

ENDOCYTE INC
Form 424B5
March 25, 2014
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The information in this prospectus supplement and accompanying prospectus is not complete and may be changed. This prospectus supplement and accompanying prospectus are not an offer to sell these securities and are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

**Filed Pursuant to Rule 424(b)(5)
Registration No. 333-194791**

Subject to Completion

Preliminary Prospectus Supplement dated March 25, 2014

PROSPECTUS SUPPLEMENT

(to Prospectus dated March 25, 2014)

4,500,000 Shares

Common Stock

We are offering 4,500,000 shares of our common stock.

Our common stock is listed on The NASDAQ Global Market under the symbol ECYT. The last reported sale price of our common stock on The NASDAQ Global Market on March 24, 2014 was \$27.22 per share.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors on page S-4 of this prospectus supplement and in the other documents that are incorporated by reference into this prospectus supplement.

	Per Share	Total
Public offering price	\$	\$
Underwriting discounts and commissions	\$	\$
Proceeds, before expenses, to us	\$	\$

The underwriters may also purchase up to an additional 675,000 shares from us, at the offering price, less the underwriting discounts and commissions, within 30 days of the date of this prospectus supplement.

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

The shares of common stock will be ready for delivery on or about _____, 2014.

Credit Suisse

Cowen and Company

Citigroup

Prospectus Supplement dated _____, 2014.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of an automatic shelf registration statement on Form S-3 that became effective upon our filing it with the Securities and Exchange Commission, or SEC, on March 25, 2014. This document is in two parts. The first part is this prospectus supplement which describes the terms of this offering of our common stock and adds to and updates the information contained in the accompanying prospectus. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus, you should rely on the information in this prospectus supplement.

This prospectus supplement and the accompanying prospectus relate to the offering of shares of our common stock. Before buying any of the shares of common stock offered hereby, we urge you to read carefully this prospectus supplement and the accompanying prospectus, together with the information incorporated herein by reference as described below under the heading **Incorporation of Certain Information by Reference**. This prospectus supplement contains information about the common stock offered hereby and may add to, update or change information in the accompanying prospectus.

We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus, any accompanying prospectus or in any free writing prospectuses we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

We are not making offers to sell or solicitations to buy our common stock in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information in this prospectus supplement and the accompanying prospectus is accurate only as of the date on the front of the respective document and that any information that we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement or the accompanying prospectus or the time of any sale of a security.

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

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

This prospectus supplement and the accompanying prospectus contain and incorporate by reference market data and industry statistics and forecasts that are based on independent industry publications and other publicly-available

information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus supplement,

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accompanying prospectus or the documents incorporated herein by reference, these data involve risks and uncertainties and are subject to change based on various factors, including those discussed under the headings Risk Factors in this prospectus supplement and the accompanying prospectus, and under similar headings in the other documents that are incorporated herein by reference. Accordingly, investors should not place undue reliance on this information.

This prospectus supplement and the accompanying prospectus and the information incorporated herein by reference include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference herein are the property of their respective owners.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information contained elsewhere in, or incorporated by reference into, this prospectus supplement or the accompanying prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus supplement and the accompanying prospectus, including the risks of investing in our securities discussed under the headings Risk Factors in this prospectus supplement, in the accompanying prospectus, and under similar headings in the other documents that are incorporated by reference herein. When we refer to Endocyte, we, us and our in this prospectus supplement, we mean Endocyte, Inc., a Delaware corporation, and its consolidated subsidiaries, unless the context indicates otherwise.

Endocyte, Inc.

Overview

We are a biopharmaceutical company developing targeted small molecule drug conjugates, or SMDCs, and companion imaging agents for personalized therapy in cancer and other serious diseases. We use our proprietary technology to create novel SMDCs and companion imaging agents for personalized targeted therapies. Our SMDCs actively target receptors that are expressed or over-expressed on diseased cells, relative to healthy cells. This targeted approach is designed to enable the treatment of patients with highly potent drugs into these cells. The companion imaging agents are designed to identify patients whose disease expresses the molecular target of the therapy and who therefore may be more likely to benefit from treatment.

About Vintafolide, Etarfolatide and IV Folic Acid

Our lead SMDC is vintafolide, an investigational conjugate of folic acid (vitamin B9) linked to an anti-cancer agent, the potent vinca alkaloid desacetylvinblastine hydrazide (DAVLBH). Since cancer cells generally consume higher levels of folate than normal cells to fuel their growth, some cancer cell types have high concentrations of the folate receptor on their surface. Vintafolide is designed to selectively target the folate receptor to deliver the anti-cancer agent to the cancerous tissue. Tumors that have high concentrations of the folate receptor are identified by etarfolatide, a non-invasive imaging diagnostic agent. Intravenous folic acid is used with ^{99m}Tc-etarfolatide for the enhancement of image quality.

Vintafolide, etarfolatide and IV folic acid have been granted orphan drug status by the European Medicines Agency, or EMA. The U.S. Food and Drug Administration, or FDA, has also granted orphan drug status to vintafolide and etarfolatide. Further evaluation is ongoing in the global PROCEED Phase 3 clinical trial in folate receptor-positive (FR 100%) platinum-resistant ovarian cancer (ClinicalTrials.gov Identifier: NCT01170650). The randomized TARGET Phase 2b study of vintafolide in non-small cell lung cancer has completed enrollment (ClinicalTrials.gov Identifier: NCT01577654), and a Phase 2 study in triple-negative breast cancer is expected to be initiated in the second quarter of 2014 (ClinicalTrials.gov Identifier: NCT01953536).

Recent Developments

CHMP Positive Opinions

On March 21, 2014, we and our collaboration partner for vintafolide, Merck Sharp & Dohme Research GmbH, or Merck, announced that the Committee for Medicinal Products for Human Use, or CHMP, of the EMA has issued positive opinions for the Conditional Marketing Authorisations of VYNFINIT[®] (vintafolide) and companion imaging

components, imaging agent FOLCEPRI® (etarfolatide), and NEOCEPRI® (IV folic acid), for the treatment of adult patients with folate receptor-positive platinum-resistant ovarian cancer, in combination with pegylated liposomal doxorubicin, or PLD.

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Vintafolide is proposed for use in combination with PLD for the treatment of adult patients with platinum-resistant ovarian cancer who express the folate receptor (FR) on all target lesions. The applications for Conditional Marketing Authorisation for vintafolide, etarfolatide and IV folic acid were submitted based on results in platinum-resistant ovarian cancer patients who express the folate receptor on all target lesions as evaluated in the PRECEDENT Phase 2 study (ClinicalTrials.gov Identifier: NCT00722592).

The CHMP positive opinions will be reviewed by the European Commission, or EC. If approved, the EC grants a centralized marketing authorization with unified labeling that is valid in the 28 countries that are members of the European Union, as well as European Economic Area members Iceland, Liechtenstein and Norway. The EC usually issues a final legally binding decision within three months of a CHMP opinion.

Interim Results from Phase 2b TARGET Trial

On March 21, 2014, we announced interim results from the Phase 2b TARGET trial, which showed that the study met the primary endpoint for the combination of vintafolide and docetaxel in FR-positive recurrent non-small cell lung cancer, or NSCLC, patients. As a randomized Phase 2b study, the pre-defined statistical threshold for significance was a p-value of < 0.10 (one-sided test). The data showed that risk of disease worsening or death was reduced by 25 percent for patients treated with the vintafolide/docetaxel combination versus docetaxel alone (PFS HR 0.75, p-value 0.0696, one-sided test). Detailed trial results, including data regarding overall survival, or OS, will be presented at an upcoming medical conference.

The TARGET Phase 2b trial was conducted in 199 patients, randomized to one of three arms: vintafolide alone, vintafolide/docetaxel combination, or docetaxel alone. Secondary endpoints, including overall response rate and OS, also showed trends in favor of the combination arm. Median OS has been reached for the vintafolide and docetaxel single-agent arms but has not yet been reached in the combination arm. In addition, the investigational combination regimen showed better activity in patients with adenocarcinoma, a subset analysis pre-specified in the trial design.

The safety profile of the combination arm was consistent with those observed with docetaxel alone and vintafolide alone, though a higher rate of hematologic and peripheral neuropathy adverse events were observed in the combination arm. There were no drug-related deaths in the combination arm. Single-agent vintafolide at the schedule evaluated in this study demonstrated less activity than single-agent docetaxel.

TARGET is an international, multicenter, open-label Phase 2b study designed to evaluate vintafolide in patients with stage IIIb or IV NSCLC with all lesions positive for the folate receptor (FR 100%) as determined by the investigational companion imaging agent etarfolatide and who have failed one prior chemotherapy (ClinicalTrials.gov Identifier: NCT01577654). Secondary endpoints include the comparison of overall response rate, disease control rate, duration of response, duration of disease control, overall survival of the participants between treatment arms, and the incidence of adverse and serious adverse events.

