

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

Pre-Effective Amendment No. 1
to
FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

CELSION CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

2834

(Primary Standard Industrial
Classification Code Number)

52-1256615

(I.R.S. Employer Identification No.)

**997 Lenox Drive, Suite 100
Lawrenceville, New Jersey 08648
(609) 896-9100**

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

**Michael H. Tardugno
President and Chief Executive Officer**

997 Lenox Drive, Suite 100
Lawrenceville, New Jersey 08648
(609) 896-9100

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

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Approximate date of commencement of proposed sale to the public:

As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

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

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

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

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

Large Accelerated filer

Accelerated filer

Non-accelerated Filer
(Do not check if a smaller reporting company)

Smaller reporting company

CALCULATION OF REGISTRATION FEE

| Title of each class of securities to be registered | Proposed maximum aggregate offering price(1)(2) | Amount of registration fee(3) |
|---|--|--------------------------------------|
| Common Stock, \$0.01 par value per share | | |
| Warrants to purchase shares of common stock | | |
| Shares of common stock issuable upon exercise of the Warrants | | |
| Pre-funded Warrants | | |
| Total: | \$ 15,000,000 | \$ 1,738.50 |

- (1) Estimated solely for the purpose of calculating the amount of the registration fee in accordance with Rule 457(o) under the Securities Act of 1933, as amended.
- (2) Pursuant to Rule 416, the securities being registered hereunder include such indeterminate number of additional securities as may be issuable to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (3) The registration fees were previously paid.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED JANUARY 20, 2017

PRELIMINARY PROSPECTUS



Shares of Common Stock
Pre-Funded Warrants to Purchase Shares of Common Stock
Base Warrants to Purchase Shares of Common Stock

We are offering shares of our common stock and base warrants to purchase shares of our common stock. Each share of our common stock is being sold together with a base warrant to purchase of a share of our common stock for a public offering price of \$ per share and \$ per base warrant. Each base warrant will have an exercise price per share equal to % of the last reported sale price of our common stock as of the close of the trading day immediately preceding the pricing of this offering, will be immediately exercisable and will expire on the fifth anniversary of the original issuance date. The shares of our common stock and base warrants are immediately separable and will be issued separately, but will be purchased together in this offering.

We are also offering to those purchasers whose purchase of shares of our common stock in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than of our outstanding common stock following the consummation of this offering, the opportunity to purchase, in lieu of the shares of our common stock that would result in ownership in excess of , pre-funded warrants to purchase shares of our common stock and base warrants to purchase shares of our common stock. Each pre-funded warrant is being sold together with the same base warrant described above being sold with each share of common stock. Each pre-funded warrant will have an exercise price of \$0.01 per share and will be immediately exercisable and will expire on the anniversary of the original issuance date. The pre-funded warrants and base warrants are immediately separable and will be issued separately, but will be purchased together in this offering. There can be no assurance that we will sell any of the pre-funded warrants being offered. For each pre-funded warrant sold, the number of shares of common stock we are offering will be decreased on a one-for-one basis. Because a base warrant to purchase of a share of our common stock is being sold together in this offering with each share of common stock and, in the alternative, each pre-funded warrant, the number of base warrants sold in this offering will not change as a result of a change in the mix of the shares of our common stock and pre-funded warrants sold.

Our common stock is listed on The NASDAQ Capital Market ("NASDAQ") under the symbol "CLSN." On January 19, 2017, the last reported closing sale price of our common stock on NASDAQ was \$0.41 per share. There is no established trading market for the base warrants or the pre-funded warrants. We do not plan on applying to list the base warrants or the pre-funded warrants on NASDAQ, any national securities exchange or any other nationally recognized trading system. Without an active trading market, the liquidity of the base warrants and the pre-funded warrants will be limited.

Investing in our securities involves a high degree of risk. Before making an investment decision, please read "Risk Factors" on page 14 of this prospectus.

Neither the Securities and Exchange Commission (the "SEC") 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.

| | Per Share and Related Base Warrant | Per Pre-funded Warrant and Related Base Warrant | Total |
|---|--|--|-------|
| Public offering price | \$ | \$ | \$ |
| Placement agents' fees | \$ | \$ | \$ |
| Proceeds, before expenses, to us⁽¹⁾ | \$ | \$ | \$ |

(1) We estimate the total expenses of this offering payable by us, excluding the placement agents' fees, will be approximately \$. See "Plan of Distribution" on page 50 of this prospectus for a description of the compensation payable to the placement agent.

We have retained H.C. Wainwright & Co., LLC as our exclusive lead placement agent and Maxim Group LLC as co-placement agent to use their reasonable best efforts to solicit offers to purchase the securities in this offering. The placement agents have no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities.

We anticipate that delivery of the shares and warrants against payment will be made on or about , 2017.

Lead Placement Agent
Rodman & Renshaw
a unit of H.C. Wainwright & Co.
Co- Placement Agent
Maxim Group LLC
The date of this prospectus is , 2017.

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We have not, and the placement agents have not, authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. 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 shares offered hereby, and only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: We have not, and the placement agents have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus outside the United States.

ABOUT THIS PROSPECTUS

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 contained in or incorporated by reference in this prospectus is accurate only as of its date regardless of the time of delivery of this prospectus or of any sale of common stock, pre-funded warrants or base warrants.

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (the “SEC”). It omits some of the information contained in the registration statement and reference is made to the registration statement for further information with regard to us and the securities being offered. Any statement contained in the prospectus concerning the provisions of any document filed as an exhibit to the registration statement or otherwise filed with the SEC is not necessarily complete, and in each instance, reference is made to the copy of the document filed.

You should read this prospectus, any documents that we incorporate by reference in this prospectus and the additional information described below under “Where You Can Find More Information” and “Information Incorporated By Reference” before making an investment decision. You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with additional, different or inconsistent information, you should not rely on it. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

You should not assume that the information in this prospectus or any documents we incorporate by reference herein is accurate as of any date other than the date on the front of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless the context indicates otherwise, as used in this prospectus, the terms “Celsion,” “the Company,” “we,” “us” and “our” refer to Celsion Corporation, a Delaware corporation, and its wholly-owned subsidiary CLSN Laboratories, Inc., also a Delaware corporation. The Celsion brand and product names, including but not limited to Celsion®, ThermoDox®, EGEN®, TheraPlas™ and TheraSilence™ contained in this prospectus are trademarks, registered trademarks or service marks of Celsion Corporation or its subsidiary in the United States and certain other countries. This document may also contain references to trademarks and service marks of other companies that are the property of their respective owners.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). In accordance with the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Such reports, proxy statements and other information filed by us are available to the public free of charge at www.sec.gov. You may also read and copy any document we file with the SEC at the public reference facilities maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference facilities by calling the SEC at 1-800-SEC-0330. Copies of certain information filed by us with the SEC are also available on our website at www.celsion.com. The information available on or through our website is not part of this prospectus and should not be relied upon.

This prospectus is part of a registration statement that we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and the securities being offered hereby. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to the filings. You should review the complete document to evaluate these statements.

INFORMATION INCORPORATED BY REFERENCE

SEC rules allow us to “incorporate by reference” into this prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference into this prospectus is considered to be part of this prospectus. These documents may include Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements. You should read the information incorporated by reference because it is an important part of this prospectus.

This prospectus incorporates by reference the documents listed below, other than those documents or the portions of those documents deemed to be furnished and not filed in accordance with SEC rules:

- our Annual Report on Form 10-K and Amendment No. 1 on Form 10-K/A for the fiscal year ended December 31, 2015, filed with the SEC on March 30, 2016 and April 29, 2016, respectively;
- our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2016, filed with the SEC on May 16, 2016;
- our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2016, filed with the SEC on August 15, 2016;
- our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2016, filed with the SEC on November 10, 2016;
- our Current Reports on Form 8-K filed with the SEC on June 1, 2016, June 13, 2016, June 15, 2016, June 17, 2016, September 8, 2016, December 20, 2016 and December 23, 2016;
- our Definitive Proxy Statement on Schedule 14A filed with the SEC on May 5, 2016; and
- the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on May 26, 2000, as amended by a Form 8-A/A dated February 7, 2008, and any amendments or reports filed for the purpose of updating such description.

Any statement contained in any document incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or any prospectus modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We also incorporate by reference any future filings, other than 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, made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, in each case, other than those documents or the portions of those documents deemed to be furnished and not filed in accordance with SEC rules, until the offering of the securities under the registration statement of which this prospectus forms a part is terminated or completed. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will 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.

Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and later information filed with the SEC may update and supersede some of the information included or incorporated by reference in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded.

We will provide without charge to each person, including any beneficial owners, to whom this prospectus is delivered, upon his or her written or oral request, a copy of any or all reports or documents referred to above which have been or may be incorporated by reference into this prospectus but not delivered with this prospectus, excluding exhibits to those reports or documents unless they are specifically incorporated by reference into those documents. You may request a copy of these documents by writing or telephoning us at the following address.

Celsion Corporation
997 Lenox Drive, Suite 100
Lawrenceville, New Jersey 08648
(609) 896-9100
Attention: Jeffrey W. Church
Senior Vice President, Chief Financial Officer and Corporate Secretary

FORWARD-LOOKING STATEMENTS

Certain statements contained or incorporated by reference in this prospectus, in any applicable prospectus and in any related free writing prospectus constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and releases issued by the SEC and within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Exchange Act. From time to time, we publish forward-looking statements relating to matters such as anticipated financial performance, business prospects, technological developments, new products, research and development activities, mergers, acquisitions or other strategic transactions and other aspects of our present and future business operations and similar matters that also constitute such forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our or our industry’s actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by such forward-looking statements. Such statements include, without limitation:

- any statements regarding future operations, plans, regulatory filings or approvals, including the plans and objectives of management for future operations or programs or proposed new products or services;
- any statements regarding the performance, or likely performance, or outcomes or economic benefit of any of our research and development activities, proposed or potential clinical trials or new drug filing strategies or timelines, including whether any of our clinical trials will be completed successfully within any specified time period or at all;
- any projections of earnings, cash resources, revenue, expense or other financial terms;
- any statements regarding the initiation, timing, progress and results of our research and development programs, preclinical studies, any clinical trials and Investigational New Drug application, New Drug Application and other regulatory submissions;
- any statements regarding cost and timing of development and testing, capital structure, financial condition, working capital needs and other financial items;
- any statements regarding the implementation of our business model and integration of acquired technologies, assets or businesses and existing or future collaborations, mergers, acquisitions or other strategic transactions;
- any statements regarding approaches to medical treatment, any introduction of new products by others, any possible licenses or acquisitions of other technologies, assets or businesses, or possible actions by customers, suppliers, strategic partners, potential strategic partners, competitors or regulatory authorities;
- any statements regarding development or success of our collaboration arrangements or future payments that may come due to us under these arrangements;
- any statements regarding compliance with the listing standards of NASDAQ; and
- any statements regarding future economic conditions or performance and any statement of assumptions underlying any of the foregoing.

In some cases, you can identify forward-looking statements by terminology such as “expect,” “anticipate,” “estimate,” “continue,” “plan,” “believe,” “could,” “intend,” “predict,” “project,” “potential,” “may,” “should,” “will” or the negative thereof, variations thereof and words of similar import regarding our expectations. Forward-looking statements are only predictions and actual events or results may differ materially. Although we believe that our expectations are based on reasonable assumptions within the bounds of our current knowledge of our industry, business and operations, we cannot guarantee that actual results will not differ materially from our expectations. In evaluating such forward-looking statements, you should specifically consider various factors, including the risks outlined under the caption “Risk Factors” contained in this prospectus and any related free writing prospectus, and in our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. The discussion of risks and uncertainties set forth in those filings is not necessarily a complete or exhaustive list of all risks facing us at any particular point in time. We operate in a highly competitive, highly regulated and rapidly changing environment, and our business is in a state of evolution. Therefore, it is likely that over time new risks will emerge and the nature and elements of existing risks will change. It is not possible for management to predict all such risk factors or changes therein or to assess either the impact of all such risk factors on our business or the extent to which any individual risk factor, combination of factors or new or altered factors may cause results to differ materially from those contained in any forward-looking statement. 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 and any related free writing prospectus, together with the information incorporated herein or therein by reference as described under the section titled “Information Incorporated by Reference,” and with the understanding that our actual future results may materially differ from what we expect.

Except as required by law, forward-looking statements speak only as of the date they are made, and we assume no obligation to update any forward-looking statements publicly, or to update the reasons why actual results could differ materially from those anticipated in any forward-looking statements, even if new information becomes available.

PROSPECTUS SUMMARY

The following summary highlights information contained elsewhere or incorporated by reference in this prospectus. This summary does not contain all of the information you should consider before investing in the securities. Before making an investment decision, you should read the entire prospectus carefully, including the matters discussed under the heading “Risk Factors” in this prospectus.

Overview

Celsion is a fully-integrated oncology drug development stage company focused on developing a portfolio of innovative cancer treatments, including directed chemotherapies, DNA-mediated immunotherapy and RNA based therapies. Our lead product candidate is ThermoDox®, a proprietary dosage form of doxorubicin based on a heat-activated liposomal platform technology, currently in Phase III development for the treatment of primary liver cancer. Our pipeline also includes GEN-1, a DNA-based immunotherapy in clinical development for the localized treatment of ovarian cancer and pre-clinical development for brain cancer. GEN-1 is based on a platform technology for the development of treatments for those suffering with difficult-to-treat forms of cancer, using novel nucleic acid-based immunotherapies and other anti-cancer DNA or RNA therapies. We are working to develop and commercialize more efficient, effective and targeted oncology therapies based on our technologies, with the goal of developing novel therapeutics that maximize efficacy while minimizing side-effects common to cancer treatments.

