under the 1997 Stock Plan or the 2007 Stock Plan. The original number of shares available for awards under the 2010 Equity Incentive Plan was 1,498,929. The 2010 Equity Incentive Plan provides for an annual increase in the number of shares available for issuance under that plan, if approved by the Board of Directors. Between the date of stockholder approval of the 2010 Equity Incentive Plan, January 10, 2011, and December 31, 2016, an aggregate of 7,208,000 shares have become available for issuance under the 2010 Equity Incentive Plan pursuant to the annual increase provision. The 2010 Equity Incentive Plan also provides that shares of common stock subject to outstanding awards under the 1997 Stock Plan or the 2007 Stock Plan that expire, terminate, are forfeited or are repurchased become available for issuance under the 2010 Equity Incentive Plan. Between January 10, 2011 and December 31, 2016, an aggregate of 47,842 shares underlying outstanding awards under the 1997 Stock Plan and the 2007 Stock Plan expired, terminated, were forfeited or were repurchased and therefore became available under the 2010 Equity Incentive Plan. Effective January 1, 2017, the Board of Directors increased the number of shares available for awards under the 2010 Equity Incentive Plan by 847,000 shares pursuant to the annual increase provision of the 2010 Equity Incentive Plan. The original number of shares available for purchase under the ESPP was 622,780. The ESPP provides for an annual increase in the number of shares available for purchase under that plan, if approved by the Board of Directors. Between the date of stockholder approval of the ESPP, January 10, 2011, and December 31, 2016, an aggregate of 1,039,870 shares have become available for purchase under the ESPP pursuant to the annual increase provision. The number of shares related to the ESPP shown in this column consists of 825,154 shares remaining available for issuance under the ESPP as of December 31, 2016.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is set forth in the 2017 Proxy Statement and incorporated herein by reference.

Item 14. *Principal Accounting Fees and Services*

The information required by this item is set forth in the 2017 Proxy Statement and incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) 1. *Financial Statements*

The following financial statements of Endocyte, Inc. and its subsidiaries are set forth in Part II, Item 8.

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2. *Financial Statement Schedules*

Financial statement schedules are omitted because they are not applicable or the required information is shown in the financial statements or the notes thereto.

3. *Exhibits*

A list of exhibits required to be filed as part of this report is set forth in the Index to Exhibits, which immediately precedes such exhibits and is incorporated herein by reference.

Item 16. Form 10-K Summary

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ENDOCYTE, INC.

By: /s/ Michael A. Sherman

Michael A. Sherman
President and Chief Executive Officer

Date: March 13, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Michael A. Sherman</u> Michael A. Sherman	President and Chief Executive Officer (Principal Executive Officer)	March 13, 2017
<u>/s/ Michael T. Andriole</u> Michael T. Andriole	Chief Financial Officer (Principal Financial Officer)	March 13, 2017
<u>/s/ Beth A. Taylor</u> Beth A. Taylor	Vice President of Finance and Chief Accounting Officer (Principal Accounting Officer)	March 13, 2017
<u>/s/ John C. Aplin</u> John C. Aplin	Chairman of the Board of Directors	March 13, 2017
<u>/s/ Philip S. Low</u> Philip S. Low	Director and Chief Science Officer	March 13, 2017
<u>/s/ Keith E. Brauer</u> Keith E. Brauer	Director	March 13, 2017
<u>/s/ Colin Goddard</u> Colin Goddard	Director	March 13, 2017
<u>/s/ Ann F. Hanham</u> Ann F. Hanham	Director	March 13, 2017
<u>/s/ Marc D. Kozin</u> Marc D. Kozin	Director	March 13, 2017
<u>/s/ Peter D. Meldrum</u> Peter D. Meldrum	Director	March 13, 2017
<u>/s/ Fred A. Middleton</u> Fred A. Middleton	Director	March 13, 2017
<u>/s/ Lesley Russell</u> Lesley Russell	Director	March 13, 2017