Our Corporate Information

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

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The Offering

Common Stock offered pursuant to this prospectus supplement 4,500,000 shares (or 5,175,000 shares if the underwriters exercise their option to purchase additional shares in full).

Common Stock to be outstanding after this offering 40,655,509 shares.

Use of proceeds We estimate that the net proceeds from the sale of the shares of our common stock in this offering will be approximately \$ million (or approximately \$ million if the underwriters exercise their option to purchase additional shares in full), at the public offering price of \$ per share, after deducting underwriting discounts and commissions and our estimated expenses related to this offering. We currently intend to use the net proceeds of this offering for working capital and general corporate purposes, including without limitation research and development expenses, including clinical trial costs, capital expenditures and general and administrative expenses. See Use of Proceeds .

Risk factors An investment in our common stock involves a high degree of risk. See the information contained in or incorporated by reference under Risk Factors in this prospectus supplement and in the accompanying prospectus, and under similar headings in the other documents that are incorporated by reference herein, as well as the other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus.

NASDAQ Global Market Symbol Our common stock is listed on The NASDAQ Global Market under the symbol ECYT.

The number of shares of common stock to be outstanding immediately after this offering is based on 36,155,509 shares outstanding as of December 31, 2013, and excludes, as of December 31, 2013:

34,647 shares issuable upon the exercise of outstanding warrants at an exercise price of \$8.12 per share;

5,246,465 shares issuable upon the exercise of outstanding stock options granted under our equity incentive plans at a weighted-average exercise price of \$6.76 per share;

270,649 shares issuable under outstanding performance-conditioned restricted stock units;

6,625,563 shares reserved for issuance under our 2010 Equity Incentive Plan and any future increase in shares available for issuance under such plan; and

261,780 shares issuable under our 2010 Employee Stock Purchase Plan and any future increase in shares available for issuance under such plan.

Unless otherwise noted, the information in this prospectus supplement reflects and assumes no exercise by the underwriters of their option to purchase additional shares.

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RISK FACTORS

Investing in shares of our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks and uncertainties described in the section entitled "Risk Factors" contained in this prospectus supplement, in the accompanying prospectus, and in our most recent Annual Report on Form 10-K as well as any amendments thereto or subsequent filings with the SEC. The risks described in these documents are not the only ones we face. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. If any of these risks actually occurs, our business, financial condition or results of operations could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Further, past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods.

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, including PROCEED and TARGET;

announcements of approval or non-approval by any regulatory authorities of any of our product candidates, including vintafolide, 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;

unfavorable developments relating to our collaboration with Merck for vintafolide;

delays in the commercialization of our product candidates;

our ability to effectively partner with collaborators to develop or sell our products;

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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;

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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 litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business, which could result in the delays of our clinical trials or commercialization efforts.

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, 2013, we had 36,155,509 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.

Certain holders of our common stock have contractual registration rights pursuant to which they may require us to register the resale of their shares in a public offering either a public offering we have initiated for other purposes or a special offering initiated by these holders. These registration rights are subject to a variety of conditions, limitations and exceptions. The market price of our common stock could decline if these holders exercise their registration rights or they are otherwise perceived as intending to sell their shares.

Our existing 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 their affiliates, in the aggregate, beneficially owned approximately 17.6 percent of the outstanding shares of our common stock as of December 31, 2013. 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.

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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. Section 404(a) 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. In addition, our independent registered public accounting firm must issue an attestation report as to management's assessment of the effectiveness of internal control over financial reporting in accordance with Section 404(b) of the Sarbanes-Oxley Act.

If in the future 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 \$94.2 million for 2013, \$39.0 million for each of 2014 and 2015, \$29.7 million for 2016 and \$16.8 million for 2017. Any available but unused amounts will become available for use in all successive years. At December 31, 2013, we recorded a full valuation allowance against our deferred tax assets of approximately \$76.4 million, as we believe it is more likely than not that the deferred tax assets will not be fully realized. In addition, subsequent changes in our stock ownership, including pursuant to this or future offerings, as well as other changes that may be outside of our control, could result in additional ownership changes under Section 382 of the Code.

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Risks Related to this Offering

We have broad discretion in the use of the net proceeds of this offering and, despite our efforts, we may use the proceeds in a manner that does not improve our operating results or increase the value of your investment.

We currently anticipate that the net proceeds from the sale of our common stock will be used for working capital and general corporate purposes, including without limitation research and development expenses, including clinical trial costs, capital expenditures and general and administrative expenses. However, we have not determined the specific allocation of the net proceeds among these potential uses. Our management will have broad discretion over the use and investment of the net proceeds of this offering, and, accordingly, investors in this offering will need to rely upon the judgment of our management with respect to the use of proceeds, with only limited information concerning our specific intentions. These proceeds could be applied in ways that do not improve our operating results or increase the value of your investment. Please see the section entitled "Use of Proceeds" in this prospectus supplement for further information.

If you purchase the common stock sold in this offering, you will experience immediate dilution as a result of this offering and future equity issuances.

Because the price per share of our common stock being offered may be higher than the book value per share of our common stock, you may suffer immediate substantial dilution in the net tangible book value of the common stock you purchase in this offering. See the section entitled "Dilution" in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

The issuance of additional shares of our common stock in future offerings could be dilutive to stockholders if they do not invest in future offerings. Moreover, to the extent that we issue options or warrants to purchase, or securities convertible into or exchangeable for, shares of our common stock in the future and those options, warrants or other securities are exercised, converted or exchanged, stockholders may experience further dilution.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein relate to our plans to seek regulatory approval of product candidates, the anticipated timing of initiation of clinical trials, the expected availability of clinical trial results, the sufficiency of our cash resources, and the amounts of certain revenues and certain costs in comparison to prior years, or that otherwise relate to future periods, and are forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. When used herein, the words may, will, should, could, would, anticipate, estimate, expect, plan, believe, predict, potential, project, ta similar expressions are intended to identify forward-looking statements. These statements are based on assumptions that may not prove accurate. Actual results could differ materially from those anticipated due to certain risks inherent in the biotechnology industry and for companies engaged in the development of new products in a regulated market. Among other things:

clinical trials may not reach their anticipated size if trials are not initiated or due to enrollment issues such as unavailability of patients, competing product candidates or unanticipated safety issues;

the timing of initiation of or availability of results of clinical trials may be delayed or may never occur as a result of actions or inaction by regulators or our present or future collaboration partners, complications in the design, implementation or third-party approval of clinical trials, complications in the collection or interpretation of statistical data or unanticipated safety issues;

the period for which our cash resources are sufficient could be shortened if expenditures are made earlier or in larger amounts than anticipated or are unanticipated, if anticipated revenue or cost sharing arrangements do not materialize, or if funds are not otherwise available on acceptable terms; and

our revenues may be lower than anticipated, and our costs (including clinical trial costs) may be higher than expected, due to actions or inactions by regulatory authorities or our present or future collaboration partners, unanticipated safety issues or unavailability of additional financing, licensing or collaboration opportunities. Other risks and uncertainties that could cause actual results to differ materially from anticipated results include:

the success of our collaboration agreement with Merck for the development and commercialization of vintafolide;

whether the European Commission will approve our applications for conditional marketing authority for vintafolide and etarfolatide;

the results of our ongoing PROCEED and TARGET clinical trials;

our ongoing and planned preclinical studies and clinical trials and our approach to seeking regulatory approval of our product candidates;

the potential benefits of, and our ability to enter into, additional collaboration arrangements;

the timing of, and our ability to obtain and maintain, regulatory approvals for our product candidates;

the rate and degree of market acceptance and clinical utility of our products;

our plans to leverage our linker system platform technology to discover and develop additional product candidates;

our ability to quickly and efficiently identify and develop product candidates;

our commercialization, marketing and manufacturing capabilities and strategy for our product candidates;

our ability to obtain, maintain and protect intellectual property rights and claims covering our product candidates; and

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our estimates regarding expenses, future revenues, capital requirements and needs for additional financing. Given these other important factors, risks and uncertainties, you should not place undue reliance on any forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date such forward-looking statements are made. You should carefully read this prospectus supplement and the accompanying prospectus, together with the information incorporated herein by reference as described under the section entitled Incorporation of Certain Information by Reference in this prospectus supplement, and with the understanding that our actual future results may be materially different from what we expect. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our business, results of operations and financial condition.

We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus supplement and accompanying prospectus or in any free writing prospectuses we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

Except as required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. You should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. Before deciding to purchase our securities, you should carefully consider the risk factors discussed and incorporated by reference in this prospectus supplement and the accompanying prospectus and in the registration statement of which this prospectus supplement and the accompanying prospectus are a part.