ThermoDox®

ThermoDox® is being evaluated in a Phase III clinical trial, in combination with a standardized radiofrequency ablation (“RFA”), for primary liver cancer (the “OPTIMA Study”) and a Phase II clinical trial for recurrent chest wall breast cancer (the “DIGNITY Study”). ThermoDox® is a liposomal encapsulation of doxorubicin, an approved and frequently used oncology drug for the treatment of a wide range of cancers. Localized heat at hyperthermia temperatures (greater than 40 degrees Celsius) releases the encapsulated doxorubicin from the liposome enabling high concentrations of doxorubicin to be deposited preferentially in and around the targeted tumor.

The OPTIMA Study

On February 24, 2014, we announced that the United States Food and Drug Administration (the “FDA”), after its customary 30-day review period, provided clearance for the OPTIMA Study, which is a pivotal, double-blind, placebo-controlled Phase III trial of ThermoDox®, in combination with standardized RFA, for the treatment of primary liver cancer. The trial design of the OPTIMA Study is based on the comprehensive analysis of data from an earlier clinical trial called the HEAT Study, which is described below. We launched the OPTIMA Study in the first half of 2014. The OPTIMA Study was designed with extensive input from globally recognized hepatocellular carcinoma (“HCC”) researchers and clinicians and after receiving formal written consultation from the FDA. The OPTIMA Study is expected to enroll up to 550 patients globally at up to 75 sites in the United States, Canada, Europe, China and other Asia Pacific countries, and will evaluate ThermoDox® in combination with standardized RFA, which will require a minimum of 45 minutes across all investigators and clinical sites for treating lesions three to seven centimeters, versus standardized RFA alone. The primary endpoint for this clinical trial is overall survival (“OS”), and the secondary endpoints are progression free survival and safety. The statistical plan calls for two interim efficacy analyses by an independent Data Monitoring Committee.

On December 16, 2015, we announced that we had received the clinical trial application approval from the China Food and Drug Administration (the “CFDA”) to conduct the OPTIMA Study in China. This clinical trial application approval will now allow Celsion to enroll patients at up to 20 additional clinical sites in China. With the addition of these Chinese clinical sites, the Company expects to complete enrollment in the OPTIMA Study during the first half of 2018. On April 26, 2016, we announced that the first patient in China has been enrolled in the OPTIMA Study. Results from the OPTIMA Study, if successful, will provide the basis for a global registration filing and marketing approval.

The OPTIMA Study represents an evaluation of ThermoDox® in combination with a first line therapy, RFA, for newly diagnosed, intermediate stage HCC patients. HCC incidence globally is approximately 850,000 new cases. The RFA addressable percentage of newly diagnosed patients is approximately 30%. The OPTIMA Study is supported with a convincing hypothesis developed from an overall survival analysis of a large subgroup of patients from the HEAT Study.

Findings from the HEAT Study post-hoc data analysis suggest that ThermoDox® may substantially improve OS, when compared to the control group, in patients if their lesions undergo a 45 minute RFA procedure standardized for a lesion greater than 3 cm in diameter. Data from nine OS sweeps have been conducted since the top line progression free survival (“PFS”) data from the HEAT Study were announced in January 2013, with each data set demonstrating progressive improvement in clinical benefit and statistical significance. On August 15, 2016, the Company announced updated results from its final retrospective OS analysis of the data from the HEAT Study. These results demonstrated that in a large, well bounded, subgroup of patients with a single lesion (n=285, 41% of the HEAT Study patients), treatment with a combination of ThermoDox® and optimized RFA provided an average 54% risk improvement in OS compared to optimized RFA alone. The Hazard Ratio (“HR”) at this analysis is 0.65 (95% CI 0.45 - 0.94) with a p-value of 0.02. Median OS for the ThermoDox® group has been reached which translates into a two year survival benefit over the optimized RFA group (projected to be greater than 80 months for the ThermoDox® plus optimized RFA group compared to less than 60 months projection for the optimized RFA only group). Additional findings from this most recent analysis specific to the Chinese patient cohort of 223 patients are summarized below:

- In the population of 154 patients with a single lesion (70% of the HEAT Study Chinese patient cohort) who received optimized RFA treatment for 45 minutes or more showed a 53% risk improvement in OS (HR = 0.66) when treated with ThermoDox® plus optimized RFA.
- These data continue to support and further strengthen ThermoDox®’s potential to significantly improve OS compared to an RFA control in patients with lesions that undergo optimized RFA treatment for 45 minutes or more. The clinical benefit seen in the intent-to-treat Chinese patient cohort further confirms the importance of RFA heating time as 72% of patients in this large patient cohort in China received an optimized RFA treatment.

While this information should be viewed with caution since it is based on a retrospective analysis of a subgroup, we also conducted additional analyses that further strengthens the evidence for the HEAT Study sub-group. We commissioned an independent computational model at the University of South Carolina Medical School. The results unequivocally indicate that longer RFA heating times correlate with significant increases in doxorubicin concentration around the RFA treated tissue. We conducted a prospective preclinical study in 21 pigs using two different manufacturers of RFA and human equivalent doses of ThermoDox® that clearly support the relationship between increased heating duration and doxorubicin concentrations.

On November 29, 2016, the Company announced the presentation of results from an independent analysis conducted by the National Institutes of Health (the “NIH”) from the HEAT Study which reaffirmed the correlation between increased RFA burn time per tumor volume and improvements in overall survival. The NIH analysis, which sought to evaluate the correlation between RFA burn time per tumor volume (min/ml) and clinical outcome, concluded that increased burn time per tumor volume significantly improved overall survival in patients treated with RFA plus ThermoDox® compared to patients treated with RFA alone.

The HEAT Study

On January 31, 2013, the Company announced that the HEAT Study, ThermoDox® in combination with RFA, did not meet the primary endpoint, PFS, of a Phase III clinical trial enrolling 701 patients with primary liver cancer. This determination was made after conferring with the HEAT Study independent Data Monitoring Committee, that the HEAT Study did not meet the goal of demonstrating a clinically meaningful improvement in progression free survival. In the trial, ThermoDox® was well-tolerated with no unexpected serious adverse events. Following the announcement of the HEAT Study results, we followed patients for OS, the secondary endpoint of the HEAT Study. We have conducted a comprehensive analysis of the data from the HEAT Study to assess the future strategic value and development strategy for ThermoDox®.

The DIGNITY Study

On December 14, 2015, we announced final data from our ongoing DIGNITY study, which is an open-label, dose-escalating Phase II trial of ThermoDox® in patients with recurrent chest wall (“RCW”) breast cancer. The DIGNITY Study is designed to establish a safe therapeutic dose in Phase I, and in Phase II to demonstrate local control, including complete and partial responses, and stable disease as its primary endpoint. The DIGNITY Study is also planned to evaluate kinetics in ThermoDox® produced from more than one manufacturing site. Of the 28 patients enrolled and treated, 21 patients were eligible for evaluation of efficacy. Approximately 62% of evaluable patients experienced a local response, including six complete responses and seven partial responses.

The Euro-DIGNITY Study

We anticipate that a Phase II study of RadioTherapy, HyperThermia and ThermoDox® to treat patients with local-regional recurrent chest wall breast cancer will be initiated by four to five clinical sites located in Italy, Israel, Poland and the Czech Republic (the “Euro-DIGNITY Study”). The Euro-DIGNITY Study is expected to commence in 2017 and should enroll up to 70 patients affected by recurrent breast adenocarcinoma on the chest wall with/without nodes over a period of two years.

The primary objectives of the Euro-DIGNITY Study will be (i) to evaluate efficacy in patients after 3 cycles of ThermoDox® plus Hyperthermia measuring tumor diameter as a response to therapy and (ii) to evaluate loco-regional breast tumor control in patients who undergo ThermoDox®/hyperthermia/radiotherapy as measured by target lesion clinical response rate combining a RECIST criteria with digital photography to gauge response.

Secondary objectives of the Euro-DIGNITY Study will be (i) to evaluate the safety of the combination of ThermoDox/Hyperthermia/Radiotherapy among patients with local-regional recurrence (“LRR”) breast cancer, (ii) to evaluate the duration of local control complete response, partial response and stable disease following treatment with ThermoDox/Hyperthermia/Radiotherapy up to 24 months among patients with LRR breast cancer and (iii) to assess Patient Reported Quality of Life using the FACT-B and Brief Pain Inventory following treatment with ThermoDox/Hyperthermia/Radiotherapy among patients with LRR breast cancer.

Acquisition of EGEN Assets

On June 20, 2014, we completed the acquisition of substantially all of the assets of Egen, Inc., an Alabama corporation, which has changed its company name to EGWU, Inc. after the closing of the acquisition (“EGEN”), pursuant to an asset purchase agreement dated as of June 6, 2014, by and between EGEN and Celsion (the purchase agreement). We acquired all of EGEN’s right, title and interest in and to substantially all of the assets of EGEN, including cash and cash equivalents, patents, trademarks and other intellectual property rights, clinical data, certain contracts, licenses and permits, equipment, furniture, office equipment, furnishings, supplies and other tangible personal property. In addition, CLSN Laboratories assumed certain specified liabilities of EGEN, including the liabilities arising out of the acquired contracts and other assets relating to periods after the closing date.

The total purchase price for the asset acquisition is up to \$44.4 million, including potential future earnout payments of up to \$30.4 million contingent upon achievement of certain earnout milestones set forth in the purchase agreement. At the closing, we paid approximately \$3.0 million in cash after the expense adjustment and issued 2,712,188 shares of our common stock to EGEN. The shares of common stock were issued in a private transaction exempt from registration under the Securities Act, pursuant to Section 4(a)(2) thereof. In addition, 670,070 shares of common stock were held back by us at the closing and are issuable to EGEN on or after August 2, 2016 pending certain potential adjustments for expenses or in relation to EGEN’s indemnification obligations under the purchase agreement.

The earnout payments of up to \$30.4 million will become payable, in cash, shares of our common stock or a combination thereof, at our option, as follows:

- \$12.4 million will become payable upon achieving certain specified development milestones relating to an ovarian cancer study of GEN-1 (formerly known as EGEN-001) to be conducted by us or our subsidiary;
- \$12.0 million will become payable upon achieving certain specified development milestones relating to a GEN-1 glioblastoma multiforme brain cancer study to be conducted by us or our subsidiary; and
- up to \$6.0 million will become payable upon achieving certain specified milestones relating to the TheraSilence™ technology acquired from EGEN in the acquisition.

Our obligations to make the earnout payments will terminate on the seventh anniversary of the closing date.

In the acquisition, we purchased GEN-1, a DNA-based immunotherapy for the localized treatment of ovarian and brain cancers, and three platform technologies for the development of treatments for those suffering with difficult-to-treat forms of cancer, novel nucleic acid-based immunotherapies and other anti-cancer DNA or RNA therapies, including TheraPlas™ and TheraSilence™.

GEN-1

GEN-1 is a DNA-based immunotherapeutic product for the localized treatment of ovarian and brain cancers by intraperitoneally administering an Interleukin-12 (“IL-12”) plasmid formulated with our proprietary TheraPlas™ delivery system. In this DNA-based approach, the immunotherapy is combined with a standard chemotherapy drug, which can potentially achieve better clinical outcomes than with chemotherapy alone. We believe that increases in IL-12 concentrations at tumor sites for several days after a single administration could create a potent immune environment against tumor activity and that a direct killing of the tumor with concomitant use of cytotoxic chemotherapy could result in a more robust and durable antitumor response than chemotherapy alone.

GEN-1 OVATION Study.

In February 2015, we announced that the FDA accepted, without objection, the Phase I dose-escalation clinical trial of GEN-1 in combination with the standard of care in neo-adjuvant ovarian cancer (the “OVATION Study”). On September 30, 2015, we announced enrollment of the first patient in the OVATION Study. The OVATION Study will seek to identify a safe, tolerable and potentially therapeutically active dose of GEN-1 by recruiting and maximizing an immune response and is designed to enroll three to six patients per dose level and will evaluate safety and efficacy and attempt to define an optimal dose for a follow-on Phase I/II study combining GEN-1 with Avastin® and Doxil®. In addition, the OVATION Study establishes a unique opportunity to assess how cytokine-based compounds such as GEN-1, directly affect ovarian cancer cells and the tumor microenvironment in newly diagnosed patients. The study is designed to characterize the nature of the immune response triggered by GEN-1 at various levels of the patients’ immune system, including:

- infiltration of cancer fighting T-cell lymphocytes into primary tumor and tumor microenvironment including peritoneal cavity, which is the primary site of metastasis of ovarian cancer;
- changes in local and systemic levels of immuno-stimulatory and immunosuppressive cytokines associated with tumor suppression and growth, respectively; and
- expression profile of a comprehensive panel of immune related genes in pre-treatment and GEN-1-treated tumor tissue.

We have initiated the OVATION Study at four clinical sites at the University of Alabama at Birmingham, Oklahoma University Medical Center, Washington University in St. Louis and the Medical College of Wisconsin. In February 2017, we announced the completion of enrollment of the first cohort of patients in the OVATION Study. The OVATION Study will continue into 2017 at higher doses of GEN-1 with the goal to identify a safe, tolerable and therapeutically active dose of GEN-1 by recruiting and maximizing an immune response.