EXHIBIT INDEX

Exhibit Number	Description
3.1	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).
3.2	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 March 18, 2011).
4.1	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).
4.2	Reissued Warrant to Purchase Shares of Common Stock reissued by Endocyte, Inc. to Healthcare Equity Holdings, LLC on November 30, 2015 (incorporated by reference to Exhibit 4.3 to Annual Report on Form 10-K for the year ended December 31, 2015 filed March 8, 2016).
10.1*	Form of Director and Executive Officer Indemnification Agreement (incorporated by reference to Exhibit 10.1 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.2*	1997 Stock Plan and forms of option agreements thereunder (incorporated by reference to Exhibit 10.2 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.3*	2007 Stock Plan and forms of option agreements thereunder (incorporated by reference to Exhibit 10.3 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.4*	2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.5*	Form of Option Agreement under the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.5 to Annual Report on Form 10-K for the year ended December 31, 2010 filed March 18, 2011).
10.6*	Form of Endocyte, Inc. 2010 Equity Incentive Plan Performance-Based Restricted Stock Unit Award Agreement (2011 RSU Program) (incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed June 2, 2011).
10.7*	Form of Endocyte, Inc. 2010 Equity Incentive Plan Time-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed February 10, 2014).
10.8*	2010 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.5 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.9	Office Lease dated May 30, 2008 between Endocyte, Inc. and Zeller Management Corporation, amended (incorporated by reference to Exhibit 10.7 to Form S-1 (Registration No. 333-168904) filed August 17, 2010).
10.10	Third Amendment to Office Lease dated July 31, 2012 between Endocyte, Inc. and Zeller Management Corporation (incorporated by reference to Exhibit 10.8 to Annual Report on Form 10-K for the year ended December 31, 2012 filed March 18, 2013).
10.11**	Amended and Restated Exclusive License Agreement dated October 21, 1998 between Endocyte, Inc. and Purdue Research Foundation, as amended (incorporated by reference to Exhibit 10.2 to Quarterly Report on Form 10-Q for the quarter ended June 30, 2014 filed August 8, 2014).
10.12**	Exclusive License Agreement effective March 1, 2010 between Endocyte, Inc. and Purdue Research Foundation, as amended (incorporated by reference to Exhibit 10.3 to Quarterly Report on Form 10-Q for the quarter ended June 30, 2014 filed August 8, 2014).
10.13**	Master License Agreement effective July 1, 2013 between Endocyte, Inc. and Purdue Research Foundation (incorporated by reference to Exhibit 10.14 to Annual Report on Form 10-K for the year ended December 31, 2014).
10.14	Patent Assignment Agreement dated November 1, 2007 among Endocyte, Inc. and the parties set forth therein (incorporated by reference to Exhibit 10.16 of Amendment No. 1 to Form S-1 (Registration No. 333-168904) filed September 28, 2010).
10.15	Lease Agreement dated December 8, 2015 between Endocyte, Inc. and Purdue Research Foundation (incorporated by reference to Exhibit 10.18 to Annual Report on Form 10-K for the year ended December 31, 2015 filed March 8, 2016).
10.16	Extension of lease dated December 1, 2016 between Endocyte, Inc. and Purdue Research Foundation.
10.17*	Form of Endocyte, Inc. Change in Control and Severance Agreement (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on May 18, 2015).

[Table of Contents](#)

10.18*	Separation Agreement and Release of Claims, by and between Endocyte, Inc. and P. Ron Ellis, executed on June 16, 2016 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on June 20, 2016).
10.19*	Separation Agreement and Release of Claims, by and between Endocyte, Inc. and Scot L. Harper, executed on October 28, 2016.
10.20*	Schedule of Terms for Change in Control and Severance Agreements with Executive Officers
23.1	Consent of Ernst & Young, LLP, Independent Registered Public Accounting Firm.
31.1	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Chief Executive Officer, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Chief Financial Officer, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following materials from Registrant's Annual Report on Form 10-K for the year ended December 31, 2016, formatted in Extensible Business Reporting Language (XBRL) includes: (i) Consolidated Balance Sheets at December 31, 2015 and 2016, (ii) Consolidated Statements of Operations and Comprehensive Income (Loss) for the years ended December 31, 2014, 2015 and 2016, (iii) Consolidated Statements of Stockholders' Equity (Deficit) for the years ended December 31, 2014, 2015 and 2016, (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2014, 2015 and 2016 and (v) Notes to Consolidated Financial Statements.