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USE OF PROCEEDS

We estimate that the net proceeds from the sale of 4,500,000 shares of our common stock that we are selling in this offering will be approximately \$ million, after deducting underwriting discounts and commissions and estimated offering expenses. If the underwriters' option to purchase additional shares is exercised in full, we estimate that we will receive net proceeds of approximately \$ million. We expect to use the proceeds of this offering for working capital and other general purposes, including without limitation research and development expenses, including clinical trial costs, capital expenditures and general and administrative expenses.

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If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the offering price per share and our as adjusted net tangible book value per share immediately after this offering. We calculate net tangible book value per share by dividing our net tangible book value, which is tangible assets less total liabilities, by the number of outstanding shares of our common stock.

Our net tangible book value as of December 31, 2013 was approximately \$88.2 million, or \$2.44 per share. After giving effect to the assumed sale by us of an aggregate of 4,500,000 shares of common stock in this offering at an assumed offering price of \$27.22 per share, which was the last reported sale price of our common stock on The NASDAQ Global Market on March 24, 2014, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2013, would have been approximately \$203.0 million, or \$4.99 per share of common stock. This represents an immediate increase in the net tangible book value of \$2.55 per share to our existing stockholders and an immediate dilution in the net tangible book value of \$(22.23) per share of common stock to investors purchasing common stock in this offering. The following table illustrates this calculation on a per share basis:

Assumed offering price per share	\$ 27.22
Net tangible book value per share as of December 31, 2013	\$ 2.44
Increase in net tangible book value per share after this offering	\$ 2.55
As adjusted net tangible book value per share as of December 31, 2013, after giving effect to this offering	\$ 4.99
Dilution per share to investors participating in this offering	\$ (22.23)

The information above is based on 36,155,509 shares of our common stock outstanding as of December 31, 2013, and excludes, as of December 31, 2013:

34,647 shares issuable upon the exercise of outstanding warrants at an exercise price of \$8.12 per share;

5,246,465 shares issuable upon the exercise of outstanding stock options granted under our equity incentive plans at a weighted-average exercise price of \$6.76 per share;

270,649 shares issuable under outstanding performance-conditioned restricted stock units;

6,625,563 shares reserved for issuance under our 2010 Equity Incentive Plan and any future increase in shares available for issuance under such plan; and

261,780 shares issuable under our 2010 Employee Stock Purchase Plan and any future increase in shares available for issuance under such plan.

Table of Contents**PRICE RANGE OF OUR COMMON STOCK**

Our common stock trades on The NASDAQ Global Market under the symbol ECYT. The following table sets forth the reported high and low intra-day sales price per share of our common stock on The NASDAQ Global Market for the periods indicated:

	High	Low
Fiscal Year Ending December 31, 2014		
First Quarter (through March 24, 2014)	\$ 33.70	\$ 10.75
Fiscal Year Ending December 31, 2013		
First Quarter	\$ 12.75	\$ 8.50
Second Quarter	15.36	11.80
Third Quarter	19.00	13.12
Fourth Quarter	14.71	8.18
Fiscal Year Ending December 31, 2012		
First Quarter	\$ 6.48	\$ 3.30
Second Quarter	8.57	3.73
Third Quarter	10.97	7.50
Fourth Quarter	10.68	7.50

On March 24, 2014, the closing price of our common stock as reported by The NASDAQ Global Market was \$27.22 per share.

Table of Contents**CAPITALIZATION**

The following table sets forth our cash, cash equivalents and short-term investments and our capitalization as of December 31, 2013, on an actual basis and an as adjusted basis to give effect to the assumed sale by us of 4,500,000 shares of common stock at an assumed offering price of \$27.22 per share in this offering and after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this table together with the information under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2013, as incorporated by reference in this prospectus supplement and the accompanying prospectus.

	At December 31, 2013	
	Actual	As Adjusted, Unaudited
	(In Thousands)	
Cash, cash equivalents and short-term investments	\$ 123,281	\$ 238,072
Stockholders' equity (deficit):		
Common stock \$0.001 par value, 100,000,000 shares authorized; 36,155,509 shares issued and outstanding, actual; and 40,655,509 shares issued and outstanding, as adjusted	36	41
Additional paid-in capital	262,061	376,847
Accumulated other comprehensive income	57	57
Retained deficit	(173,925)	(173,925)
Total stockholders' equity	88,229	203,019
Total capitalization	\$ 88,229	\$ 203,019

The information above is based on 36,155,509 shares of our common stock outstanding as of December 31, 2013, and excludes, as of December 31, 2013:

34,647 shares issuable upon the exercise of outstanding warrants at an exercise price of \$8.12 per share;

5,246,465 shares issuable upon the exercise of outstanding stock options granted under our equity incentive plans at a weighted-average exercise price of \$6.76 per share;

270,649 shares issuable under outstanding performance-conditioned restricted stock units;

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6,625,563 shares reserved for issuance under our 2010 Equity Incentive Plan and any future increase in shares available for issuance under such plan; and

261,780 shares issuable under our 2010 Employee Stock Purchase Plan and any future increase in shares available for issuance under such plan.

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MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSEQUENCES FOR NON-U.S. HOLDERS OF COMMON STOCK

The following is a summary of the material United States federal income and estate tax consequences relevant to non-U.S. holders, as defined below, of the purchase, ownership and disposition of shares of our common stock. This summary is based on current provisions of the Internal Revenue Code of 1986, as amended, or the Code, Treasury regulations and judicial and administrative authority, all of which are subject to change, possibly with retroactive effect. This summary does not consider state, local, or foreign tax consequences, does not address any aspects of the unearned income Medicare contribution tax pursuant to the Health Care and Education Reconciliation Act of 2010, nor does it address tax consequences to special classes of investors including, but not limited to, tax-exempt organizations, insurance companies, banks or other financial institutions, partnerships or other entities classified as partnerships for United States federal income tax purposes, dealers in securities, persons liable for the alternative minimum tax, traders in securities that elect to use a mark-to-market method of accounting for their securities holdings, persons who have acquired our common stock as compensation or otherwise in connection with the performance of services, or persons that will hold our common stock as a position in a hedging transaction, straddle, conversion transaction or other risk reduction transaction. Tax consequences may vary depending upon the particular status of an investor. The summary is limited to non-U.S. holders who will hold our common stock as capital assets (generally, property held for investment). Each potential investor should consult its own tax advisor as to the United States federal, state, local, foreign and any other tax consequences of the purchase, ownership and disposition of our common stock.

For purposes of this summary, you are a non-U.S. holder if you are a beneficial owner of our common stock for United States federal income tax purposes that is (1) a nonresident alien individual; (2) a corporation (or other entity that is taxable as a corporation) not created or organized in the United States or under the laws of the United States or of any State (or the District of Columbia); (3) an estate or trust that is not subject to U.S. federal income tax on all income, regardless of source.

If an entity or arrangement treated as a partnership for United States federal income tax purposes holds shares of our common stock, the tax treatment of a partner in the partnership will generally depend upon the status of the partner and the activities of the partner and the partnership. If you are treated as a partner in a partnership considering an investment in shares of our common stock, you should consult your tax advisor as to the United States federal income tax consequences applicable to you.

This summary is not intended to constitute a complete description of all U.S. federal income tax consequences for non-U.S. holders relating to the purchase, ownership and disposition of shares of our common stock. If you are considering the purchase of shares of our common stock, you should consult your own tax advisors concerning the particular U.S. federal income tax consequences to you, as well as the consequences to you arising under other U.S. federal tax laws and the laws of any other applicable taxing jurisdiction in light of your particular circumstances.

Distributions

Distributions with respect to shares of our common stock will be treated as dividends when paid to the extent of our current or accumulated earnings and profits as determined for United States federal income tax purposes. To the extent any such distributions exceed both our current and our accumulated earnings and profits, they will first be treated as a return of capital reducing your tax basis in our common stock, but not below zero, and then will be treated as gain from the sale of stock.

Except as described below, if you are a non-U.S. holder of our shares, dividends paid to you are subject to withholding of United States federal income tax at a 30% rate or at a lower rate if you are eligible for the benefits of an income tax treaty that provides for a lower rate. Even if you are eligible for a lower treaty rate, we will

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generally be required to withhold at a 30% rate (rather than the lower treaty rate) on dividends paid to you, unless you have furnished to us:

A valid Internal Revenue Service Form W-8BEN or an acceptable substitute form upon which you certify, under penalties of perjury, your status as a non-United States person and your entitlement to the lower treaty rate with respect to such payments, or

In the case of payments made to you through an intermediary or outside the United States to an offshore account (generally, an account maintained by you at an office or branch of a bank or other financial institution at any location outside the United States), other documentary evidence establishing your entitlement to the lower treaty rate in accordance with United States Treasury regulations.