During 2016, we announced data from the first three cohorts of patients in the OVATION Study, respectively. The OVATION Study is designed to enroll three to six patients per dose cohort and will continue into 2017 at higher doses of GEN-1 with the goal to identify a safe, tolerable and therapeutically active dose of GEN-1 by recruiting and maximizing an immune response. The first three cohorts each enrolled three patients. Enrollment in the fourth cohort is ongoing, and Celsion expects to complete the OVATION Study in the first half of 2017. Future studies of GEN-1 will include a Phase I/II study combining GEN-1 with Avastin® and Doxil®. The results of the OVATION Study to date are as follows:

Totality of Results in the First Three Cohorts

- Of the first nine patients dosed, one patient demonstrated a complete response (“CR”), five patients demonstrated partial response (“PR”) and three patients demonstrated stable disease (“SD”), as measured by RECIST criteria. This translates to a 100% disease control rate (“DCR”) and 66% objective response rate (“ORR”).
- Eight patients had successful resections of their tumors, with four patients having an R0 resection, which indicates a microscopically margin-negative resection in which no gross or microscopic tumor remains in the tumor bed, and three patients with a R1 resection, indicating microscopic residual tumor. One patient had an R2, indicating macroscopic residual tumor. One patient in the second cohort was ineligible for debulking surgery due to a medical complication unrelated to the study or the study drug.
- Of the eight surgically treated and evaluable patients, one patient demonstrated a complete pathological response (“cPR”), three patients demonstrated a micro pathological response (“microPR”), and four patients demonstrated a macroPR. These data compare favorably to historical data, which indicate that cPRs are typically seen in less than 7% of patients receiving neoadjuvant chemotherapy followed by surgical resection. cPRs have been associated with a median overall survival of 72 months, which is more than three years longer than those who do not experience a cPR. In addition, microPRs are seen in approximately 30% of patients, and are associated with a median overall survival of 38 months.
- Seven patients who completed treatment follow-up experienced a dramatic (greater than 90%) drop in their CA-125 protein levels as of their most recent study visit. CA-125 is used to monitor certain cancers during and after treatment. CA-125 is present in greater concentrations in ovarian cancer cells than in other cells. A 50% reduction in CA-125 levels is considered meaningful. Six patients maintained CA-125 levels below the standard cutoff level of 35 U/mL.

Top Line Translational Data from First Two Cohorts

Celsion also reported initial translational data from the first two cohorts of patients. Tumor and blood samples collected before the start of the neoadjuvant chemotherapy (“NACT”) and after the completion of GEN-1 treatment at debulking surgery are being analyzed for immune cell populations. Top line data demonstrates intriguing immunological changes in the tumor that are consistent with the activation of the immune system. Specifically,

- In tumor tissue, there was an increase in cytotoxic CD8+ T-cell density in three out of four evaluable patients at debulking surgery. There was a decrease in immunosuppressive FoxP3+ T-cells in two out of those 4 patients. The ratio of CD8+/FoxP3+ cells was increased in all four evaluable patients. High tumor infiltrating CD8+ T-cell density, low FoxP3+ T-cell density or high CD8+/FoxP3+ ratio demonstrate a potential shift in tumor environment to favoring immune stimulation following NACT + GEN-1 therapy. For the remaining two patients the post-treatment tumor tissue was not available. In one of those two patients there was complete pathological response hence no tumor tissue was present to provide a post-treatment comparison. In the other patient the debulking surgery was not performed due to disease related complications.
- In plasma samples, there was no significant change in T-cell density following the treatment. The density of myeloid derived suppressor cells that are associated with immunosuppression in ovarian cancer were either decreased or did not increase in post-treatment samples.

Additional immune analysis of biological tissue including cytokine ELISA from the first two patient cohorts and a complete analysis of the two higher dose cohorts is in progress.

GEN-1 Plus Doxil® and Avastin® Trial.

On April 29, 2015, we announced the expansion of our ovarian cancer development program to include a Phase I dose escalating trial to evaluate GEN-1 in combination with Avastin® and Doxil® in platinum-resistant ovarian cancer patients. We expect to enroll patients beginning in 2017 following the completion of the OVATION Study. This new combination study in platinum-resistant ovarian cancer is supported by three preclinical studies indicating that the combination of GEN-1 with Avastin® may result in significant clinical benefit with a favorable safety profile. Specifically:

- In two preclinical studies using an animal model of disseminated ovarian cancer, GEN-1 in combination with Avastin® led to a significant reduction in tumor burden and disease progression. The effectiveness of the combined treatment was seen when GEN-1 was combined with various dose levels of Avastin® (low-medium-high). Additionally, it was shown that GEN-1 treatment alone resulted in anti-tumor activity that was as good as or better than Avastin® treatment alone.
- The preclinical studies indicated that no obvious overt toxicities were associated with the combined treatments. The preclinical data are also consistent with the mechanism of action for GEN-1, which exhibits certain anti-angiogenic properties and suggests that combining GEN-1 with lower doses of Avastin® may enhance efficacy and help reduce the known toxicities associated with this anti-VEGF drug.
- The distinct biological activities of GEN-1 (immune stimulation) and Avastin® (inhibition of tumor blood vessel formation) makes a sound scientific rationale for this combination approach. Additionally, the anti-angiogenic activity of GEN-1 mediated through up regulation of the interferon gamma (“IFN-g”) pathway may help to explain the remarkable synergy between GEN-1 and Avastin® and potentially addresses the VEGF escape mechanisms associated with resistance to Avastin® therapy.

TheraPlas™ Technology Platform

TheraPlas™ is a technology platform for the delivery of DNA and messenger RNA (“mRNA”) therapeutics via synthetic non-viral carriers and is capable of providing cell transfection for double-stranded DNA plasmids and large therapeutic RNA segments such as mRNA. There are two components of the TheraPlas™ system, a plasmid DNA or mRNA payload encoding a therapeutic protein and a delivery system. The delivery system is designed to protect the DNA/RNA from degradation and promote trafficking into cells and through intracellular compartments. We designed the delivery system of TheraPlas™ by chemically modifying the low molecular weight polymer to improve its gene transfer activity without increasing toxicity. We believe that TheraPlas™ is a viable alternative to current approaches to gene delivery due to several distinguishing characteristics, including enhanced molecular versatility that allows for complex modifications to improve activity and safety.

TheraSilence™ Technology Platform

TheraSilence™ is a technology platform for the delivery of synthetically-generated inhibitory RNA (“RNAi”), such as small inhibitory RNAs (“siRNAs”), microRNAs, anti- microRNA mimics, microRNA mimics, and related molecules that can regulate protein expression at the transcript level by exploiting endogenous cell mechanisms. Inhibitory RNA-based therapies have the potential for targeting the disease-related genes with a high degree of specificity, including the target genes that have been widely identified as “non-druggable.” The TheraSilence™ technology seeks to address the primary obstacle to nucleic acid-based therapeutics, which is the efficient delivery of RNAs to target cells. Specifically, a delivery system needs to be able to protect the RNAi from nuclease degradation, transfer the molecule across the cellular membranes and release the material so that it can be available to the endogenous RNA silencing machinery. We have developed proprietary, novel structures that we believe are able to interact with the RNAi molecules forming protective nanoparticles that can be readily taken up into cells. In addition, these systems are chemically flexible and amenable to attachment of tissue-targeted ligands, in-vivo stabilizing agents and other functional moieties which can tailor a formulation for a particular application and delivery modality. We believe that these features can provide high specificity for RNAi delivery to select tissue, enhance stability and reduce in-vivo toxicity. In-vivo proof-of-concept studies of our most advanced system have shown the ability to deliver RNAi molecules specifically to the pulmonary vascular following intravenous administration. Using this delivery system we have been able to show in mice that delivery of a siRNA molecule that targets anti-vascular endothelial receptor 2 (“VEGF2”), a protein that is critical for the growth of new blood vessels in tumors, can significantly inhibit lung tumor growth. Additionally, delivery of an anti-micro RNA molecule into rats with experimentally induced pulmonary arterial hypertension was able to normalize vascular remodeling that occurs in the lung and restore cardiac function that is compromised as a result of the disease. This suggests that this delivery system can effectively deliver numerous potentially therapeutic molecular targets and may have application for the treatment of numerous lung diseases.

Technology Development and Licensing Agreements

On August 9, 2016, we signed a Technology Transfer, Manufacturing and Commercial Supply Agreement (the “GEN-1 Agreement”) with Hisun to pursue an expanded partnership for the technology transfer relating to the clinical and commercial manufacture and supply of GEN-1, Celsion’s proprietary gene mediated, IL-12 immunotherapy, for the greater China territory, with the option to expand into other countries in the rest of the world after all necessary regulatory approvals are in effect. The GEN-1 Agreement will help to support supply for both ongoing and planned clinical studies in the United States, and for potential future studies of GEN-1 in China. GEN-1 is currently being evaluated by Celsion in first line ovarian cancer patients.

Key provisions of the GEN-1 Agreement are as follows:

- the GEN-1 Agreement has targeted unit costs for clinical supplies of GEN-1 that are substantially competitive with the Company’s current suppliers;
- once approved, the cost structure for GEN-1 will support rapid market adoption and significant gross margins across global markets;
- Celsion will provide Hisun a certain percentage of China’s commercial unit demand, and separately of global commercial unit demand, subject to regulatory approval;
- Hisun and Celsion will commence technology transfer activities relating to the manufacture of GEN-1, including all studies required by CFDA for site approval; and
- Hisun will collaborate with Celsion around the regulatory approval activities for GEN-1 with the CFDA. A local China partner affords Celsion access to accelerated CFDA review and potential regulatory exclusivity for the approved indication.

In June 2012, Celsion and Hisun signed a long-term commercial supply agreement for the production of ThermoDox®, Celsion’s proprietary heat-activated liposomal encapsulation of doxorubicin. Hisun is one of the largest manufacturers of chemotherapy agents globally, including doxorubicin. In July 2013, the ThermoDox® collaboration was expanded to focus on next generation liposomal formulation development with the goal of creating safer, more efficacious versions of marketed cancer chemotherapeutics. During 2015, Hisun successfully completed the manufacture of three registration batches for ThermoDox® and has obtained regulatory approvals to supply ThermoDox® to participating clinical trial sites in all of the countries of South East Asia, Europe and North America, as well as to the European Union countries allowing for early access to ThermoDox®. The future manufacturing of clinical and commercial supplies by Hisun will result in a cost structure allowing Celsion to profitably access all global markets, including third world countries, and help accelerate the Company’s product development program in China for ThermoDox® in primary liver cancer and other indications.

Business Strategy

We have not generated and do not expect to generate any revenue from product sales in the next several years, if at all. An element of our business strategy has been to pursue, as resources permit, the research and development of a range of product candidates for a variety of indications. We may also evaluate licensing cancer products from third parties for cancer treatments to expand our product pipeline. This is intended to allow us to diversify the risks associated with our research and development expenditures. However, there can be no assurance that we will be able to develop and maintain a broad range of product candidates. To the extent we are unable to maintain a broad range of product candidates, our dependence on the success of one or a few product candidates would increase and results such as those announced in relation to the HEAT Study on January 31, 2013 will have a more significant impact on our financial prospects, financial condition and market value. We will assess our product pipeline and research and development priorities. We may also consider and evaluate strategic alternatives, including investment in, or acquisition of, complementary businesses, technologies or products. As demonstrated by the HEAT Study results, drug research and development is an inherently uncertain process and there is a high risk of failure at every stage prior to approval. The timing and the outcome of clinical results is extremely difficult to predict. Clinical development successes and failures can have a disproportionate positive or negative impact on our scientific and medical prospects, financial prospects, financial condition and market value.

Our current business strategy includes the possibility of entering into collaborative arrangements with third parties to complete the development and commercialization of our product candidates. In the event that third parties take over the clinical trial process for one or more of our product candidates, the estimated completion date would largely be under the control of that third party rather than us. We cannot forecast with any degree of certainty which proprietary products or indications, if any, will be subject to future collaborative arrangements, in whole or in part, and how such arrangements would affect our development plan or capital requirements. We may also apply for subsidies, grants or government or agency-sponsored studies that could reduce our development costs.

As a result of the uncertainties discussed above, among others, we are unable to estimate the duration and completion costs of our research and development projects or when, if ever, and to what extent we will receive cash inflows from the commercialization and sale of a product. Our inability to complete our research and development projects in a timely manner or to obtain positive results in our clinical trials, as well as any failure to enter into collaborative agreements when appropriate, could significantly increase our capital requirements and could adversely impact our liquidity. While our estimated future capital requirements are uncertain and could increase or decrease as a result of many factors, including the extent to which we choose to advance our research, development and clinical trials or whether we are in a position to pursue manufacturing or commercialization activities, it is clear we will need significant additional capital to develop our product candidates through clinical development, manufacturing and commercialization. We do not know whether we will be able to access additional capital when needed or on terms favorable to us or our stockholders. Our inability to raise additional capital, or to do so on terms reasonably acceptable to us, would jeopardize the future success of our business.