+ Unless otherwise indicated, exhibits incorporated by reference herein were originally filed under SEC File No. 001-35050.

* Indicates management contracts or compensatory plans or arrangements.

** The Securities and Exchange Commission has granted our request that certain provisions of this exhibit be treated as confidential. Such material has been redacted from the exhibit as filed.

PURDUE TECHNOLOGY CENTER
3000 Kent Avenue
West Lafayette, Indiana 47906

EXTENSION OF LEASE

THIS EXTENSION OF LEASE is made this first day of December, 2016 by and between PURDUE RESEARCH FOUNDATION ("Landlord"), an Indiana corporation (formed and existing under the Indiana Foundation or Holding Companies Act, Acts of 1921, ch. 246), and ENDOCYTE ("Tenant"). Landlord and Tenant have previously entered into a lease (the "Lease") dated December 8, 2015, for Units A1-100, A1-200, B1-008, B1-100A, B1-200, B1-300, B1-400, B1-500, A2-100, A2-300, B2-300, B2-400, B2-500, B2-603, B2-700 AND B2-900 at the Purdue Technology Center, located at 3000 Kent Avenue, West Lafayette, IN.

In consideration of mutual benefits to be derived by the parties, it is agreed that the Lease Term provided under the Lease is hereby extended for a period of Twelve (12) months, commencing **January 1, 2017**, and expiring **December 31, 2017** (the "Extension Period"). All other terms and conditions of the Lease shall be applicable to such Extension Period(s), except as follows:

1. The Monthly Rent Installment shall be **\$50,746.89** (\$18.42 x 16,724 square feet / 12 months for office space and \$34.64 x 8,687 square feet / 12 months for lab space) and shall remain in effect during the Extension Period unless otherwise altered under the provisions of Section 4 of the Lease.
2. The Rent shall be **\$608,962.68** (\$50,746.89 x 12 months) and shall remain in effect during the Extension Period unless otherwise altered under the provisions of Section 4 of the Lease.

It is further agreed that all other terms and conditions of the Lease are hereby affirmed and shall remain in full force and effect during the Extension Period.

WITNESS the signatures and seals of the above parties as of the day and year first above written.

LANDLORD:

PURDUE RESEARCH FOUNDATION
an Indiana corporation (formed and existing under the Indiana
Foundation or Holding Companies Act, Acts of 1921, ch. 246)

By: /s/ David L. Hodde

David L. Hodde
Assistant Vice President
Director of Real Estate

ATTEST:

By: /s/ Gregory S. Napier

Gregory S. Napier
Director, Physical Facilities and Purdue Research Parks

TENANT:

ENDOCYTE

By: /s/ Mike Sherman

Mike Sherman
CEO



SEPARATION AGREEMENT AND RELEASE OF CLAIMS

This Separation Agreement and Release of Claims (this "Agreement") is entered into by and between Endocyte, Inc. ("Endocyte"), and Scot L. Harper, Ph.D. ("Harper") (together, the "Parties") and will become effective on the date that is eight calendar days after Harper has executed and not revoked this Agreement (the "Effective Date").

Recitals

A. Endocyte is terminating Harper's employment effective October 14, 2016 (the "Separation Date").

B. This involuntary termination of employment is without cause as defined in the Change in Control and Severance Agreement entered into between Endocyte and Harper dated May 15, 2015 (the "Severance Agreement").

C. The Severance Agreement entitles Harper to severance benefits under certain circumstances, subject to Harper's entering into this Agreement.