If you are eligible for a reduced rate of U.S. withholding tax under a tax treaty, you may obtain a refund of any amounts withheld in excess of that rate by timely filing a refund claim with the Internal Revenue Service.

If dividends paid to you are effectively connected with your conduct of a trade or business within the United States, and, if required by a tax treaty, the dividends are attributable to a permanent establishment that you maintain in the United States, we generally are not required to withhold tax from the dividends, provided that you have furnished a valid Internal Revenue Service Form W-8ECI or an acceptable substitute form upon which you represent, under penalties of perjury, that:

You are a non-United States person, and

The dividends are effectively connected with your conduct of a trade or business within the United States and are includible in your gross income.

Effectively connected dividends are taxed on a net income basis at rates applicable to United States citizens, resident aliens and domestic United States corporations. If you are a corporate non-U.S. holder, effectively connected dividends that you receive also may be subject to an additional branch profits tax unless an applicable income tax treaty provides otherwise.

Sale or Redemption

If you are a non-U.S. holder, you generally will not be subject to United States federal income tax on gain realized on the sale, exchange or other disposition of shares of our common stock unless: (i) you are an individual, you hold our shares as a capital asset, you are present in the United States for 183 or more days in the taxable year of the sale and certain other conditions exist, (ii) the gain is effectively connected with your conduct of a trade or business in the United States, and the gain is attributable to a permanent establishment that you maintain in the United States, if that is required by an applicable income tax treaty as a condition to subjecting you to United States taxation on a net income basis; or (iii) we are or have been a U.S. real property holding corporation (a USRPHC) for U.S. federal income tax purposes at any time during the shorter of the five-year period ending on the date of the disposition or the period that you held shares of our common stock (the applicable period). We do not believe that we are a USRPHC or will become one.

If you are an individual non-U.S. holder described in clause (i) of the immediately preceding paragraph, you will be required to pay (subject to applicable income tax treaties) a flat 30% tax on the gain derived from the sale, which may be offset by certain United States source capital losses. If you are a non-U.S. holder described in clause (ii) of the immediately preceding paragraph, you generally will be taxed in the same manner as a U.S. person and, if you are a corporate non-U.S. holder, you may also be subject to an additional branch profits tax unless an applicable tax treaty provides otherwise.

Federal Estate Tax

Shares of our common stock beneficially owned by an individual who is not a citizen of the United States or a resident of the United States (as defined for U.S. federal estate tax purposes) at the time of death will generally

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be includable in the decedent's gross estate for U.S. federal estate tax purposes, unless an applicable estate tax treaty provides otherwise, and therefore may be subject to U.S. federal estate tax.

Information Reporting and Backup Withholding

The payment of dividends, and the tax withheld on those payments, are subject to information reporting requirements. These information reporting requirements apply regardless of whether withholding was reduced or eliminated by an applicable income tax treaty. Under the provisions of an applicable income tax treaty, copies of the information returns reporting such dividends and withholding may also be made available to the tax authorities in the country in which the non-U.S. holder resides. U.S. backup withholding will generally apply on the payment of dividends to non-U.S. holders unless such non-U.S. holders furnish to the payor a Form W-8BEN (or other applicable form), or otherwise establish an exemption and the payor does not have actual knowledge or reason to know that the holder is a U.S. person, as defined under the Code, that is not an exempt recipient.

Payment of the proceeds of a sale of our common stock within the United States or conducted through certain U.S.-related financial intermediaries is subject to information reporting and, depending on the circumstances, backup withholding, unless the non-U.S. holder, or beneficial owner thereof, as applicable, certifies that it is a non-U.S. holder on Form W-8BEN (or other applicable form), or otherwise establishes an exemption and the payor does not have actual knowledge or reason to know the holder is a U.S. person, as defined under the Code, that is not an exempt recipient.

Any amount withheld under the backup withholding rules from a payment to a non-U.S. holder is allowable as a credit against the non-U.S. holder's United States federal income tax, which may entitle the non-U.S. holder to a refund, provided that the non-U.S. holder timely provides the required information to the Internal Revenue Service. Moreover, certain penalties may be imposed by the Internal Revenue Service on a non-U.S. holder who is required to furnish information but does not do so in the proper manner. Non-U.S. holders should consult their tax advisors regarding the application of backup withholding in their particular circumstances and the availability of and procedure for obtaining an exemption from backup withholding under current Treasury regulations.

Legislation Affecting Taxation of Common Stock Held by or Through Foreign Entities

Legislation enacted in 2010, known as the FATCA legislation, generally will impose a withholding tax of 30% on dividend income paid on shares of our common stock and on the gross proceeds of a sale or other disposition of shares of our common stock paid to a foreign financial institution (as specifically defined for this purpose), unless such institution enters into an agreement with the U.S. government to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution or otherwise qualifies for an exemption. Absent an applicable exception, the FATCA legislation also generally will impose a withholding tax of 30% on dividend income paid on shares of our common stock and the gross proceeds of a sale or other disposition of shares of our common stock paid to a foreign entity that is not a foreign financial institution unless such entity provides the applicable withholding agent either with (i) a certification identifying the substantial U.S. owners of the entity, which generally includes any U.S. person who directly or indirectly owns more than 10% of the entity (or more than zero percent in the case of some entities) or (ii) a certification that the entity does not have any substantial U.S. owners. Under certain circumstances, a non-U.S. holder of shares of our common stock may be eligible for refunds or credits of such withholding taxes, and a non-U.S. holder may be required to file a U.S. federal income tax return to claim such refunds or credits. Under final Treasury regulations, this legislation applies only to payments of dividends made after June 30, 2014 and payments of gross proceeds made after December 31, 2016. An intergovernmental agreement between the United States and an applicable foreign country, or future Treasury regulations, may modify these requirements. Non-U.S. holders should consult their own tax advisors regarding the implications of this legislation on

their investment in our common stock.

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Under the terms and subject to the conditions contained in an underwriting agreement dated as of _____, 2014, we will sell to the underwriters named below, for whom Credit Suisse Securities (USA) LLC and Citigroup Global Markets Inc. are acting as representatives, the following respective numbers of shares of common stock:

Underwriter	Number of Shares
Credit Suisse Securities (USA) LLC	
Citigroup Global Markets Inc.	
Cowen and Company, LLC	
Total	4,500,000

The underwriting agreement provides that the underwriters are obligated to purchase all the shares of common stock in the offering if any are purchased, other than those shares covered by the option to purchase additional shares described below. The underwriting agreement also provides that if an underwriter defaults the purchase commitments of non-defaulting underwriters may be increased or the offering may be terminated.

We have granted to the underwriters a 30-day option to purchase on a pro rata basis up to 675,000 additional shares at the initial public offering price less the underwriting discounts and commissions.

The underwriters propose to offer the shares of common stock initially at the public offering price on the cover page of this prospectus supplement and to selling group members at that price less a selling concession of \$ _____ per share. After the initial public offering the underwriters may change the public offering price and concession and discount to broker/dealers.

The following table summarizes the compensation we will pay:

	Per Share		Total	
	Without Option	With Option	Without Option	With Option
Underwriting discounts and commissions paid by us	\$	\$	\$	\$

We estimate that our out-of-pocket expenses for this offering will be approximately \$350,000.

We have agreed to indemnify the underwriters against liabilities under the Securities Act of 1933, or contribute to payments that the underwriters may be required to make in that respect.

We have agreed that we will not, directly or indirectly, offer, sell, issue, contract to sell, pledge or otherwise dispose of, contract to purchase or grant any option, right or warrant to purchase, enter into any swap, hedge or any other agreement that transfers, in whole or in part, the economic consequences of ownership of, establish or increase a put equivalent position or liquidate or decrease a call equivalent position in, or file with the SEC a registration statement

under the Securities Act of 1933 (the Securities Act) relating to, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, without the prior written consent of Credit Suisse Securities (USA) LLC and Citigroup Global Markets Inc. for a period of 90 days after the date of this prospectus, subject to certain exceptions, including the following:

sales of common stock to the underwriters in this offering;

grants of equity incentive awards pursuant to our employee benefits plans as in effect on the date of this offering;

issuances of shares of common stock pursuant to the exercise of warrants or options that are outstanding on the date of this offering; and

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the entry into an agreement providing for the issuance of shares of common stock (including shares issuable in respect of securities convertible into or exercisable for common stock) in connection with a merger, acquisition, joint venture or other corporate transaction, and the issuance of any such securities pursuant to any such agreement, provided that the number of shares issuable pursuant to this exception does not exceed an aggregate of 10% of our fully-diluted shares of common stock outstanding as of the date this prospectus, plus the shares sold in this offering; provided any securities issuable under any such agreement are subject to similar lockup restrictions.