Recent Developments

On December 15, 2016, we received a letter from NASDAQ indicating that the closing bid price of our common stock fell below \$1.00 per share for the previous 30 consecutive business days, and that we are therefore not in compliance with the minimum bid price requirement for continued inclusion on The NASDAQ Capital Market and our common stock could be subject to delisting from The NASDAQ Capital Market. We can regain compliance with the \$1.00 minimum bid listing requirement if the closing bid price of our common stock is at least \$1.00 per share for a minimum of ten consecutive business days over the next 180 calendar days, or until June 13, 2017. If we do not regain compliance during the next 180 calendar days, we may be eligible for additional time to regain compliance.

On December 23, 2016, we issued and sold approximately 5.1 million shares of our common stock to several institutional investors for an aggregate purchase price of approximately \$1.8 million in a registered direct offering. In a concurrent private transaction, we sold to each investor warrants, each to purchase one share of our common stock. The warrants are initially exercisable six months following issuance, and terminate five and one-half years following issuance. The warrants have an exercise price of \$0.46 per share and are exercisable to purchase an aggregate of approximately 5.1 million shares of our common stock, subject to limited exceptions.

Corporate Information

We were founded in 1982 and are a Delaware corporation. Our shares of common stock trade on NASDAQ under the symbol "CLSN." Our principal executive offices are located at 997 Lenox Drive, Suite 100, Lawrenceville, New Jersey 08648. Our telephone number is (609) 896-9100 and our website is www.celsion.com. The information available on or through our website is not part of or incorporated by reference into, this prospectus and should not be relied upon.

The Offering

Shares of common stock offered:

Shares.

Base warrants offered:

Base warrants to purchase up to _____ shares of our common stock. Each share of our common stock is being sold together with a base warrant to purchase _____ of a share of our common stock. Each base warrant will have an exercise price equal to _____ % of the last reported sale price of our common stock as of the close of the trading day immediately preceding the pricing of this offering, will be immediately exercisable and will expire on the fifth anniversary of the original issuance date.

Pre-funded warrants offered:

We are also offering those purchasers, if any, whose purchase of shares of our common stock in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than _____ of our outstanding common stock following the consummation of this offering, pre-funded warrants to purchase shares of our common stock. In lieu of the shares of our common stock that would result in ownership in excess of _____, such purchasers are purchasing pre-funded warrants to purchase such excess shares of our common stock. Each pre-funded warrant is being sold together with the same base warrant described above to purchase _____ of a share of common stock. Each pre-funded warrant will have an exercise price of \$0.01 per share, will be immediately exercisable and will expire on the anniversary of the original issuance date. There can be no assurance that we will sell any of the pre-funded warrants being offered. For each pre-funded warrant we sell, the number of shares of common stock we are offering will be decreased on a one-for-one basis. Because a base warrant to purchase _____ of a share of our common stock is being sold together in this offering with each share of common stock and, in the alternative, each pre-funded warrant, the number of base warrants sold in this offering will not change as a result of a change in the mix of the shares of our common stock and pre-funded warrants sold.

Shares of common stock outstanding after completion of this offering, assuming full exercise of the base warrants:

_____ shares, or _____ shares if the base warrants sold in this offering are exercised in full.

Use of Proceeds:

We estimate that our net proceeds from this offering will be approximately \$ _____ million, excluding the proceeds, if any, from the exercise of the base warrants. We intend to use the net proceeds from this offering primarily to continue funding development of OPTIMA, our ongoing Phase III clinical trial of ThermoDox® in patients with primary liver cancer and OVATION, our ongoing Phase I clinical trial of GEN-1 in patients with advanced ovarian cancer and for general corporate purposes, including research and development activities, capital expenditures and working capital.

See the section titled “Use of Proceeds” in this prospectus.

NASDAQ Capital Market symbol:

CLSN.

Trading:

Our shares of common stock currently trade on NASDAQ. We do not plan on applying to list the base warrants or the pre-funded warrants on NASDAQ, any national securities exchange or any other nationally recognized trading system. Without an active trading market, the liquidity of the base warrants and the pre-funded warrants will be limited.

Risk Factors:

Investing in our securities involves a high degree of risk and purchasers of our securities may lose their entire investment. See “Risk Factors” below and the other information included elsewhere in this prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.

The number of shares of our common stock shown above to be outstanding immediately before and after this offering is based on 26,060,573 shares outstanding as of September 30, 2016, and excludes, as of such date:

- 2,932,827 shares of our common stock subject to outstanding options having a weighted average exercise price of \$4.31 per share, and 65,000 shares of common stock subject to outstanding non-vested restricted stock awards with a weighted average grant date fair value of \$2.72;
- 535,925 shares of our common stock reserved for future issuance pursuant to our existing stock incentive plans;
- 1,850,000 shares of our common stock issuable upon the exercise of the Pre-Paid Series B Warrants, having an exercise price at \$0.01 per share, which were issued in connection with the registered direct offering that closed on June 16, 2016;
- 13,839,040 shares of our common stock issuable upon exercise of warrants outstanding, having a weighted average exercise price of \$2.66 per share;
- up to 670,070 shares of common stock held back by us at the closing of the acquisition of substantially all of the assets of Egen, Inc., an Alabama corporation which has changed its company name to EGWU, Inc. after the closing of the acquisition (“EGEN”), and shares of common stock that we may be required to issue in the future, subject to the requisite approval of our stockholders, for earnout payments of up to \$30.4 million upon achievement, if any, of the earnout milestones set forth in the asset purchase agreement dated as of June 6, 2014, by and between EGEN and us; and
- 22,920 shares of our common stock held as treasury stock.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider and evaluate all of the information contained in this prospectus and in the documents incorporated by reference in this prospectus before you decide to purchase our securities. In particular, you should carefully consider and evaluate the risks and uncertainties described in “Part I - Item 1A. Risk Factors” of our most recent Annual Report on Form 10-K, as updated by the additional risks and uncertainties set forth in our most recent Quarterly Report on Form 10-Q and in other filings we make with the SEC, as well as the risks and uncertainties described under the heading “Risk Factors” contained in the applicable prospectus or in any other document incorporated by reference into this prospectus. Any of the risks and uncertainties set forth therein could materially and adversely affect our business, results of operations and financial condition, which in turn could materially and adversely affect the trading price or value of our securities. As a result, you could lose all or part of your investment.

Risks Related to this Offering

The market price of our common stock has been, and may continue to be volatile and fluctuate significantly, which could result in substantial losses for investors and subject us to securities class action litigation.

The trading price for our common stock has been, and we expect it to continue to be, volatile. Our January 31, 2013 announcement that the HEAT Study failed to meet its primary endpoint has resulted in significant volatility and a steep decline in the price of our common stock, a level of decline that could result in securities litigation. Plaintiffs’ securities litigation firms have publicly announced that they are investigating potential securities fraud claims that they may wish to make against us. The price at which our common stock trades depends upon a number of factors, including our historical and anticipated operating results, our financial situation, announcements of technological innovations or new products by us or our competitors, our ability or inability to raise the additional capital we may need and the terms on which we raise it, and general market and economic conditions. Some of these factors are beyond our control. Broad market fluctuations may lower the market price of our common stock and affect the volume of trading in our stock, regardless of our financial condition, results of operations, business or prospect. The closing price of our common stock as reported on The NASDAQ Capital Market had a high price of \$1.93 and a low price of \$0.30 in the 52-week period ended December 31, 2016 and a high price of \$0.51 and a low price of \$0.31 from January 3, 2017 through January 19, 2017. Among the factors that may cause the market price of our common stock to fluctuate are the risks described in this “Risk Factors” section and other factors, including:

- results of preclinical and clinical studies of our product candidates or those of our competitors;
- regulatory or legal developments in the U.S. and other countries, especially changes in laws and regulations applicable to our product candidates;
- actions taken by regulatory agencies with respect to our product candidates, clinical studies, manufacturing process or sales and marketing terms;
- introductions and announcements of new products by us or our competitors, and the timing of these introductions or announcements;
- announcements by us or our competitors of significant acquisitions or other strategic transactions or capital commitments;
- fluctuations in our quarterly operating results or the operating results of our competitors;
- variance in our financial performance from the expectations of investors;
- changes in the estimation of the future size and growth rate of our markets;
- changes in accounting principles or changes in interpretations of existing principles, which could affect our financial results;
- failure of our products to achieve or maintain market acceptance or commercial success;
- conditions and trends in the markets we serve;
- changes in general economic, industry and market conditions;
- success of competitive products and services;
- changes in market valuations or earnings of our competitors;
- changes in our pricing policies or the pricing policies of our competitors;
- changes in legislation or regulatory policies, practices or actions;
- the commencement or outcome of litigation involving our company, our general industry or both;
- recruitment or departure of key personnel;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- actual or anticipated changes in earnings estimates or changes in stock market analyst recommendations regarding our common stock, other comparable companies or our industry generally;
- actual or expected sales of our common stock by our stockholders;
- acquisitions and financings, including the EGEN acquisition; and
- the trading volume of our common stock.

In addition, the stock markets, in general, The NASDAQ Capital Market and the market for pharmaceutical companies in particular, may experience a loss of investor confidence. Such loss of investor confidence may result in extreme price and volume fluctuations in our common stock that are unrelated or disproportionate to the operating performance of our business, financial condition or results of operations. These broad market and industry factors may materially harm the market price of our common stock and expose us to securities class action litigation. Such litigation, even if unsuccessful, could be costly to defend and divert management's attention and resources, which could further materially harm our financial condition and results of operations.

Management will have broad discretion as to the use of the net proceeds from this offering, and we may not use these proceeds effectively.

We intend to use the net proceeds from this offering primarily to continue funding development of the OPTIMA Study, our ongoing Phase III clinical trial of ThermoDox® in patients with primary liver cancer and the OVATION Study, our ongoing Phase I clinical trial of GEN-1 in patients with advanced ovarian cancer and for general corporate purposes, including research and development activities, capital expenditures and working capital. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of the offering. Accordingly, we will retain broad discretion over the use of these proceeds.

You will experience immediate and substantial dilution as a result of this offering and may experience significant dilution as a result of future equity offerings or issuances and exercise of outstanding options and warrants.

Since the public offering price per share of our common stock and related base warrant being offered is expected to be substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. Our net tangible book value as of September 30, 2016 was approximately \$(17.2) million, or \$(0.66) per share. After giving effect to the assumed sale of _____ shares of our common stock and base warrants to purchase _____ shares of our common stock in this offering at an assumed public offering price of \$ _____ per share of our common stock (the last reported sale price of our common stock on _____, 2017) and \$ _____ per related base warrant, and after deducting the placement agents' fees and estimated offering expenses payable by us, if you purchase securities in this offering, you will suffer immediate and substantial dilution of \$ _____ per share in the net tangible book value of the common stock you acquire. In the event that you exercise your base warrants, you will experience additional dilution to the extent that the exercise price of the base warrants is higher than the tangible book value per share of our common stock. See the section titled "Dilution" below for a more detailed discussion of the dilution you would incur if you purchase shares of our common stock in this offering. The discussion above assumes no sale of pre-funded warrants, which, if sold, would reduce the number of shares of common stock that we are offering on a one-for-one basis.

In addition, we have a significant number of stock options and warrants outstanding. To the extent that outstanding stock options or warrants, including the base warrants and the pre-funded warrants offered in this prospectus, have been or may be exercised or other shares issued, you may experience further dilution.

In order to raise additional capital or pursue strategic transactions, we may in the future offer, issue or sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock, including the issuance of common stock in relation to the achievement, if any, of milestones triggering our payment of earn-out consideration in connection with the EGEN acquisition. Our stockholders may experience significant dilution as a result of future equity offerings or issuances. Investors purchasing shares or other securities in the future could have rights superior to existing stockholders. As of September 30, 2016, we have a significant number of securities convertible into, or allowing the purchase of, our common stock, including 13,839,040 shares of common stock issuable upon exercise of warrants outstanding, 2,997,827 options to purchase shares of our common stock and restricted stock awards outstanding, and 535,925 shares of common stock reserved for future issuance under our stock incentive plans. Under the Controlled Equity Offering SM Sales Agreement entered into with Cantor Fitzgerald & Co. on February 1, 2013, we may offer and sell, from time to time through "at-the-market" offerings, up to an aggregate of \$25 million of shares of our common stock. We had only sold \$7.6 million under the Sales Agreement as of December 22, 2016.

Future sales of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of September 30, 2016, we had 26,060,573 shares of common stock outstanding, all of which, other than shares held by our directors and certain officers, were eligible for sale in the public market, subject in some cases to compliance with the requirements of Rule 144, including the volume limitations and manner of sale requirements. In addition, all of the shares of common stock issuable upon exercise of warrants will be freely tradable without restriction or further registration upon issuance.

Holders of our warrants will have no rights as a common stockholder until they acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to shares of our common stock issuable upon exercise of your warrants. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

A large number of shares issued in this offering may be sold in the market following this offering, which may depress the market price of our common stock.

A large number of shares issued in this offering may be sold in the market following this offering, which may depress the market price of our common stock. Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. If there are more shares of our common stock offered for sale than buyers are willing to purchase, then the market price of our common stock may decline to a market price at which buyers are willing to purchase the offered shares of our common stock and sellers remain willing to sell the shares. All of the securities issued in the offering will be freely tradable without restriction or further registration under the Securities Act.

The base warrants may not have any value.