Agreement

In consideration of the foregoing and the following mutual undertakings, and subject to the terms and conditions of this Agreement, the Parties agree as follows:

1. Severance Benefits. Subject to the effectiveness of this Agreement and to the terms and conditions of this Agreement and the Severance Agreement, Endocyte will:

(a) Within 30 days following the Effective Date, pay Harper the sum of \$232,160, which is equal to 75% of his current annualized base salary, less applicable tax withholdings; and

(b) Accelerate (as of immediately prior to Harper's termination of employment) the vesting of the portion of each of Harper's stock option awards and restricted stock unit awards that, but for the termination of employment, would have vested on or before July 14, 2017; and

(i) with respect to the restricted stock unit awards that so vest, such restricted stock units will be settled and paid in the form of Endocyte common stock as soon as practicable after the Effective Date, but in no event later than the 15th day of the third month following the Separation Date, and unless Harper provides notice to Endocyte prior to the Effective Date that he desires to pay cash to satisfy all applicable tax withholding requirements and Harper makes such cash available to Endocyte prior to the Effective Date, Endocyte will withhold from the payment of common stock upon settlement and payment of such restricted stock units otherwise deliverable shares of common stock to satisfy all applicable tax withholding requirements; and

(ii) with respect to stock option awards for which vesting is accelerated pursuant to Section 1(b) hereof, exercise of such stock options will be subject to the passing of the Effective Date and to the terms of the Endocyte, Inc. 2010 Equity Incentive Plan and the applicable stock option grant agreement; and

(c) For each full calendar month during the period beginning October 14, 2016 and ending on the earlier of the nine-month anniversary of the Separation Date or the date on which Harper becomes eligible for group health insurance coverage with a new employer, pay Harper an amount equal to 140% of Harper's COBRA Premium Rate (as defined in the Severance Agreement), less applicable payroll tax withholdings.

2. Acknowledgements. Harper acknowledges and agrees that:

(a) The terms of the vested stock option awards he holds allow for exercise for a limited period of three months after his Separation Date, and in connection with his exercise of vested stock options and/or sale of option shares or RSU shares, he is relying on his own tax advisor; and

(b) Endocyte will pay him his base salary due through his Separation Date and the balance of his accrued unused vacation pay as of the Separation Date, with such payments being made in accordance with Endocyte's normal payroll practices. Payment of these amounts will not be conditioned upon his entering into this Agreement. Upon receipt of the foregoing payments, Harper acknowledges and agrees that Endocyte has paid him all compensation (including but not limited to wages, overtime, bonuses, vacation and other paid time off) and provided all other benefits due from his employment with Endocyte and the ending of that employment other than the consideration, payments and benefits set forth in Section 1 of this Agreement. Upon his receipt of the consideration, payments and benefits set forth in Section 1 of this Agreement, Endocyte will have fully discharged its obligations to him pursuant to the Severance Agreement and otherwise in connection with his employment with, and service to, Endocyte; and

(c) By entering into this Agreement, he is resigning as an officer of Endocyte effective as of his Separation Date; and

(d) He is not aware of any potential compliance violations by Endocyte or by any of its directors, officers, employees or agents that are related to Endocyte, arising under any federal, state or local law, that he has not fully disclosed in writing to Endocyte's CEO; and

(e) He will cooperate with Endocyte should his assistance be needed in response to any governmental investigation of or litigation against Endocyte. He agrees to make himself reasonably available for providing information and, to the extent necessary, testimony relevant to such response or defense. Harper understands that Endocyte will make its best effort to arrange such assistance so as not to unreasonably interfere with Harper's employment or personal commitments and will reimburse any reasonable out-of-pocket expenses, including but not limited to reasonable travel and

lodging expenses, he may incur in providing this cooperation. Harper further understands that Endocyte will compensate him for time spent on such assistance at rate of \$150.00 per hour, with time spent rounded to the nearest quarter hour for billing purposes. Any such payment will be reported to Harper on a Form 1099, and Harper agrees he will be responsible for any resulting tax liability.