Our executive officers and directors and affiliated entities have agreed that they will not offer, sell, contract to sell, pledge or otherwise dispose of, directly or indirectly, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, enter into a transaction that would have the same effect, or enter into any swap, hedge or other arrangement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock, whether any of these transactions are to be settled by delivery of our common stock or other securities, in cash or otherwise, or publicly disclose the intention to make any offer, sale, pledge or disposition, or to enter into any transaction, swap, hedge or other arrangement, without, in each case, the prior written consent of Credit Suisse Securities (USA) LLC and Citigroup Global Markets Inc. for a period of 90 days after the date of this prospectus supplement, subject to certain exceptions, including the following:

transactions relating to shares of common stock or other securities acquired in open market transactions after the completion of the offering;

transfers of shares of common stock or any security convertible into common stock as a bona fide gift, by will or under the laws of descent;

distributions of shares of common stock or any security convertible into common stock to limited partners, general partners or stockholders of the holder;

transfers of shares of common stock or any security convertible into common stock to family members or a trust established for the benefit of family members;

transfers of shares of common stock or any security convertible into common stock to entities where the party to the lockup is the beneficial owner of all shares of common stock or our other securities held by the entity;

provided that, except in the case of open market purchases described above, any transferee agrees to be bound by the terms of the lockup and that, in all cases, no filing under Section 16(a) under the Exchange Act shall be required or voluntarily made to the extent applicable;

the transfer to the Company by the party of shares of common stock in connection with the payment of taxes due upon the vesting of restricted stock units;

transfers pursuant to a trading plan pursuant to Rule 10b5-1 under the Exchange Act as in effect on the date of this offering; and

the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of common stock so long as no sales are made under the plan during the lockup period.

Our common stock is traded on the NASDAQ Global Market under the symbol ECYT .

In connection with the offering, the underwriters may engage in stabilizing transactions, transactions pursuant to their option to purchase additional shares, syndicate covering transactions, penalty bids and passive market-making in accordance with Regulation M under the Exchange Act.

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

The underwriters' option allows for sales of shares in excess of the number of shares the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a

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covered short position or a naked short position. In a covered short position, the number of shares over-allocated by the underwriters is not greater than the number of shares that they may purchase pursuant to their option. In a naked short position, the number of shares involved is greater than the number of shares in their option. The underwriters may close out any covered short position by either exercising their option and/or purchasing shares in the open market.

Syndicate covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through their option. If the underwriters sell more shares than could be covered by their option, a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

In passive market making, market makers in the common stock who are underwriters or prospective underwriters may, subject to limitations, make bids for or purchases of our common stock until the time, if any, at which a stabilizing bid is made.

These stabilizing transactions, syndicate covering transactions, penalty bids and passive market-making may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of the common stock. As a result the price of our common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the NASDAQ Global Market or otherwise and, if commenced, may be discontinued at any time.

A prospectus in electronic format may be made available on the websites maintained by the underwriters, or selling group members, if any, participating in this offering and the underwriters participating in this offering may distribute prospectuses electronically. The underwriters may allocate a number of shares for sale to online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations.

Conflicts of Interest

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

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own accounts and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their

affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Sales Outside the United States

No action has been taken in any jurisdiction (except in the United States) that would permit a public offering of the securities, or the possession, circulation or distribution of this prospectus supplement, the accompanying

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prospectus or any other material relating to us or the securities in any jurisdiction where action for that purpose is required. Accordingly, the securities may not be offered or sold, directly or indirectly, and none of this prospectus supplement, the accompanying prospectus or any other offering material or advertisements in connection with the securities may be distributed or published, in or from any country or jurisdiction except in compliance with any applicable rules and regulations of any such country or jurisdiction.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State), each underwriter has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the Relevant Implementation Date) it has not made and will not make an offer of the shares of common stock which are the subject of the offering contemplated by this prospectus (the Securities) to the public in that Relevant Member State, except that it may, with effect from and including the Relevant Implementation Date, make an offer of Securities to the public in that Relevant Member State at any time,

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(b) to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of Securities shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer of Securities to the public in relation to any Securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the Securities to be offered so as to enable an investor to decide to purchase the Securities, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression Prospectus Directive means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in each Relevant Member State, and the expression 2010 PD Amending Directive means Directive 2010/73/EU.

United Kingdom

Each underwriter has represented, warranted and agreed as follows:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000 (the FSMA)) received by it in connection with the issue or sale of the shares in circumstances in which section 21(1) of FSMA does not apply to the company; and

(b) it has complied with and will comply with all applicable provisions of FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

France

Neither this prospectus supplement nor any other offering material relating to the shares described in this prospectus supplement has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. The shares have not been offered or sold and will not be offered or sold, directly or

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indirectly, to the public in France. Neither this prospectus supplement nor any other offering material relating to the securities has been or will be:

released, issued, distributed or caused to be released, issued or distributed to the public in France; or

used in connection with any offer for subscription or sale of the shares to the public in France.

Such offers, sales and distributions will be made in France only:

to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with, articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French *Code monétaire et financier*;

to investment services providers authorized to engage in portfolio management on behalf of third parties; or

in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French *Code monétaire et financier* and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

The shares may be resold directly or indirectly, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French *Code monétaire et financier*.

Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to professional investors within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a prospectus within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to professional investors within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Japan

The shares offered in this prospectus supplement have not been registered under the Securities and Exchange Law of Japan, and the shares have not been offered or sold and will not be offered or sold, directly or indirectly, in Japan or to or for the account of any resident of Japan, except (i) pursuant to an exemption from the registration requirements of the Securities and Exchange Law and (ii) in compliance with any other applicable requirements of Japanese law.

Singapore

This prospectus supplement has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this offering memorandum and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section

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275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA. Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;

where no consideration is or will be given for the transfer; or

where the transfer is by operation of law.

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LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus supplement is being passed upon for us by Faegre Baker Daniels LLP, Indianapolis, Indiana. Davis Polk & Wardwell LLP, Menlo Park, California, is acting as counsel to the underwriters.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2013, and the effectiveness of our internal control over financial reporting as of December 31, 2013, as set forth in their reports, which are incorporated by reference in this prospectus supplement, the accompanying prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement and the accompanying prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated herein by reference for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

We also make available, free of charge, on or through our investor website (<http://investor.endocyte.com>) our annual, quarterly and current reports, proxy statements and other information we file or furnish pursuant the Exchange Act. Please note, however, that we have not incorporated any other information by reference from our website, other than the documents listed under the heading "Incorporation of Certain Information by Reference." In addition, you may request copies of these filings at no cost, by writing or telephoning us at the following address or telephone number:

Corporate Secretary

Endocyte, Inc.

8901 Purdue Road

Suite 250

Indianapolis, IN 46268

(317) 876-1478

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement. Information in this prospectus supplement supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus supplement, while information that we file later with the SEC will automatically update and supersede the information in this prospectus supplement. We incorporate by reference into this prospectus supplement, the accompanying prospectus and the registration statement of which this prospectus supplement and the accompanying prospectus are a part the information or documents listed below that we have filed with the SEC (Commission File No. 001-35050):

our Annual Report on Form 10-K for the year ended December 31, 2013, filed on March 5, 2014;

our Current Reports on Form 8-K filed on February 10, 2014 and March 25, 2014;

the information specifically incorporated by reference in our Annual Report on Form 10-K for the year ended December 31, 2013, referred to above from the definitive proxy statement relating to our 2014 annual meeting of stockholders, which was filed on March 25, 2014; and

the description of our capital stock included in our registration statement on Form 8-A, which was filed on January 24, 2011, including any amendment or report for the purpose of updating such description.

We also incorporate by reference any future filings (other than any filings or portions of such reports that are not deemed filed under the Exchange Act in accordance with the Exchange Act and applicable SEC rules, including current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus supplement is a part, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus supplement and will become a part of this prospectus supplement from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus supplement. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

To obtain copies of these filings, see [Where You Can Find More Information](#) in this prospectus supplement.

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PROSPECTUS

Common Stock

Preferred Stock

Debt Securities

Warrants

Units

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission under a shelf registration or continuous offering process. We may sell any combination of the securities described in this prospectus in one or more offerings. We may offer the securities separately or together, in separate series or classes and in amounts, at prices and on terms described in one or more supplements to this prospectus and other offering material.

This prospectus may also be used to cover the resale of securities by one or more selling security holders.

We or any selling security holder may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis.

This prospectus describes some of the general terms that may apply to these securities. The specific terms of any securities to be offered, and any other information relating to a specific offering, will be set forth in a post-effective amendment to the registration statement of which this prospectus is a part, in supplement to this prospectus, in other offering material related to the securities or may be set forth in one or more documents incorporated by reference to this prospectus.