Each base warrant sold in this offering will have an exercise price equal to _____ % of the last reported sale price of our common stock as of the close of the trading day immediately preceding the pricing of this offering and will expire on the fifth anniversary of the date they first become exercisable. In the event our common stock price does not exceed the exercise price of the base warrants during the period when the base warrants are exercisable, the base warrants may not have any value.

We may be unable to maintain compliance with The NASDAQ Marketplace Rules which could cause our common stock to be delisted from The NASDAQ Capital Market. This could result in the lack of a market for our common stock, cause a decrease in the value of an investment in us, and adversely affect our business, financial condition and results of operations.

Our common stock is currently listed on The NASDAQ Capital Market. To maintain the listing of our common stock on The NASDAQ Capital Market, we are required to meet certain listing requirements, including, among others, either: (i) a minimum closing bid price of \$1.00 per share, a market value of publicly held shares (excluding shares held by our executive officers, directors and 10% or more stockholders) of at least \$1 million and stockholders' equity of at least \$2.5 million; or (ii) a minimum closing bid price of \$1.00 per share, a market value of publicly held shares (excluding shares held by our executive officers, directors and 10% or more stockholders) of at least \$1 million and a total market value of listed securities of at least \$35 million. As of _____, 2017, the closing sale price per share of our common stock was \$ _____, the total market value of our publicly held shares of our common stock (excluding shares held by our executive officers, directors and 10% or more stockholders) was approximately \$ _____ million and the total market value of our listed securities was approximately \$ _____ million. There is no assurance that we will continue to meet the minimum closing price requirement and other listing requirements. As of September 30, 2016, we had stockholders' equity of approximately \$10.6 million.

On December 15, 2016, we received a letter from NASDAQ indicating that the closing bid price of our common stock fell below \$1.00 per share for the previous 30 consecutive business days, and that we are therefore not in compliance with the minimum bid price requirement for continued inclusion on The NASDAQ Capital Market and our common stock could be subject to delisting from The NASDAQ Capital Market. If our common stock is delisted, trading of the stock will most likely take place on an over-the-counter market established for unlisted securities, such as the Pink Sheets or the OTC Bulletin Board. An investor is likely to find it less convenient to sell, or to obtain accurate quotations in seeking to buy, our common stock on an over-the-counter market, and many investors may not buy or sell our common stock due to difficulty in accessing over-the-counter markets, or due to policies preventing them from trading in securities not listed on a national exchange or other reasons. In addition, as a delisted security, our common stock would be subject to SEC rules regarding "penny stock," which impose additional disclosure requirements on broker-dealers. The regulations relating to penny stocks, coupled with the typically higher cost per trade to investors in penny stocks due to factors such as broker commissions generally representing a higher percentage of the price of a penny stock than of a higher priced stock, would further limit the ability and willingness of investors to trade in our common stock. For these reasons and others, delisting would adversely affect the liquidity, trading volume and price of our common stock, causing the value of an investment in us to decrease and having an adverse effect on our business, financial condition and results of operations, including our ability to attract and retain qualified executives and employees and to raise capital.

There is currently no public market for the pre-funded warrants or the base warrants to purchase shares of our common stock being offered in this offering, and we can provide no assurance that an active trading market will develop.

We do not plan on applying to list the base warrants or the pre-funded warrants on NASDAQ, any national securities exchange or any other nationally recognized trading system. Without an active trading market, the liquidity of the base warrants and the pre-funded warrants will be limited.

USE OF PROCEEDS

We estimate that our net proceeds from this offering will be approximately \$ _____ million, excluding the proceeds, if any, from the exercise of the base warrants, based on the sale of _____ shares of our common stock and base warrants to purchase _____ shares of our common stock in this offering at an assumed public offering price of \$ _____ (the last reported sale price of our common stock on NASDAQ on _____, 2017) and \$ _____ per base warrant, and after deducting estimated placement agents' fees and estimated offering expenses payable by us.

A \$0.05 increase (or decrease) in the assumed public offering price of \$ _____ per share of our common stock and \$ _____ per related base warrant would increase (or decrease) the expected net cash proceeds of the offering to us by approximately \$ _____. An increase (or decrease) of _____ in the assumed number of shares sold in this offering would increase (or decrease) the expected net cash proceeds of the offering to us by approximately \$ _____, assuming the public offering price of \$ _____ per share and \$ _____ per related base warrant.

We are also offering to those purchasers whose purchase of shares of our common stock in this offering would result in the purchaser, together with its affiliates and certain related parties, owning more than _____ of our outstanding common stock following the consummation of this offering, the opportunity to purchase, in lieu of shares of our common stock that would result in ownership in excess of _____, pre-funded warrants to purchase shares of our common stock and base warrants to purchase shares of our common stock. There can be no assurance that we will sell any of the pre-funded warrants being offered. For each pre-funded warrant sold, the number of shares of common stock we are offering will be decreased on a one-for-one basis.

We intend to use the net proceeds from this offering primarily to continue funding development of the OPTIMA Study, our ongoing Phase III clinical trial of ThermoDox® in patients with primary liver cancer and the OVATION Study, our ongoing Phase I clinical trial of GEN-1 in patients with advanced ovarian cancer and for general corporate purposes, including research and development activities, capital expenditures and working capital. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of the offering. Accordingly, we will retain broad discretion over the use of these proceeds.

PRICE RANGE OF OUR COMMON STOCK

The following table sets forth the high and low reported closing sale prices on NASDAQ for the periods indicated:

| Period | High | Low |
|--|-------------|------------|
| <u>Year Ending December 31, 2017</u> | | |
| First Quarter (January 3, 2017 – January 19, 2017) | \$ 0.51 | \$ 0.31 |
| <u>Year Ended December 31, 2016</u> | | |
| First Quarter | \$ 1.99 | \$ 1.04 |
| Second Quarter | \$ 1.78 | \$ 1.30 |
| Third Quarter | \$ 1.34 | \$ 1.20 |
| Fourth Quarter | \$ 0.99 | \$ 0.30 |
| <u>Year Ended December 31, 2015</u> | | |
| First Quarter | \$ 3.54 | \$ 2.15 |
| Second Quarter | \$ 3.57 | \$ 2.42 |
| Third Quarter | \$ 2.72 | \$ 1.63 |
| Fourth Quarter | \$ 2.31 | \$ 1.61 |
| <u>Year Ended December 31, 2014</u> | | |
| First Quarter | \$ 4.74 | \$ 3.31 |
| Second Quarter | \$ 3.63 | \$ 2.82 |
| Third Quarter | \$ 3.73 | \$ 2.90 |
| Fourth Quarter | \$ 2.99 | \$ 2.26 |

The reported last sale price of our common stock on NASDAQ on _____, 2017 was \$ _____ per share.

Dividend Policy

We have never declared or paid any cash dividends on our common stock and do not currently anticipate declaring or paying cash dividends on our common stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance operations. Any future determination relating to our dividend policy will be made at the discretion of our board of directors and will depend on a number of factors, including future earnings, capital requirements, financial conditions, future prospects, contractual restrictions and other factors that our board of directors may deem relevant.

Holders of Record

As of _____, 2017, there were approximately _____ holders of record of our common stock. The actual number of stockholders is greater than this number of record stockholders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of stockholders of record also does not include stockholders whose shares may be held in trust by other entities.

DILUTION

If you purchase securities in this offering, you will experience dilution to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock immediately after this offering assuming no value is attributed to the base warrants, and such base warrants are accounted for and classified as equity. The net tangible book value of our common stock on September 30, 2016 was \$(17.2) million, or \$(0.66) per share (based upon 26,060,573 shares of our common stock). Net tangible book value per share is equal to the amount of our total tangible assets, less total liabilities, divided by the aggregate number of shares of our common stock outstanding.

After giving effect to the assumed sale by us of shares of our common stock and base warrants to purchase _____ shares of our common stock in this offering at an assumed public offering price of \$ _____ per share of common stock (based on the last reported sale price of our common stock on NASDAQ on _____, 2017) and \$ _____ per base warrant, and after deducting the placement agents' fees and estimated offering expenses payable by us, our as adjusted net tangible book value as of September 30, 2016 would have been \$ _____, or \$ _____ per share of common stock. This represents an immediate increase in net tangible book value of \$ _____ per share to existing stockholders and an immediate dilution of \$ _____ per share to new investors purchasing shares of our common stock in this offering, attributing none of the assumed combined public offering price to the base warrants offered hereby. The following table illustrates this per share dilution:

| | | |
|--|----|--------|
| Assumed public offering price per share and associated warrant | \$ | |
| Net tangible book value per share as of September 30, 2016 | \$ | (0.66) |
| Increase in net tangible book value per share attributable to this offering | \$ | |
| As adjusted net tangible book value per share as of September 30, 2016, after giving effect to this offering | \$ | |
| Dilution per share to the investor purchasing shares in this offering | \$ | |

Each \$0.05 increase (or decrease) in the assumed combined public offering price of \$ _____ per share and related base warrant would increase (or decrease) our as adjusted net tangible book value after this offering by \$ _____ million, or \$ _____ per share, and the dilution per share to new investors by \$ _____ per share, assuming that the number of shares of common stock and related base warrants offered by us, as set forth above, remains the same and after deducting the placement agents' fees and estimated offering expenses payable by us. We may also increase or decrease the number of shares of common stock and related base warrants we are offering from the assumed number of shares of common stock and related base warrants set forth above. An increase (or decrease) of _____ shares of common stock and related base warrants in the number of shares of common stock and related warrants offered by us from the assumed number of shares of common stock and related base warrants set forth above would increase (or decrease) our as adjusted net tangible book value after this offering by \$ _____ million, or \$ _____ per share, and the dilution per share to new investors by \$ _____ per share, assuming that the combined public offering price of \$ _____ per share and related base warrant remain the same and after deducting the placement agents' fees and estimated offering expenses payable by us.

The information discussed above is illustrative only and will adjust based on the actual public offering price, the actual number of shares, pre-funded warrants and base warrants that we offer in this offering, and other terms of this offering determined at pricing. Additionally, the table and discussion above do not reflect possible adjustments related to the likely derivative treatment of the warrants to be issued in this offering. This table does not take into account further dilution to new investors that could occur upon the exercise of outstanding options and warrants, including the base warrants offered in this offering, having a per share exercise price less than the public offering price per share in this offering.

The number of shares of our common stock shown above to be outstanding immediately before and after this offering is based on 26,060,573 shares outstanding as of September 30, 2016, and excludes, as of such date:

- 2,932,827 shares of our common stock subject to outstanding options having a weighted average exercise price of \$4.31 per share, and 65,000 shares of common stock subject to outstanding non-vested restricted stock awards with a weighted average grant date fair value of \$2.72;
- 535,925 shares of our common stock reserved for future issuance pursuant to our existing stock incentive plans;
- 1,850,000 shares of our common stock issuable upon the exercise of the Pre-Paid Series B Warrants, having an exercise price at \$0.01 per share, which were issued in connection with the registered direct offering that closed on June 16, 2016;

- 13,839,040 shares of our common stock issuable upon exercise of warrants outstanding, having a weighted average exercise price of \$2.80 per share;
- up to 670,070 shares of common stock held back by us at the closing of the acquisition of substantially all of the assets of Egen, Inc., an Alabama corporation which has changed its company name to EGWU, Inc. after the closing of the acquisition (“EGEN”), and shares of common stock that we may be required to issue in the future, subject to the requisite approval of our stockholders, for earnout payments of up to \$30.4 million upon achievement, if any, of the earnout milestones set forth in the asset purchase agreement dated as of June 6, 2014, by and between EGEN and us; and
- 22,920 shares of our common stock held as treasury stock.

To the extent that any of our outstanding options or warrants are exercised, new options are issued under our stock incentive plans or we otherwise issue additional shares of common stock in the future, there may be further dilution to the investor participating in this offering.

Overview

We are a fully-integrated oncology drug development stage company focused on developing a portfolio of innovative cancer treatments, including directed chemotherapies, DNA-mediated immunotherapy and RNA based therapies. Our lead product candidate is ThermoDox®, a proprietary dosage form of doxorubicin based on a heat-activated liposomal platform technology, currently in Phase III development for the treatment of primary liver cancer. Our pipeline also includes GEN-1, a DNA-based immunotherapy in clinical development for the localized treatment of ovarian cancer and pre-clinical development for brain cancer. GEN-1 is based on a platform technology for the development of treatments for those suffering with difficult-to-treat forms of cancer, using novel nucleic acid-based immunotherapies and other anti-cancer DNA or RNA therapies. We are working to develop and commercialize more efficient, effective and targeted oncology therapies based on our technologies, with the goal of developing novel therapeutics that maximize efficacy while minimizing side-effects common to cancer treatments.

ThermoDox®

ThermoDox® is being evaluated in a Phase III clinical trial, in combination with a standardized radiofrequency ablation (“RFA”), for primary liver cancer (the “OPTIMA Study”) and a Phase II clinical trial for recurrent chest wall breast cancer (the “DIGNITY Study”). ThermoDox® is a liposomal encapsulation of doxorubicin, an approved and frequently used oncology drug for the treatment of a wide range of cancers. Localized heat at hyperthermia temperatures (greater than 40 degrees Celsius) releases the encapsulated doxorubicin from the liposome enabling high concentrations of doxorubicin to be deposited preferentially in and around the targeted tumor.