3. Release. In consideration for, and as a condition to, his receipt of the benefits provided herein and in the Severance Agreement:

(a) To the fullest extent permitted by law, Harper hereby irrevocably and unconditionally releases, discharges and covenants not to sue Endocyte and its Representatives (as defined below) from and with respect to all claims, actions, costs and expenses, known or unknown, that Harper has or may have as of the Effective Date, except for (i) his rights under this Agreement, (ii) his rights under the award agreements and plans governing his stock options and restricted stock units, (iii) his rights to indemnification under Endocyte's Certificate of Incorporation and By-Laws and to coverage under Endocyte's D&O insurance policies, and (iv) his rights as a stockholder (collectively, the "Preserved Rights"). Nothing in this Agreement shall constitute or be construed as a waiver of future claims or a waiver of Harper's right to file a charge with the U.S. Equal Employment Opportunity Commission or its state or local counterparts or to participate in an investigation of any such charge. However, Harper does release to the fullest extent permitted by law his right to file a court action and to seek or to accept individual remedies or damages in any action filed on his behalf, and this release shall apply with full force and effect to any proceeding arising from or relating to such recourse including, but not limited to, the right to monetary damages or other individual legal or equitable relief.

(b) For the avoidance of doubt, this release shall be construed as broadly as lawfully possible and is intended, to the fullest extent permitted by law, to include all claims that Harper may have against Endocyte and any of its Representatives as of the Effective Date other than the Preserved Rights, including those arising (i) from his service as an employee, officer and director of Endocyte (or from the termination of such service), (ii) under any federal, state or local law (including anti-discrimination laws such as the Age Discrimination in Employment Act), (iii) under any contract or agreement between Harper and Endocyte, including the Severance Agreement, and (iv) under any legal theory, including contract, tort or common law.

(c) The "Representatives" of Endocyte to which the foregoing release extends include all of its officers, directors, employees, agents, representatives, stockholders, benefit plans and programs (except with respect to any vested retirement benefits), trusts, trustees, administrators, fiduciaries, insurers, attorneys and assigns, and all persons acting by, through, under, or in concert with any of the foregoing entities or individuals.

(d) Harper represents and warrants that he has not commenced an action of any kind in any forum against Endocyte or any of its Representatives.

(e) Endocyte hereby irrevocably and unconditionally releases, discharges and covenants not to sue Harper, his estate and his heirs from and with respect to all claims, actions, costs and expenses, known or unknown, that Endocyte has or may have as of the Effective Date; provided, however, that the foregoing release does not extend to (i) Endocyte's rights and Harper's obligations under this Agreement, the Severance Agreement and the Surviving Covenants as defined in Section 8(b) below, or (ii) any claims that cannot by law be released through this Agreement.

(f) This Agreement does not constitute an admission by either Party that such Party has violated any law or committed any wrongful act, and each Party specifically denies having done so. This Agreement may not be introduced into evidence or relied upon in legal proceedings except proceedings regarding breach of the terms of this Agreement or in defending legal claims.

4. Confidentiality. Except as otherwise required by law, Harper will not disclose any of the terms of this Agreement to anyone other than (a) his spouse or professional advisors who agree to maintain the confidentiality of such terms, or (b) the Equal Employment Opportunity Commission or any comparable state or local agency.

5. Return of Property. Harper will return promptly to Endocyte all of Endocyte's property, documents and materials in Harper's possession or subject to Harper's control, including equipment, computers and electronic devices, access cards, keys, manuals, and written literature (including electronically stored data in any form). Harper affirms that he has not and will not alter, destroy, remove, or inappropriately limit Endocyte's access to its records or documents.

6. Non-Disparagement. Neither Harper nor Endocyte shall make false, negative or disparaging statements about the other Party (and, in the case of Harper, about Endocyte's Representatives, management, policies, practices or services) to any other person or entity, except as may be legally required .