Our common stock is listed on The NASDAQ Global Market under the symbol ECYT.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in this prospectus, the applicable prospectus supplement and in any free writing prospectuses we have authorized for use in connection with a specific offering, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is March 25, 2014.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, utilizing a shelf registration process. Under this shelf registration process, we or selling security holders may offer and sell, either individually or in combination, in one or more offerings, any combination of the equity or debt securities described in this prospectus.

This prospectus provides you with a general description of the securities we may offer. Each time we offer securities under this prospectus, we will provide a prospectus supplement that will contain more specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change any of the information contained in this prospectus or in the documents that we have incorporated by reference into this prospectus. We urge you to read carefully this prospectus, any applicable prospectus supplement and any free writing prospectuses we have authorized for use in connection with a specific offering, together with the information incorporated herein or therein by reference as described under the heading "Incorporation of Certain Information by Reference," before buying any of the securities being offered.

We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any free writing prospectuses we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so.

The information appearing in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

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

This prospectus contains and incorporates by reference, and any prospectus supplement or free writing prospectus may contain and incorporate by reference, market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus and the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

This prospectus and the information incorporated herein by reference include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus, any applicable prospectus supplement or any related free writing prospectus are the property of their respective owners.

When we refer to "Endocyte", "the Company", "we", "us" and "our" in this prospectus under the headings "Prospectus Summary", "Risk Factors", "Note Regarding Forward-Looking Statements" and "Ratio of Earnings to Fixed Charges and Earnings to Combined Fixed Charges and Preferred Stock Dividends", we mean Endocyte, Inc., a Delaware corporation, and its consolidated subsidiaries, unless the context indicates otherwise. When such terms are used elsewhere in this prospectus, we refer only to Endocyte, Inc. unless the context indicates otherwise.

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PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading Risk Factors contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

ENDOCYTE, INC.

Overview

We are a biopharmaceutical company developing targeted small molecule drug conjugates, or SMDCs, and companion imaging agents for personalized therapy in cancer and other serious diseases. We use our proprietary technology to create novel SMDCs and companion imaging agents for personalized targeted therapies. Our SMDCs actively target receptors that are expressed or over-expressed on diseased cells, relative to healthy cells. This targeted approach is designed to enable the treatment of patients with highly potent drugs into these cells. The companion imaging agents are designed to identify patients whose disease expresses the molecular target of the therapy and who therefore may be more likely to benefit from treatment.

About Vintafolide, Etarfolatide and IV Folic Acid

Our lead SMDC is vintafolide, an investigational conjugate of folic acid (vitamin B9) linked to an anti-cancer agent, the potent vinca alkaloid desacetylvinblastine hydrazide (DAVLBH). Since cancer cells generally consume higher levels of folate than normal cells to fuel their growth, some cancer cell types have high concentrations of the folate receptor on their surface. Vintafolide is designed to selectively target the folate receptor to deliver the anti-cancer agent to the cancerous tissue. Tumors that have high concentrations of the folate receptor are identified by etarfolatide, a non-invasive imaging diagnostic agent. Intravenous folic acid is used with ^{99m}Tc-etarfolatide for the enhancement of image quality.

Vintafolide, etarfolatide and IV folic acid have been granted orphan drug status by the European Medicines Agency, or EMA. The U.S. Food and Drug Administration, or FDA, has also granted orphan drug status to vintafolide and etarfolatide. Further evaluation is ongoing in the global PROCEED Phase 3 clinical trial in folate receptor-positive (FR 100%) platinum-resistant ovarian cancer (ClinicalTrials.gov Identifier: NCT01170650). The randomized TARGET Phase 2b study of vintafolide in non-small cell lung cancer has completed enrollment (ClinicalTrials.gov Identifier: NCT01577654), and a Phase 2 study in triple-negative breast cancer is expected to be initiated in the second quarter of 2014 (ClinicalTrials.gov Identifier: NCT01953536).

Our Corporate Information

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

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

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RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties described under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and discussed under the section entitled "Risk Factors" contained in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus, the documents incorporated by reference and any free writing prospectus that we may authorize for use in connection with this offering. The risks described in these documents are not the only ones we face. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below entitled "Special Note Regarding Forward-Looking Statements."

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements contained in this prospectus, in the documents incorporated by reference in this prospectus, and in any related prospectus supplement or free writing prospectus that we may authorize, related to our plans to seek regulatory approval of product candidates, the anticipated timing of initiation of clinical trials, the expected availability of clinical trial results, the sufficiency of our cash resources, and the amounts of certain revenues and certain costs in comparison to prior years, or that otherwise relate to future periods, are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These statements are based on assumptions that may not prove accurate. Actual results could differ materially from those anticipated due to certain risks inherent in the biotechnology industry and for companies engaged in the development of new products in a regulated market. Among other things:

clinical trials may not reach their anticipated size if trials are not initiated or due to enrollment issues such as unavailability of patients, competing product candidates or unanticipated safety issues;

the timing of initiation of or availability of results of clinical trials may be delayed or may never occur as a result of actions or inaction by regulators or our present or future collaboration partners, complications in the design, implementation or third-party approval of clinical trials, complications in the collection or interpretation of statistical data or unanticipated safety issues;

the period for which our cash resources are sufficient could be shortened if expenditures are made earlier or in larger amounts than anticipated or are unanticipated, if anticipated revenue or cost sharing arrangements do not materialize, or if funds are not otherwise available on acceptable terms; and

our revenues may be lower than anticipated, and our costs (including clinical trial costs) may be higher than expected, due to actions or inactions by regulatory authorities or our present or future collaboration partners, unanticipated safety issues or unavailability of additional financing, licensing or collaboration opportunities.

Other risks and uncertainties that could cause actual results to differ materially from anticipated results include:

the success of our collaboration agreement with Merck for the development and commercialization of vintafolide;

whether the European Commission, or EC, will approve our applications for conditional marketing authority for vintafolide and etarfolatide;

the results of our ongoing PROCEED and TARGET clinical trials;

our ongoing and planned preclinical studies and clinical trials and our approach to seeking regulatory approval of our product candidates;

the potential benefits of, and our ability to enter into, additional collaboration arrangements;

the timing of, and our ability to obtain and maintain, regulatory approvals for our product candidates;

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the rate and degree of market acceptance and clinical utility of our products;

our plans to leverage our linker system platform technology to discover and develop additional product candidates;

our ability to quickly and efficiently identify and develop product candidates;

our commercialization, marketing and manufacturing capabilities and strategy for our product candidates;

our ability to obtain, maintain and protect our intellectual property rights and claims covering our product candidates; and

our estimates regarding expenses, future revenues, capital requirements and needs for additional financing.

In addition, you should refer to the **Risk Factors** section in the applicable prospectus supplement, or in any free writing prospectuses we may authorize for use in connection with a specific offering, for a discussion of other important factors, risks and uncertainties that may cause our actual results to differ materially from those

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expressed or implied by these forward-looking statements. Given these other important factors, risks and uncertainties, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date such forward-looking statements are made. You should carefully read this prospectus, together with the applicable prospectus supplement, and the information incorporated herein and therein by reference as described under the section entitled "Incorporation of Certain Information by Reference," completely and with the understanding that our actual future results may be materially different from what we expect. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our business, results of operations and financial condition.

We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any free writing prospectuses we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should understand that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

Except as required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. You should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. Before deciding to purchase our securities, you should carefully consider the risk factors discussed and incorporated by reference in this prospectus and any prospectus supplement and, if required, any post-effective amendment to the registration statement of which this prospectus is a part.

Table of Contents**USE OF PROCEEDS**

Except as described in any applicable prospectus supplement or in any free writing prospectuses we have authorized for use in connection with a specific offering, we currently intend to use the net proceeds from the sale of the securities offered by us hereunder, if any, for working capital and other general purposes, including without limitation research and development expenses, including clinical trial costs, capital expenditures and general and administrative expenses.

The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of the securities offered by us hereunder. Accordingly, our management will have broad discretion in the timing and application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments.

If a prospectus supplement includes an offering of securities by selling security holders, we will not receive any proceeds from such sales.

RATIO OF EARNINGS TO FIXED CHARGES AND EARNINGS TO**COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS**

The following table sets forth our ratio of earnings to fixed charges and the amount of deficiency for periods in which the ratio indicates less than one-to-one coverage. As of the date of this prospectus, we have no preferred stock outstanding and accordingly, the ratio of earnings to combined fixed charges and preferred stock dividends is equal to fixed charges and is not disclosed separately.

	Year Ended December 31,				
	2009	2010	2011	2012	2013
Ratio of earnings to fixed charges	N/A	N/A	N/A	N/A	N/A

For these purposes, earnings are defined as income before income taxes and fixed charges, and fixed charges include interest expense, non-cash interest expense and an estimate of the portion of rental expense which is deemed to represent interest.