The OPTIMA Study

On February 24, 2014, we announced that the United States Food and Drug Administration (the “FDA”), after its customary 30-day review period, provided clearance for the OPTIMA Study, which is a pivotal, double-blind, placebo-controlled Phase III trial of ThermoDox®, in combination with standardized RFA, for the treatment of primary liver cancer. The trial design of the OPTIMA Study is based on the comprehensive analysis of data from an earlier clinical trial called the HEAT Study, which is described below. We launched the OPTIMA Study in the first half of 2014. The OPTIMA Study was designed with extensive input from globally recognized hepatocellular carcinoma (“HCC”) researchers and clinicians and after receiving formal written consultation from the FDA. The OPTIMA Study is expected to enroll up to 550 patients globally at up to 75 sites in the United States, Canada, Europe, China and other Asia Pacific countries, and will evaluate ThermoDox® in combination with standardized RFA, which will require a minimum of 45 minutes across all investigators and clinical sites for treating lesions three to seven centimeters, versus standardized RFA alone. The primary endpoint for this clinical trial is overall survival (“OS”), and the secondary endpoints are progression free survival and safety. The statistical plan calls for two interim efficacy analyses by an independent Data Monitoring Committee.

On December 16, 2015, we announced that we had received the clinical trial application approval from the China Food and Drug Administration (the “CFDA”) to conduct the OPTIMA Study in China. This clinical trial application approval will now allow Celsion to enroll patients at up to 20 additional clinical sites in China. With the addition of these Chinese clinical sites, the Company expects to complete enrollment in the OPTIMA Study during the first half of 2018. On April 26, 2016, we announced that the first patient in China has been enrolled in the OPTIMA Study. Results from the OPTIMA Study, if successful, will provide the basis for a global registration filing and marketing approval.

The OPTIMA Study represents an evaluation of ThermoDox® in combination with a first line therapy, RFA, for newly diagnosed, intermediate stage HCC patients. HCC incidence globally is approximately 850,000 new cases. The RFA addressable percentage of newly diagnosed patients is approximately 30%. The OPTIMA Study is supported with a convincing hypothesis developed from an overall survival analysis of a large subgroup of patients from the HEAT Study.

Findings from the HEAT Study post-hoc data analysis suggest that ThermoDox® may substantially improve OS, when compared to the control group, in patients if their lesions undergo a 45 minute RFA procedure standardized for a lesion greater than 3 cm in diameter. Data from nine OS sweeps have been conducted since the top line progression free survival (“PFS”) data from the HEAT Study were announced in January 2013, with each data set demonstrating progressive improvement in clinical benefit and statistical significance. On August 15, 2016, the Company announced updated results from its final retrospective OS analysis of the data from the HEAT Study. These results demonstrated that in a large, well bounded, subgroup of patients with a single lesion (n=285, 41% of the HEAT Study patients), treatment with a combination of ThermoDox® and optimized RFA provided an average 54% risk improvement in OS compared to optimized RFA alone. The Hazard Ratio (“HR”) at this analysis is 0.65 (95% CI 0.45 - 0.94) with a p-value of 0.02. Median OS for the ThermoDox® group has been reached which translates into a two year survival benefit over the optimized RFA group (projected to be greater than 80 months for the ThermoDox® plus optimized RFA group compared to less than 60 months projection for the optimized RFA only group). Additional findings from this most recent analysis specific to the Chinese patient cohort of 223 patients are summarized below:

- In the population of 154 patients with a single lesion (70% of the HEAT Study Chinese patient cohort) who received optimized RFA treatment for 45 minutes or more showed a 53% risk improvement in OS (HR = 0.66) when treated with ThermoDox® plus optimized RFA.
- These data continue to support and further strengthen ThermoDox®’s potential to significantly improve OS compared to an RFA control in patients with lesions that undergo optimized RFA treatment for 45 minutes or more. The clinical benefit seen in the intent-to-treat Chinese patient cohort further confirms the importance of RFA heating time as 72% of patients in this large patient cohort in China received an optimized RFA treatment.

While this information should be viewed with caution since it is based on a retrospective analysis of a subgroup, we also conducted additional analyses that further strengthens the evidence for the HEAT Study sub-group. We commissioned an independent computational model at the University of South Carolina Medical School. The results unequivocally indicate that longer RFA heating times correlate with significant increases in doxorubicin concentration around the RFA treated tissue. We conducted a prospective preclinical study in 21 pigs using two different manufacturers of RFA and human equivalent doses of ThermoDox® that clearly support the relationship between increased heating duration and doxorubicin concentrations.

On November 29, 2016, the Company announced the presentation of results from an independent analysis conducted by the National Institutes of Health (the “NIH”) from the HEAT Study which reaffirmed the correlation between increased RFA burn time per tumor volume and improvements in overall survival. The NIH analysis, which sought to evaluate the correlation between RFA burn time per tumor volume (min/ml) and clinical outcome, concluded that increased burn time per tumor volume significantly improved overall survival in patients treated with RFA plus ThermoDox® compared to patients treated with RFA alone.

The HEAT Study

On January 31, 2013, the Company announced that the HEAT Study, ThermoDox® in combination with RFA, did not meet the primary endpoint, PFS, of a Phase III clinical trial enrolling 701 patients with primary liver cancer. This determination was made after conferring with the HEAT Study independent Data Monitoring Committee, that the HEAT Study did not meet the goal of demonstrating a clinically meaningful improvement in progression free survival. In the trial, ThermoDox® was well-tolerated with no unexpected serious adverse events. Following the announcement of the HEAT Study results, we followed patients for OS, the secondary endpoint of the HEAT Study. We have conducted a comprehensive analysis of the data from the HEAT Study to assess the future strategic value and development strategy for ThermoDox®.

Findings from the HEAT Study post-hoc data analysis have shown to be well balanced and not diminished in anyway by other factors. Supplementary computational modeling and prospective preclinical animal studies have shown additional support the relationship between heating duration and clinical outcomes. These data have been presented, without objection, at multiple scientific and medical conferences in 2013 through 2016 by key HEAT Study investigators and leading liver cancer experts. The presentations include:

- World Conference on Interventional Oncology in May 2013;
- European Conference on Interventional Oncology in June 2013 and April 2014;
- International Liver Cancer Association Annual Conference in September 2013, 2014 and 2015;
- American Society of Clinical Oncology 50th Annual Meeting in June 2014;
- Asian Conference on Tumor Ablation in October 2015 and October 2016; and
- Asia-Pacific Primary Liver Cancer Expert (APPLE) Meeting in July 2016.

The DIGNITY Study

On December 14, 2015, we announced final data from our ongoing DIGNITY study, which is an open-label, dose-escalating Phase II trial of ThermoDox® in patients with recurrent chest wall (“RCW”) breast cancer. The DIGNITY Study is designed to establish a safe therapeutic dose in Phase I, and in Phase II to demonstrate local control, including complete and partial responses, and stable disease as its primary endpoint. The DIGNITY Study is also planned to evaluate kinetics in ThermoDox® produced from more than one manufacturing site.

These data are consistent with the combined clinical data from two Phase I trials, our Phase I DIGNITY Study and the Duke University sponsored Phase I trial of ThermoDox® plus hyperthermia in RCW breast cancer in December 2013. The two similarly designed Phase I studies enrolled patients with highly resistant tumors found on the chest wall and who had progressed on previous therapy including chemotherapy, radiation therapy and hormone therapy. There were 29 patients treated in the two trials, including 11 patients in the DIGNITY Study and 18 patients in the Duke study. Of the 29 patients treated, 23 were eligible for evaluation of efficacy. A local response rate of over 60 percent was reported in 14 of the 23 evaluable patients with five complete responses and nine partial responses.

The Euro-DIGNITY Study

We anticipate that a Phase II study of RadioTherapy, HyperThermia and ThermoDox® to treat patients with local-regional recurrent chest wall breast cancer will be initiated by four to five clinical sites located in Italy, Israel, Poland and the Czech Republic (the “Euro-DIGNITY Study”). The Euro-DIGNITY Study is expected to commence in 2017 and should enroll up to 70 patients affected by recurrent breast adenocarcinoma on the chest wall with/without nodes over a period of two years.

The primary objectives of the Euro-DIGNITY Study will be (i) to evaluate efficacy in patients after 3 cycles of ThermoDox® plus Hyperthermia measuring tumor diameter as a response to therapy and (ii) to evaluate loco-regional breast tumor control in patients who undergo ThermoDox®/hyperthermia/radiotherapy as measured by target lesion clinical response rate combining a RECIST criteria with digital photography to gauge response.

Secondary objectives of the Euro-DIGNITY Study will be (i) to evaluate the safety of the combination of ThermoDox/Hyperthermia/Radiotherapy among patients with local-regional recurrence (“LRR”) breast cancer, (ii) to evaluate the duration of local control complete response, partial response and stable disease following treatment with ThermoDox/Hyperthermia/Radiotherapy up to 24 months among patients with LRR breast cancer and (iii) to assess Patient Reported Quality of Life using the FACT-B and Brief Pain Inventory following treatment with ThermoDox/Hyperthermia/Radiotherapy among patients with LRR breast cancer.

Acquisition of EGEN Assets

On June 20, 2014, we completed the acquisition of substantially all of the assets of Egen, Inc., an Alabama corporation, which has changed its company name to EGWU, Inc. after the closing of the acquisition (“EGEN”), pursuant to an asset purchase agreement dated as of June 6, 2014, by and between EGEN and Celsion (the purchase agreement). We acquired all of EGEN’s right, title and interest in and to substantially all of the assets of EGEN, including cash and cash equivalents, patents, trademarks and other intellectual property rights, clinical data, certain contracts, licenses and permits, equipment, furniture, office equipment, furnishings, supplies and other tangible personal property. In addition, CLSN Laboratories assumed certain specified liabilities of EGEN, including the liabilities arising out of the acquired contracts and other assets relating to periods after the closing date.

The total purchase price for the asset acquisition is up to \$44.4 million, including potential future earnout payments of up to \$30.4 million contingent upon achievement of certain earnout milestones set forth in the purchase agreement. At the closing, we paid approximately \$3.0 million in cash after the expense adjustment and issued 2,712,188 shares of our common stock to EGEN. The shares of common stock were issued in a private transaction exempt from registration under the Securities Act, pursuant to Section 4(a)(2) thereof. In addition, 670,070 shares of common stock were held back by us at the closing and are issuable to EGEN on or after August 2, 2016 pending certain potential adjustments for expenses or in relation to EGEN’s indemnification obligations under the purchase agreement.

The earnout payments of up to \$30.4 million will become payable, in cash, shares of our common stock or a combination thereof, at our option, as follows:

- \$12.4 million will become payable upon achieving certain specified development milestones relating to an ovarian cancer study of GEN-1 (formerly known as EGEN-001) to be conducted by us or our subsidiary;
- \$12.0 million will become payable upon achieving certain specified development milestones relating to a GEN-1 glioblastoma multiforme brain cancer study to be conducted by us or our subsidiary; and
- up to \$6.0 million will become payable upon achieving certain specified milestones relating to the TheraSilence™ technology acquired from EGEN in the acquisition.

Our obligations to make the earnout payments will terminate on the seventh anniversary of the closing date.

In the acquisition, we purchased GEN-1, a DNA-based immunotherapy for the localized treatment of ovarian and brain cancers, and three platform technologies for the development of treatments for those suffering with difficult-to-treat forms of cancer, novel nucleic acid-based immunotherapies and other anti-cancer DNA or RNA therapies, including TheraPlas™ and TheraSilence™.

GEN-1

GEN-1 is a DNA-based immunotherapeutic product for the localized treatment of ovarian and brain cancers by intraperitoneally administering an Interleukin-12 (“IL-12”) plasmid formulated with our proprietary TheraPlas™ delivery system. In this DNA-based approach, the immunotherapy is combined with a standard chemotherapy drug, which can potentially achieve better clinical outcomes than with chemotherapy alone. We believe that increases in IL-12 concentrations at tumor sites for several days after a single administration could create a potent immune environment against tumor activity and that a direct killing of the tumor with concomitant use of cytotoxic chemotherapy could result in a more robust and durable antitumor response than chemotherapy alone.

GEN-1 OVATION Study.

In February 2015, we announced that the FDA accepted, without objection, the Phase I dose-escalation clinical trial of GEN-1 in combination with the standard of care in neo-adjuvant ovarian cancer (the “OVATION Study”). On September 30, 2015, we announced enrollment of the first patient in the OVATION Study. The OVATION Study will seek to identify a safe, tolerable and potentially therapeutically active dose of GEN-1 by recruiting and maximizing an immune response and is designed to enroll three to six patients per dose level and will evaluate safety and efficacy and attempt to define an optimal dose for a follow-on Phase I/II study combining GEN-1 with Avastin® and Doxil®. In addition, the OVATION Study establishes a unique opportunity to assess how cytokine-based compounds such as GEN-1, directly affect ovarian cancer cells and the tumor microenvironment in newly diagnosed patients. The study is designed to characterize the nature of the immune response triggered by GEN-1 at various levels of the patients’ immune system, including:

- infiltration of cancer fighting T-cell lymphocytes into primary tumor and tumor microenvironment including peritoneal cavity, which is the primary site of metastasis of ovarian cancer;
- changes in local and systemic levels of immuno-stimulatory and immunosuppressive cytokines associated with tumor suppression and growth, respectively; and
- expression profile of a comprehensive panel of immune related genes in pre-treatment and GEN-1-treated tumor tissue.