7. Transition Assistance. In consideration for the payments and benefits provided pursuant to Section 1 above, and without additional compensation, for a period of 30 calendar days following the Separation Date, Harper will provide advice and assistance for purposes of transitioning his responsibilities. This assistance will be provided in the capacity of a consultant, with respect to Endocyte's operations and other matters within his experience and expertise, as requested by Endocyte's CEO. Endocyte will not require of Harper a level of transition assistance that will unreasonably interfere with any new employment Harper undertakes or with his efforts to secure such new employment. Endocyte anticipates that this transition assistance will be predominantly, if not entirely, by telephone. Harper agrees to provide Endocyte's Vice President, HR with two telephone numbers where he may be reached; to promptly notify Endocyte's Vice President, HR if either number changes; and to return calls requesting transition assistance no later than the next business day. Harper will have no authority or responsibilities other than to respond to reasonable requests for advice and assistance from Endocyte's CEO. He will interact exclusively with Endocyte's CEO except as otherwise requested by the CEO.

8. Miscellaneous .

(a) This Agreement and the Severance Agreement contain the entire agreement between the Parties relating to the matters addressed in this Agreement and Harper acknowledges that he is not relying on any oral or written representations, statements, promises, or other inducements made by Endocyte or its Representatives except those expressly stated in this Agreement.

(b) This Agreement supersedes all prior written or oral negotiations, representations, or understandings relating to the matters addressed in this Agreement unless otherwise preserved in this Agreement. However, all intellectual property assignment, dispute resolution, restrictive stock transfer, voting, right of first refusal, lock up, confidentiality, nondisclosure, non-compete, non-solicitation and other post-employment restrictions and covenants that apply to Harper by virtue of the Severance Agreement, his employment with Endocyte, Endocyte's plans, policies, and practices, or other prior agreements, statutes or common law (collectively, the "Surviving Covenants") remain in full force and effect and are not in any way affected, diminished or superseded by this Agreement. Furthermore, this Agreement does not affect Harper's legal obligation to protect the confidentiality of Endocyte's information, including but not limited to personnel and personal (including medical) information, research, trade secrets, proprietary information, business plans and models, and financial data that Harper obtained in connection with his employment with Endocyte.

(c) This Agreement can only be amended or modified by a writing signed by both Parties.

(d) A court of competent jurisdiction's declaration that any portion of this Agreement is illegal or unenforceable will not affect the legality, enforceability, or validity of the remainder of this Agreement so long as the economic or legal substance this Agreement contemplates is not affected in any manner materially adverse to any Party.

(e) This Agreement will be binding upon and inure to the benefit of the Parties' heirs, personal representatives, successors and assigns.

(f) This Agreement will be construed and enforced in accordance with Indiana law without regard to conflict of laws principles. Any legal action relating to this Agreement will be commenced and maintained exclusively before an appropriate state or federal court of record in Indiana . The Parties will submit to the jurisdiction of those courts and waive any right to challenge personal jurisdiction or venue in any action commenced or maintained in those courts.

(g) This Agreement may be executed in counterparts or using facsimile or electronic signatures, each of which will have the same force and effect as original signatures.

(h) Neither Party shall be deemed to be the drafter of this Agreement, which will be interpreted and construed without presumption or inference based upon or against the Party responsible for its drafting.

(i) Harper acknowledges that he has had a reasonable opportunity to read and discuss all aspects of this Agreement with counsel, fully understands all provisions of it, and is entering into this Agreement voluntarily and entirely of his own free will under no duress or coercion.

(j) The Recitals are an integral part of this Agreement and specifically are incorporated by reference.