We did not record earnings for any of the fiscal years ending December 31, 2009, 2010, 2011, 2012 and 2013. Accordingly, our earnings were insufficient to cover fixed charges for such periods, and we are unable to disclose a ratio of earnings to fixed charges for such periods. The dollar amount of the deficiency in earnings available for fixed charges for the fiscal years ending December 31, 2009, 2010, 2011, 2012 and 2013 was approximately \$17,006,000, \$20,093,000, \$40,532,000, \$17,292,000 and \$18,032,000, respectively.

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DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 100,000,000 shares of common stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value of \$0.001. A description of material terms and provisions of our certificate of incorporation and by-laws affecting the rights of holders of our capital stock is set forth below. The description is intended as a summary, and is qualified in its entirety by reference to our certificate of incorporation and by-laws, which are filed as exhibits to the registration statement of which this prospectus forms a part.

Common stock

Dividends and distributions. The holders of our common stock have the right to receive dividends and distributions, whether payable in cash or otherwise, as may be declared from time to time by our board of directors, from legally available funds. We have not paid cash dividends on the common stock. We currently do not intend to pay dividends and intend to retain any of our earnings for use in our business and the financing of our capital requirements for the foreseeable future. The payment of any future cash dividends on the common stock is necessarily dependent upon our earnings and financial needs, along with applicable legal and contractual restrictions.

Voting rights. Each holder of our common stock is generally entitled to one vote for each share of common stock owned of record on all matters submitted to a vote of our stockholders. Except as otherwise required by law, holders of common stock (as well as holders of any preferred stock entitled to vote with the common stockholders) will generally vote together as a single class on all matters presented to the stockholders for their vote or approval, including the election of directors. Any matter brought before the stockholders for a vote, other than the election of directors, will generally be decided by a majority of the votes cast on the matter, unless the matter is one in which an express provision of the Delaware General Corporation Law, or the DGCL, the certificate of incorporation, the by-laws, the rules or regulations of any stock exchange applicable to us, applicable law or pursuant to any regulation applicable to us or our securities requires a different vote, in which case the express provision will govern and control the decision of the matter. Directors will be elected by a plurality of the votes cast and entitled to vote generally on the election of directors. There are no cumulative voting rights with respect to the election of directors or any other matters.

No preemptive or similar rights. Holders of our common stock have no redemption rights, conversion rights or preemptive rights to purchase or subscribe for our securities.

Right to receive liquidation distributions. In the event of our liquidation, dissolution or winding-up, holders of our common stock will be entitled to share equally in the assets available for distribution after payment of all creditors and the liquidation preferences of our preferred stock (if any).

Restrictions on transfer. Neither our certificate of incorporation nor our by-laws contain any restrictions on the transfer of our common stock. However, in the case of any transfer of shares, there may be restrictions imposed by applicable securities laws or by the terms of restricted share award grants.

Other Provisions. There are no redemption provisions or sinking fund provisions applicable to our common stock.

The rights of the holders of our common stock are subject to, and may be adversely affected by, the rights of holders of shares of any preferred stock that we may designate and issue in the future.

Preferred stock

General. Under our certificate of incorporation, our board of directors is authorized by resolution to divide the preferred stock into series and, with respect to each series, to determine the designations and the powers,

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preferences and rights, and the qualifications, limitations and restrictions thereof, including the dividend rights, conversion or exchange rights, voting rights, redemption rights and terms, liquidation preferences, sinking fund provisions and the number of shares constituting the series. Our board of directors can, without stockholder approval, issue preferred stock with voting and other rights that could adversely affect the voting power of the holders of our common stock and which could have certain anti-takeover effects. Before we may issue any series of preferred stock, our board of directors will be required to adopt resolutions creating and designating such series of preferred stock.

The following summary of terms of our preferred stock is not complete. You should refer to the provisions of our certificate of incorporation and by-laws and the resolutions containing the terms of each class or series of the preferred stock which have been or will be filed with the SEC at or prior to the time of issuance of such class or series of preferred stock and described in the applicable prospectus supplement. The applicable prospectus supplement may also state that any of the terms set forth herein are inapplicable to such series of preferred stock, provided that the information set forth in such prospectus supplement does not constitute material changes to the information herein such that it alters the nature of the offering or the securities offered.

Issuances of preferred stock are subject to the applicable rules of The NASDAQ Stock Market or other organizations on whose systems our preferred stock may then be quoted or listed.

Terms. The terms of each series of preferred stock will be described in any prospectus supplement related to such series of preferred stock. The board of directors in approving the creation of a series of preferred stock has authority to determine, and the applicable prospectus supplement may set forth with respect to such series, the following terms, among others:

the designation of the series, which may be by distinguishing number, letter or title;

the number of shares of the series, which number the board of directors may thereafter (except where otherwise provided in a certificate of designation) increase or decrease (but not below the number of shares thereof then outstanding);

the amounts payable on, and the preferences, if any, of shares of the series in respect of dividends, and whether such dividends, if any, shall be cumulative or noncumulative;

dates at which dividends, if any, shall be payable;

the redemption rights and price or prices, if any, for shares of the series;

the terms and amount of any sinking fund provided for the purchase or redemption of shares of the series;

the amounts payable on, and the preferences, if any, of shares of the series in the event of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company;

whether the shares of the series shall be convertible into or exchangeable for shares of any other class or series, or any other securities, of ours or any other corporation, and, if so, the specification of such other class or series or such other of security, the conversion or exchange price or prices or rate or rates, any adjustments thereof, the date or dates at which such shares shall be convertible or exchangeable and all other terms and conditions upon which such conversion or exchange may be made;

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any restriction on the repurchase or redemption of shares by us while there is any arrearage in the payment of dividends or sinking fund installments, if applicable; and

restrictions on the issuance of shares of the same series or of any other class or series; and

the voting rights, if any, of the holders of shares of the series.

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Outstanding Warrants

In 2007, we issued warrants as consideration in connection with loan commitments from lenders to purchase shares of convertible preferred stock. Upon closing of the initial public offering, these warrants were converted into warrants to purchase shares of common stock with an exercise price of \$8.12 per share and an expiration date of December 31, 2017. As of December 31, 2013, 34,647 of these warrants were outstanding.

Anti-takeover effects of provisions of our certificate of incorporation and by-laws and Delaware law

Certain provisions of Delaware law and our certificate of incorporation and bylaws contain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our Board of Directors. We believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Certificate of Incorporation and Bylaws. Our certificate of incorporation and bylaws include provisions that:

authorize our Board of Directors to issue, without further action by the stockholders, up to 10,000,000 shares of undesignated preferred stock;

require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;

specify that special meetings of our stockholders can be called only by our Board of Directors, the Chairman of our Board, the Chief Executive Officer or the President;

establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our Board of Directors;

provide that directors may be removed only for cause;

provide that vacancies on our Board of Directors may be filled only by a majority of directors then in office, even though less than a quorum;

establish that our Board of Directors is divided into three classes, Class I, Class II, and Class III, with each class serving staggered three year terms; and

specify that no stockholder is permitted to cumulate votes at any election of our Board of Directors.

Delaware Anti-Takeover Statute. We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

prior to the date of the transaction, our Board of Directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85 percent of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not for determining the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers, and (2) shares owned by employee

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stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

at or subsequent to the date of the transaction, the business combination is approved by our Board of Directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66(2/3) percent of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15 percent or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board of Directors does not approve in advance. We also anticipate that Section 203 may discourage business combinations or other attempts that might result in a premium over the market price for the shares of common stock held by our stockholders.

The provisions of Delaware law and our certificate of incorporation and bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Transfer Agent and Registrar

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

Listing on the NASDAQ Global Market

Our common stock is listed on the NASDAQ Global Market under the symbol ECYT. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on the NASDAQ Global Market or any securities market or other exchange of the preferred stock covered by such prospectus supplement.

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DESCRIPTION OF DEBT SECURITIES

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

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

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

General

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

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

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

the title of the series of debt securities;

any limit upon the aggregate principal amount that may be issued;

the maturity date or dates;

the form of the debt securities of the series;

the applicability of any guarantees;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

whether the debt securities rank as senior debt, senior subordinated debt, subordinated debt or any combination thereof, and the terms of any subordination;

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

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

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

any restrictions on transfer, sale or assignment of the debt securities of the series; and

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

Conversion or Exchange Rights

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

Consolidation, Merger or Sale

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

Events of Default Under the Indenture

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

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

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

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

if specified events of bankruptcy, insolvency or reorganization occur.