We have initiated the OVATION Study at four clinical sites at the University of Alabama at Birmingham, Oklahoma University Medical Center, Washington University in St. Louis and the Medical College of Wisconsin. In February 2016, we announced the completion of enrollment of the first cohort of patients in the OVATION Study. The OVATION Study will continue into 2017 at higher doses of GEN-1 with the goal to identify a safe, tolerable and therapeutically active dose of GEN-1 by recruiting and maximizing an immune response.

During 2016, we announced data from the first three cohorts of patients in the OVATION Study, respectively. The OVATION Study is designed to enroll three to six patients per dose cohort and will continue into 2017 at higher doses of GEN-1 with the goal to identify a safe, tolerable and therapeutically active dose of GEN-1 by recruiting and maximizing an immune response. The first three cohorts each enrolled three patients. Following the safety review of the first three patient cohorts conducted by the independent Data Safety Monitoring Board (“DSMB”) in September 2016 and the DSMB’s subsequent recommendation to continue the fourth patient cohort, Celsion expects to complete the OVATION Study in the first half of 2017. Future studies of GEN-1 will include a Phase I/II study combining GEN-1 with Avastin® and Doxil®. The results of the OVATION Study to date are as follows:

Totally of Results in the First Three Cohorts

- Of the first nine patients dosed, one patient demonstrated a complete response (“CR”), five patients demonstrated partial response (“PR”) and three patients demonstrated stable disease (“SD”), as measured by RECIST criteria. This translates to a 100% disease control rate (“DCR”) and 66% objective response rate (“ORR”).
- Eight patients had successful resections of their tumors, with four patients having an R0 resection, which indicates a microscopically margin-negative resection in which no gross or microscopic tumor remains in the tumor bed, and three patients with a R1 resection, indicating microscopic residual tumor. One patient had an R2, indicating macroscopic residual tumor. One patient in the second cohort was ineligible for debulking surgery due to a medical complication unrelated to the study or the study drug.
- Of the eight surgically treated and evaluable patients, one patient demonstrated a complete pathological response (“cPR”), three patients demonstrated a micro pathological response (“microPR”), and four patients demonstrated a macroPR. These data compare favorably to historical data, which indicate that cPRs are typically seen in less than 7% of patients receiving neoadjuvant chemotherapy followed by surgical resection. cPRs have been associated with a median overall survival of 72 months, which is more than three years longer than those who do not experience a cPR. In addition, microPRs are seen in approximately 30% of patients, and are associated with a median overall survival of 38 months.
- Seven patients who completed treatment follow-up experienced a dramatic (greater than 90%) drop in their CA-125 protein levels as of their most recent study visit. CA-125 is used to monitor certain cancers during and after treatment. CA-125 is present in greater concentrations in ovarian cancer cells than in other cells. A 50% reduction in CA-125 levels is considered meaningful. Six patients maintained CA-125 levels below the standard cutoff level of 35 U/mL.

Top Line Translational Data from First Two Cohorts

Celsion also reported initial translational data from the first two cohorts of patients. Tumor and blood samples collected before the start of the neoadjuvant chemotherapy (“NACT”) and after the completion of GEN-1 treatment at debulking surgery are being analyzed for immune cell populations. Top line data demonstrates intriguing immunological changes in the tumor that are consistent with the activation of the immune system. Specifically:

- In tumor tissue, there was an increase in cytotoxic CD8+ T-cell density in three out of four evaluable patients at debulking surgery. There was a decrease in immunosuppressive FoxP3+ T-cells in two out of those 4 patients. The ratio of CD8+/FoxP3+ cells was increased in all four evaluable patients. High tumor infiltrating CD8+ T-cell density, low FoxP3+ T-cell density or high CD8+/FoxP3+ ratio demonstrate a potential shift in tumor environment to favoring immune stimulation following NACT + GEN-1 therapy. For the remaining two patients the post-treatment tumor tissue was not available. In one of those two patients there was complete pathological response hence no tumor tissue was present to provide a post-treatment comparison. In the other patient the debulking surgery was not performed due to disease related complications.
- In plasma samples, there was no significant change in T-cell density following the treatment. The density of myeloid derived suppressor cells that are associated with immunosuppression in ovarian cancer were either decreased or did not increase in post-treatment samples.

Additional immune analysis of biological tissue including cytokine ELISA from the first two patient cohorts and a complete analysis of the two higher dose cohorts is in progress.

GEN-1 Plus Doxil® and Avastin® Trial.

On April 29, 2015, we announced the expansion of our ovarian cancer development program to include a Phase I dose escalating trial to evaluate GEN-1 in combination with Avastin® and Doxil® in platinum-resistant ovarian cancer patients. We expect to enroll patients beginning in 2017 following the completion of the OVATION Study. This new combination study in platinum-resistant ovarian cancer is supported by three preclinical studies indicating that the combination of GEN-1 with Avastin® may result in significant clinical benefit with a favorable safety profile. Specifically:

- In two preclinical studies using an animal model of disseminated ovarian cancer, GEN-1 in combination with Avastin® led to a significant reduction in tumor burden and disease progression. The effectiveness of the combined treatment was seen when GEN-1 was combined with various dose levels of Avastin® (low-medium-high). Additionally, it was shown that GEN-1 treatment alone resulted in anti-tumor activity that was as good as or better than Avastin® treatment alone.
- The preclinical studies indicated that no obvious overt toxicities were associated with the combined treatments. The preclinical data are also consistent with the mechanism of action for GEN-1, which exhibits certain anti-angiogenic properties and suggests that combining GEN-1 with lower doses of Avastin® may enhance efficacy and help reduce the known toxicities associated with this anti-VEGF drug.
- The distinct biological activities of GEN-1 (immune stimulation) and Avastin® (inhibition of tumor blood vessel formation) makes a sound scientific rationale for this combination approach. Additionally, the anti-angiogenic activity of GEN-1 mediated through up regulation of the interferon gamma (“IFN-g”) pathway may help to explain the remarkable synergy between GEN-1 and Avastin® and potentially addresses the VEGF escape mechanisms associated with resistance to Avastin® therapy.

TheraPlas™ Technology Platform

TheraPlas™ is a technology platform for the delivery of DNA and messenger RNA (“mRNA”) therapeutics via synthetic non-viral carriers and is capable of providing cell transfection for double-stranded DNA plasmids and large therapeutic RNA segments such as mRNA. There are two components of the TheraPlas™ system, a plasmid DNA or mRNA payload encoding a therapeutic protein and a delivery system. The delivery system is designed to protect the DNA/RNA from degradation and promote trafficking into cells and through intracellular compartments. We designed the delivery system of TheraPlas™ by chemically modifying the low molecular weight polymer to improve its gene transfer activity without increasing toxicity. We believe that TheraPlas™ is a viable alternative to current approaches to gene delivery due to several distinguishing characteristics, including enhanced molecular versatility that allows for complex modifications to improve activity and safety.

TheraSilence™ Technology Platform

TheraSilence™ is a technology platform for the delivery of synthetically-generated inhibitory RNA (“RNAi”), such as small inhibitory RNAs (“siRNAs”), microRNAs, anti- microRNA mimics, microRNA mimics, and related molecules that can regulate protein expression at the transcript level by exploiting endogenous cell mechanisms. Inhibitory RNA-based therapies have the potential for targeting the disease-related genes with a high degree of specificity, including the target genes that have been widely identified as “non-druggable.” The TheraSilence™ technology seeks to address the primary obstacle to nucleic acid-based therapeutics, which is the efficient delivery of RNAs to target cells. Specifically, a delivery system needs to be able to protect the RNAi from nuclease degradation, transfer the molecule across the cellular membranes and release the material so that it can be available to the endogenous RNA silencing machinery. We have developed proprietary, novel structures that we believe are able to interact with the RNAi molecules forming protective nanoparticles that can be readily taken up into cells. In addition, these systems are chemically flexible and amenable to attachment of tissue-targeted ligands, in-vivo stabilizing agents and other functional moieties which can tailor a formulation for a particular application and delivery modality. We believe that these features can provide high specificity for RNAi delivery to select tissue, enhance stability and reduce in-vivo toxicity. In-vivo proof-of-concept studies of our most advanced system have shown the ability to deliver RNAi molecules specifically to the pulmonary vascular following intravenous administration. Using this delivery system we have been able to show in mice that delivery of a siRNA molecule that targets anti-vascular endothelial receptor 2 (“VEGF2”), a protein that is critical for the growth of new blood vessels in tumors, can significantly inhibit lung tumor growth. Additionally, delivery of an anti-micro RNA molecule into rats with experimentally induced pulmonary arterial hypertension was able to normalize vascular remodeling that occurs in the lung and restore cardiac function that is compromised as a result of the disease. This suggests that this delivery system can effectively deliver numerous potentially therapeutic molecular targets and may have application for the treatment of numerous lung diseases.

Business Strategy

We have not generated and do not expect to generate any revenue from product sales in the next several years, if at all. An element of our business strategy has been to pursue, as resources permit, the research and development of a range of product candidates for a variety of indications. We may also evaluate licensing cancer products from third parties for cancer treatments to expand our product pipeline. This is intended to allow us to diversify the risks associated with our research and development expenditures. However, there can be no assurance that we will be able to develop and maintain a broad range of product candidates. To the extent we are unable to maintain a broad range of product candidates, our dependence on the success of one or a few product candidates would increase and results such as those announced in relation to the HEAT Study on January 31, 2013 will have a more significant impact on our financial prospects, financial condition and market value. We will assess our product pipeline and research and development priorities. We may also consider and evaluate strategic alternatives, including investment in, or acquisition of, complementary businesses, technologies or products. As demonstrated by the HEAT Study results, drug research and development is an inherently uncertain process and there is a high risk of failure at every stage prior to approval. The timing and the outcome of clinical results is extremely difficult to predict. Clinical development successes and failures can have a disproportionate positive or negative impact on our scientific and medical prospects, financial prospects, financial condition and market value.

Our current business strategy includes the possibility of entering into collaborative arrangements with third parties to complete the development and commercialization of our product candidates. In the event that third parties take over the clinical trial process for one or more of our product candidates, the estimated completion date would largely be under the control of that third party rather than us. We cannot forecast with any degree of certainty which proprietary products or indications, if any, will be subject to future collaborative arrangements, in whole or in part, and how such arrangements would affect our development plan or capital requirements. We may also apply for subsidies, grants or government or agency-sponsored studies that could reduce our development costs.

As a result of the risks and uncertainties discussed above, among others, we are unable to estimate the duration and completion costs of our research and development projects or when, if ever, and to what extent we will receive cash inflows from the commercialization and sale of a product. Our inability to complete our research and development projects in a timely manner or to obtain positive results in our clinical trials, as well as any failure to enter into collaborative agreements when appropriate, could significantly increase our capital requirements and could adversely impact our liquidity. While our estimated future capital requirements are uncertain and could increase or decrease as a result of many factors, including the extent to which we choose to advance our research, development and clinical trials or whether we are in a position to pursue manufacturing or commercialization activities, it is clear we will need significant additional capital to develop our product candidates through clinical development, manufacturing and commercialization. We do not know whether we will be able to access additional capital when needed or on terms favorable to us or our stockholders. Our inability to raise additional capital, or to do so on terms reasonably acceptable to us, would jeopardize the future success of our business.

Research and Development Expenditures

We are engaged in a limited amount of research and development in our own facilities and have sponsored research programs in partnership with various research institutions, including the National Cancer Institute and Duke University. We are currently, with minimal cash expenditures, sponsoring clinical and pre-clinical research at the University of Oxford, University of Utrecht, Brigham and Women's Hospital and the University of Washington. The majority of the spending in research and development is for the funding of ThermoDox® clinical trials. Research and development expenses were approximately \$11.0 million for the nine-month period ended September 30, 2016, and approximately \$14.7 million, \$15.0 million and \$9.4 million for the years ended December 31, 2015, 2014 and 2013, respectively.

Government Regulation

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

Regulation in the United States

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act (the "FDCA") and implementing regulations. Failure to comply with the applicable FDA requirements at any time pre- or post-approval may result in a delay of approval or administrative or judicial sanctions. These sanctions could include the FDA's imposition of a clinical hold on trials, refusal to approve pending applications, withdrawal of an approval, issuance of warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties or criminal prosecution.

Research and Development

The vehicle by which FDA approves a new pharmaceutical product for sale and marketing in the United States is a New Drug Application ("NDA"). The steps ordinarily required before a new drug can be marketed in the U.S. include (a) completion of pre-clinical and clinical studies; (b) submission and FDA acceptance of an Investigational New Drug application ("IND"), which must become effective before human clinical trials may commence; (c) completion of adequate and well-controlled human clinical trials to establish the safety and efficacy of the product to support each of its proposed indications; (d) submission and FDA acceptance of a NDA; and (e) FDA review and approval of the NDA.

Pre-clinical tests include laboratory evaluations of product chemistry, toxicity, formulation and stability, as well as animal studies, to assess the potential safety and efficacy of the product. Pre-clinical safety tests must be conducted by laboratories that comply with FDA regulations regarding good laboratory practice. The results of pre-clinical tests are submitted to the FDA as part of an IND and are reviewed by the FDA before the commencement of human clinical trials. Submission of an IND will not necessarily result in FDA authorization to commence clinical trials, and the absence of FDA objection to an IND does not necessarily mean that the FDA will ultimately approve an NDA or that a product candidate otherwise will come to market.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of a qualified principal investigator. Clinical trials must be conducted in accordance with good clinical practices under protocols submitted to the FDA as part of an IND and with patient informed consent. Also, each clinical trial must be approved by an Institutional Review Board (“IRB”), and is subject to ongoing IRB monitoring.