9. **Harper acknowledges and agrees that:**

(a) **Endocyte provided him this Agreement on October 14, 2016;**

(b) **Endocyte advised him at that time to consult an attorney prior to signing this Agreement;**

(c) **He has 21 calendar days (i.e., through November 4, 2016) in which to accept Endocyte's offer by signing and returning this Agreement to Katherine Parker at Endocyte; this offer will expire if he does not sign and return this Agreement to Katherine Parker at Endocyte within that 21-day period; and if discussions between the Parties result in any changes to this Agreement before it is signed, the 21-day period will not restart; and**

(d) **Endocyte informed him that (i) this Agreement will not be effective or enforceable against either Party if Harper revokes it by giving written notice of revocation to Katherine Parker at Endocyte, which notice must be received by Ms. Parker not later than seven calendar days after Harper signs this Agreement, and (ii) if not revoked, this Agreement will become binding and enforceable on the eighth day following Harper's execution hereof.**

In order to evidence their agreement to the foregoing, the Parties have executed this Agreement on the dates stated below.

<u>/s/ Scot L. Harper</u> Scot L. Harper, Ph.D.	Endocyte, Inc.
Date: <u>10/28/16</u>	By: <u>/s/ Mike Sherman</u>
	Name: <u>Mike Sherman</u>
	Title: <u>CEO</u>
	Date: <u>10/28/16</u>

ENDOCYTE, INC.

SCHEDULE OF TERMS FOR
CHANGE IN CONTROL AND SEVERANCE AGREEMENTS
WITH EXECUTIVE OFFICERSMarch 2017

Name of Executive Officer	Date of Agreement	Termination without Cause or Resignation for Good Reason, prior to a Change in Control or after 12 months following a Change in Control			Termination without Cause or Resignation for Good Reason, within 12 months following a Change in Control			
		Severance Payment – Percentage of Base Salary	140% COBRA Continuation	Accelerated vesting for equity awards that would have vested over the following	Severance Payment – Percentage of Base Salary	Severance Payment – Percentage of Target Bonus	140% COBRA Continuation	Percentage of unvested equity awards that will immediately vest
Michael A. Sherman	6/17/16	100%	12 months	12 months	200%	200%	24 months	100%
Michael A. Andriole	2/20/17	75%	9 months	9 months	150%	150%	18 months	100%
Alison A. Armour	8/10/15	75%	9 months	9 months	150%	150%	18 months	100%
Beth A. Taylor	5/15/15	75%	9 months	9 months	100%	100%	12 months	100%
Michael A. Brinkley	5/15/15	75%	9 months	9 months	100%	100%	12 months	100%
Christopher P. Leamon	5/15/15	75%	9 months	9 months	150%	150%	18 months	100%
Katherine K. Parker	5/15/15	75%	9 months	9 months	100%	100%	12 months	100%

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (Form S-3ASR No. 333-194791; and Form S-8 Nos. 333-210035, 333-202792, 333-194366, 333-172121 and 333-190514) of Endocyte, Inc., and in the related Prospectus of our reports dated March 13, 2017, with respect to the consolidated financial statements of Endocyte, Inc., and the effectiveness of internal control over financial reporting of Endocyte, Inc., included in this Annual Report (Form 10-K) for the year ended December 31, 2016.

/s/ Ernst and Young LLP

Indianapolis, Indiana
March 13, 2017

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES
EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, Michael A. Sherman, certify that:

1. I have reviewed this annual report on Form 10-K of Endocyte, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Michael A. Sherman

Michael A. Sherman

President and Chief Executive Officer

March 13, 2017

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES
EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, Michael T. Andriole, certify that:

1. I have reviewed this annual report on Form 10-K of Endocyte, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Michael T. Andriole
Michael T. Andriole
Chief Financial Officer

March 13, 2017

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael A. Sherman, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Endocyte, Inc. on Form 10-K for the fiscal year ended December 31, 2016 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Endocyte, Inc. for the periods covered by such Annual Report on Form 10-K.

March 13, 2017

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

**CERTIFICATION OF CHIEF OPERATING OFFICER
AND CHIEF FINANCIAL OFFICER PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael T. Andriole, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Endocyte, Inc. on Form 10-K for the fiscal year ended December 31, 2016 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Endocyte, Inc. for the periods covered by such Annual Report on Form 10-K.

March 13, 2017

/s/ Michael T. Andriole
Name: Michael T. Andriole
Title: Chief Financial Officer