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If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

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

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

the direction so given by the holder is not in conflict with any law or the applicable indenture; and

subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

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

the holder has given written notice to the trustee of a continuing event of default with respect to that series;

the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the trustee to institute the proceeding as trustee; and

the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

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

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

Modification of Indenture; Waiver

We and the trustee may change an indenture without the consent of any holders with respect to specific matters:

to cure any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series;

to comply with the provisions described above under Description of Debt Securities-Consolidation, Merger or Sale;

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to provide for uncertificated debt securities in addition to or in place of certificated debt securities;

to add to our covenants, restrictions, conditions or provisions such new covenants, restrictions, conditions or provisions for the benefit of the holders of all or any series of debt securities, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred upon us in the indenture;

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

to make any change that does not adversely affect the interests of any holder of debt securities of any series in any material respect;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided above under Description of Debt Securities-General to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment under any indenture by a successor trustee; or

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

extending the fixed maturity of any debt securities of any series;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any series of any debt securities; or

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

provide for payment;

register the transfer or exchange of debt securities of the series;

replace stolen, lost or mutilated debt securities of the series;

pay principal of and premium and interest on any debt securities of the series;

maintain paying agencies;

hold monies for payment in trust;

recover excess money held by the trustee;

compensate and indemnify the trustee; and

appoint any successor trustee.

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

Form, Exchange and Transfer

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

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

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

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

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

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

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

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Payment and Paying Agents

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

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

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

Governing Law

The indenture and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act of 1939 is applicable.

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DESCRIPTION OF WARRANTS

The following description, together with the additional information that we include in any applicable prospectus supplements and in any related free writing prospectuses that we may authorize to be distributed to purchasers summarizes the material terms and provisions of the warrants that we may offer under this prospectus. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement that describes the terms of the series of warrants we are offering, and any supplemental agreements, before the issuance of the related series of warrants. The following summaries of material terms and provisions of the warrants are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and any supplemental agreements applicable to a particular series of warrants. We urge purchasers to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses and the complete warrant agreement and any supplemental agreements that contain the terms of the warrants.

General

We may issue warrants to purchase common stock, preferred stock or one or more debt securities. We may offer warrants separately or together with one or more additional warrants, common stock, preferred stock or one or more debt securities, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the expiration date of the warrants.

We will specify in a prospectus supplement the terms of the series of warrants, including, if applicable, the following:

the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;

the currency or currency units in which the offering price, if any, and the exercise price are payable;

the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if a holder may not continuously exercise the warrants throughout that period, the specific date or dates on which such holder may exercise the warrants;

whether the warrants are to be sold separately or with other securities as parts of units;

whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;

any applicable material U.S. federal income tax consequences;

the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;

the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;

the designation and terms of any equity securities purchasable upon exercise of the warrants;

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the designation, aggregate principal amount, currency and terms of any debt securities that may be purchased upon exercise of the warrants;

if applicable, the designation and terms of the debt securities, preferred stock or common stock with which the warrants are issued and, the number of warrants issued with each security;

if applicable, the date from and after which any warrants issued as part of a unit and the related debt securities, preferred stock or common stock will be separately transferable;

the number of shares of preferred stock or the number of shares of common stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;

if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;

information with respect to book-entry procedures, if any;

the antidilution provisions of, and other provisions for changes to or adjustment in the exercise price of, the warrants, if any;

any redemption or call provisions; and

any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants. Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including:

in the case of warrants to purchase debt securities, the right to receive payments of principal of, or premium, if any, on or interest on, the debt securities purchasable upon exercise of the warrants or to enforce covenants in the applicable indenture; or

in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

The provisions described in this section, as well as those described under **Description of Capital Stock** and **Description of Debt Securities** will apply to each warrant, as applicable, and to any common stock, preferred stock or debt security included in each warrant, as applicable.

Warrant Agent

We may enter into a warrant agreement with a warrant agent. We will indicate the name, address and other information regarding the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as a warrant agent for more than one series of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any

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duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

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DESCRIPTION OF UNITS

The following description, together with the additional information that we include in any applicable prospectus supplements and in any related free writing prospectuses that we may authorize to be distributed to purchasers summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge purchasers to read the applicable prospectus supplements related to the particular series of units that we may offer under this prospectus, as well as any related free writing prospectuses and the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

We may issue units consisting of common stock, preferred stock, one or more debt securities, or warrants, for the purchase of common stock, preferred stock and/or debt securities in one or more series, in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

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

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

any provisions of the governing unit agreement that differ from those described below; and

any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units. We may issue units in such amounts and in such numbers of distinct series as we determine.

The provisions described in this section, as well as those described under Description of Capital Stock, Description of Debt Securities and Description of Warrants will apply to each unit, as applicable, and to any common stock, preferred stock, debt security or warrant included in each unit, as applicable.

Unit Agent

The name and address of the unit agent for any units we offer will be set forth in the applicable prospectus supplement.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

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PLAN OF DISTRIBUTION

We or any selling security holders may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. We will provide the specific plan of distribution for any securities to be offered in supplements to this prospectus.

LEGAL OWNERSHIP OF SECURITIES

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

Book-Entry Holders

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

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

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

Street Name Holders

We may terminate a global security or issue securities in non-global form. In these cases, investors may choose to hold their securities in their own names or in street name. Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

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

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Legal Holders

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

For example, once we make a payment or give a notice to the holder, we have no further responsibility for the payment or notice even if that holder is required, under agreements with depositary participants or customers or by law, to pass it along to the indirect holders but does not do so. Similarly, we may want to obtain the approval of the holders to amend an indenture, to relieve us of the consequences of a default or of our obligation to comply with a particular provision of the indenture or for other purposes. In such an event, we would seek approval only from the holders, and not the indirect holders, of the securities. Whether and how the holders contact the indirect holders is up to the holders.

Special Considerations For Indirect Holders

If you hold securities through a bank, broker or other financial institution, either in book-entry form or in street name, you should check with your own institution to find out:

the performance of third party service providers;

how it handles securities payments and notices;

whether it imposes fees or charges;

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

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

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

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

Global Securities

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

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

A global security may not be transferred to or registered in the name of anyone other than the depositary, its nominee or a successor depositary, unless special termination situations arise. We describe those situations below under "Special Situations When a Global Security Will Be Terminated". As a result of these arrangements, the depositary, or its nominee, will be the sole registered owner and holder of all securities represented by a global security, and investors will be permitted to own only beneficial interests in a global security. Beneficial interests must be

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held by means of an account with a broker, bank or other financial institution that in turn has an account with the depositary or with another institution that does. Thus, an investor whose security is represented by a global security will not be a holder of the security, but only an indirect holder of a beneficial interest in the global security.

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

Special Considerations For Global Securities

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

If securities are issued only in the form of a global security, an investor should be aware of the following:

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

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

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

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

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

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

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

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

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

Special Situations When a Global Security Will Be Terminated

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

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Unless we provide otherwise in the applicable prospectus supplement, the global security will terminate when the following special situations occur:

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

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

if an event of default has occurred with regard to securities represented by that global security and has not been cured or waived. The applicable prospectus supplement may also list additional situations for terminating a global security that would apply only to the particular series of securities covered by the applicable prospectus supplement. When a global security terminates, the depository, and not we or any applicable trustee, is responsible for deciding the names of the institutions that will be the initial direct holders.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities offered by this prospectus, and any supplement thereto, will be passed upon for us by Faegre Baker Daniels LLP, Indianapolis, Indiana.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2013, and the effectiveness of our internal control over financial reporting as of December 31, 2013, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

We also make available, free of charge, on or through our investor website (<http://investor.endocyte.com>) our annual, quarterly and current reports, proxy statements and other information we file or furnish pursuant the Exchange Act. Please note, however, that we have not incorporated any other information by reference from our website, other than the documents listed under the heading "Incorporation by Reference." In addition, you may request copies of these filings at no cost, by writing or telephoning us at the following address or telephone number:

Corporate Secretary

Endocyte, Inc.

8901 Purdue Road

Suite 250

Indianapolis, IN 46268

(317) 876-1478

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (Commission File No. 001-35050):

our Annual Report on Form 10-K for the year ended December 31, 2013, filed on March 5, 2014 (file no. 001-35050);

our Current Reports on Form 8-K filed on February 10, 2014 and March 25, 2014;

the information specifically incorporated by reference in our Annual Report on Form 10-K for the year ended December 31, 2013, referred to above, from the definitive proxy statement relating to our 2014 annual meeting of stockholders which was filed on March 25, 2014; and

the description of our capital stock included in our registration statement on Form 8-A, which was filed on January 24, 2011, including any amendment or report for the purpose of updating such description.

We also incorporate by reference any future filings (other than any filings or portions of such reports that are not deemed filed under the Exchange Act in accordance with the Exchange Act and applicable SEC rules, including current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

To obtain copies of these filings, see [Where You Can Find More Information](#).

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4,500,000 Shares

Common Stock

PROSPECTUS SUPPLEMENT

Credit Suisse

Citigroup

Cowen and Company

March 25, 2014