Clinical trials are typically conducted in three sequential phases, but the phases may overlap or be combined. Phase I clinical trials may be conducted in patients or healthy volunteers to evaluate the product’s safety, dosage tolerance and pharmacokinetics and, if possible, seek to gain an early indication of its effectiveness. Phase II clinical trials usually involve controlled trials in a larger but still relatively small number of subjects from the relevant patient population to evaluate dosage tolerance and appropriate dosage; identify possible short-term adverse effects and safety risks; and provide a preliminary evaluation of the efficacy of the drug for specific indications. Phase III clinical trials are typically conducted in a significantly larger patient population and are intended to further evaluate safety and efficacy, establish the overall risk-benefit profile of the product, and provide an adequate basis for physician labeling.

There can be no assurance that any of our clinical trials will be completed successfully within any specified time period or at all.

Either the FDA or we may suspend clinical trials at any time on various grounds, including among other things, if we, the FDA, or our independent DMC conclude that clinical subjects are being exposed to an unacceptable health risk. The FDA inspects and reviews clinical trial sites, informed consent forms, data from the clinical trial sites (including case report forms and record keeping procedures) and the performance of the protocols by clinical trial personnel to determine compliance with good clinical practices. The conduct of clinical trials is complex and difficult, and there can be no assurance that the design or the performance of the pivotal clinical trial protocols of any of our current or future product candidates will be successful.

The results of pre-clinical studies and clinical trials, if successful, are submitted to FDA in the form of an NDA. The testing and approval process requires substantial time, effort, and financial resources, and there can be no assurance that any approval will be granted for any product at any time, according to any schedule, or at all. The FDA may refuse to accept or approve an application if it determines that applicable regulatory criteria are not satisfied. The FDA may also require additional testing for safety and efficacy. Even, if regulatory approval is granted, the approval will be limited to specific indications. There can be no assurance that any of our current product candidates will receive regulatory approvals for marketing or, if approved, that approval will be for any or all of the indications that we request.

Orphan Drug Designation

In 2009, the FDA granted orphan drug designation for ThermoDox[®] for the treatment of HCC. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. However, if a product which has an orphan drug designation subsequently receives the first FDA approval for the indication for which it has such designation, the product is entitled to orphan drug exclusivity, which means the FDA may not approve any other application to market the same drug for the same indication for a period of seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity. Orphan drug designation can also provide opportunities for grant funding towards clinical trial costs, tax advantages and FDA user-fee benefits.

Hatch-Waxman Exclusivity

The FDCA provides a five-year period of non-patent data exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety. During the exclusivity period, the FDA generally may not accept for review an abbreviated new drug application (“ANDA”) or a 505(b)(2) NDA submitted by another company that references the previously approved drug. However, an ANDA or 505(b)(2) NDA referencing the new chemical entity may be submitted after four years if it contains a certification of patent invalidity or non-infringement.

Post-Approval Requirements

After FDA approval of a product is obtained, we and our contract manufacturers are required to comply with various post-approval requirements, including establishment registration and product listing, record-keeping requirements, reporting of adverse reactions and production problems to the FDA, providing updated safety and efficacy information, and complying with requirements concerning advertising and promotional labeling. As a condition of approval of an NDA, the FDA may require the applicant to conduct additional clinical trials or other post market testing and surveillance to further monitor and assess the drug’s safety and efficacy. The FDA can also impose other post-marketing controls on us as well as our products including, but not limited to, restrictions on sale and use, through the approval process, regulations and otherwise. The FDA also has the authority to require the recall of our products in the event of material deficiencies or defects in manufacture. A governmentally mandated recall, or a voluntary recall by us, could result from a number of events or factors, including component failures, manufacturing errors, instability of product or defects in labeling.

In addition, manufacturing establishments in the U.S. and abroad are subject to periodic inspections by the FDA and must comply with current good manufacturing practices (“cGMP”). To maintain compliance with cGMP, manufacturers must expend funds, time and effort in the areas of production and quality control.

Regulation Outside of the U.S.

In addition to regulations in the U.S., we will be subject to regulations of other countries governing any clinical trials and commercial sales and distribution of our product candidates. Whether or not we obtain FDA approval for a product, we must obtain approval by the comparable regulatory authorities of countries outside of the U.S. before we can commence clinical trials in such countries and approval of the regulators of such countries or economic areas, such as the European Union and China, before we may market products in those countries or areas. The approval process and requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary greatly from place to place, and the time may be longer or shorter than that required for FDA approval.

Under European Union regulatory systems, a company may submit marketing authorization applications either under a centralized or decentralized procedure. The centralized procedure, which is compulsory for medicines produced by biotechnology or those medicines intended to treat AIDS, cancer, neurodegenerative disorders or diabetes and is optional for those medicines that are highly innovative, provides for the grant of a single marketing authorization that is valid for all European Union member states. The decentralized procedure provides for mutual recognition of national approval decisions. Under this procedure, the holder of a national marketing authorization may submit an application to the remaining member states. Within 90 days of receiving the applications and assessments report, each member state must decide whether to recognize approval. If a member state does not recognize the marketing authorization, the disputed points are eventually referred to the European Commission, whose decision is binding on all member states.

In 2011, the European Commission granted orphan drug designation for ThermoDox[®] for the treatment of HCC in Europe. As established by the EMA, orphan drug designation provides for scientific advice and regulatory assistance from the EMA, direct access to centralized marketing authorization and certain financial incentives, such as reduction of fees associated with pre-authorization inspections and marketing authorization application fees. The orphan drug designation in Europe also provides 10 years of market exclusivity subsequent to product approval.

Manufacturing and Supply

We do not currently own or operate manufacturing facilities for the production of preclinical, clinical or commercial quantities of any of our product candidates. We currently contract with third party contract manufacturing organizations (“CMOs”) for our preclinical and clinical trial supplies, and we expect to continue to do so to meet the preclinical and any clinical requirements of our product candidates. We have agreements for the supply of such drug materials with manufacturers or suppliers that we believe have sufficient capacity to meet our demands. In addition, we believe that adequate alternative sources for such supplies exist. However, there is a risk that, if supplies are interrupted, it would materially harm our business. We typically order raw materials and services on a purchase order basis and do not enter into long-term dedicated capacity or minimum supply arrangements.

Manufacturing is subject to extensive regulations that impose various procedural and documentation requirements, which govern record keeping, manufacturing processes and controls, personnel, quality control and quality assurance, among others. Our CMOs manufacture our product candidates under current cGMP conditions. cGMP is a regulatory standard for the production of pharmaceuticals that will be used in humans.

Sales and Marketing

Our current focus is on the development of our existing portfolio, the completion of clinical trials and, if and where appropriate, the registration of our product candidates. We currently do not have marketing, sales and distribution capabilities. If we receive marketing and commercialization approval for any of our product candidates, we intend to market the product either directly or through strategic alliances and distribution agreements with third parties. The ultimate implementation of our strategy for realizing the financial value of our product candidates is dependent on the results of clinical trials for our product candidates, the availability of regulatory approvals and the ability to negotiate acceptable commercial terms with third parties.

Product Liability and Insurance

Our business exposes us to potential product liability risks that are inherent in the testing, manufacturing and marketing of human therapeutic products. We presently have product liability insurance limited to \$10 million per incident, and if we were to be subject to a claim in excess of this coverage or to a claim not covered by our insurance and the claim succeeded, we would be required to pay the claim out of our own limited resources.

Competition

Competition in the discovery and development of new methods for treating and preventing disease is intense. We face, and will continue to face, intense competition from pharmaceutical and biotechnology companies, as well as academic and research institutions and government agencies both in the U.S. and abroad. We face significant competition from organizations pursuing the same or similar technologies used by us in our drug discovery efforts and from organizations developing pharmaceuticals that are competitive with our product candidates.

Most of our competitors, either alone or together with their collaborative partners, have substantially greater financial resources and larger research and development staffs than we do. In addition, most of these organizations, either alone or together with their collaborators, have significantly greater experience than we do in developing products, undertaking preclinical testing and clinical trials, obtaining FDA and other regulatory approvals of products, and manufacturing and marketing products. Mergers and acquisitions in the pharmaceutical industry may result in even more resources being concentrated among our competitors. These companies, as well as academic institutions, governmental agencies, and private research organizations, also compete with us in recruiting and retaining highly qualified scientific personnel and consultants. Our ability to compete successfully with other companies in the pharmaceutical and biotechnology field also depends on the status of our collaborations and on the continuing availability of capital to us.

ThermoDox®

Although there are many drugs and devices marketed and under development for the treatment of cancer, the Company is not aware of any other heat activated drug delivery product either being marketed or in human clinical development. In addition, the Company is not aware of any other Phase III clinical trial for the treatment of HCC or primary liver cancer.

GEN-1

Studied indications for GEN-1 include ovarian cancer and glioblastoma multiforme (“GBM”) brain cancer. In evaluating the competitive landscape for both indications, early stage indications are treated with chemotherapy (temozolomide, BCNU, CCNU for brain cancer; docetaxel, doxil and cisplatin for ovarian cancer), while later stage ovarian and GBM cancer are treated with Bevacizumab - Avastin®, an anti-angiogenesis inhibitor. Avastin® is currently also being evaluated for early stage disease.

In product positioning for both indications, there currently is no direct immunotherapy competitor for GEN-1, which will be studied as an adjuvant to both chemotherapy standard of care regimens, as well as anti-angiogenesis compounds. To support these cases, we have conducted clinical studies in combination with chemotherapy for ovarian cancer, and preclinical studies in combination with both temozolomide and Bevacizumab-Avastin®.

Intellectual Property

Licenses

Duke University License Agreement

In 1999, we entered into a license agreement with Duke University under which we received exclusive rights, subject to certain exceptions, to commercialize and use Duke’s thermo-liposome technology. In relation to these liposome patents licensed from Duke University, we have filed two additional patents related to the formulation and use of liposomes. We have also licensed from Valentis, CA certain global rights covering the use of pegylation for temperature sensitive liposomes.

In 2003, our obligations under the license agreement with Duke University with respect to the testing and regulatory milestones and other licensed technology performance deadlines were eliminated in exchange for a payment of shares of our common stock. The license agreement continues to be subject to agreements to pay a royalty based upon future sales. In conjunction with the patent holder, we have filed international applications for a certain number of the United States patents.

Our rights under the license agreement with Duke University extend for the longer of 20 years or the end of any term for which any relevant patents are issued by the United States Patent and Trademark Office. Currently we have rights to Duke's patent for its thermo-liposome technology in the United States, which expires in 2018, and to future patents received by Duke in Canada, Europe, Japan and Australia, where it has patent applications have been granted. The European grant provides coverage in the European Community. For this technology, our license rights are worldwide, including the United States, Canada, certain European countries, Australia, Hong Kong, and Japan.

Patents and Proprietary Rights

Celsion holds an exclusive license agreement with Duke University for its temperature-sensitive liposome technology that covers the ThermoDox® formulation. Celsion's newly issued patents pertain specifically to methods of storing stabilized, temperature-sensitive liposomal formulations and will assist in the protection of global rights. These patents will extend the overall term of the ThermoDox® patent portfolio to 2026. The patents in these three countries are the first in this family, which includes pending applications in the U.S., Europe and additional key commercial geographies in Asia. This extended patent runway to 2026 allows for the evaluation of future development activities for ThermoDox® and Celsion's heat-sensitive liposome technology platform.

For the ThermoDox® technology, we either exclusively license or own US and international patents with claims and methods and compositions of matters that cover various aspects of lysolipid thermally-sensitive liposomes technology, with expiration dates ranging from 2019 to 2026.

For the TheraPlas™ technology, we own three US and international patent families and related applications with claims and methods and compositions of matters that cover various aspects of TheraPlas™ and GEN-1 technologies, with expiration dates ranging from 2020 to 2028.

For the TheraSilence™ technology, we own multiple US and international patent families and related applications with claims and methods and compositions of matters that cover various aspects of TheraSilence™ technology, with expiration dates to 2031.

There can be no assurance that an issued patent will remain valid and enforceable in a court of law through the entire patent term. Should the validity of a patent be challenged, the legal process associated with defending the patent can be costly and time consuming. Issued patents can be subject to oppositions, interferences and other third party challenges that can result in the revocation of the patent or maintenance of the patent in amended form (and potentially in a form that renders the patent without commercially relevant or broad coverage). Competitors may be able to circumvent our patents. Development and commercialization of pharmaceutical products can be subject to substantial delays and it is possible that at the time of commercialization any patent covering the product has expired or will be in force for only a short period of time following commercialization. We cannot predict with any certainty if any third party U.S. or foreign patent rights, other proprietary rights, will be deemed infringed by the use of our technology. Nor can we predict with certainty which, if any, of these rights will or may be asserted against us by third parties. Should we need to defend ourselves and our partners against any such claims, substantial costs may be incurred. Furthermore, parties making such claims may be able to obtain injunctive or other equitable relief, which could effectively block our ability to develop or commercialize some or all of our products in the U.S. and abroad, and could result in the award of substantial damages. In the event of a claim of infringement, we or our partners may be required to obtain one or more licenses from a third party. There can be no assurance that we can obtain a license on a reasonable basis should we deem it necessary to obtain rights to an alternative technology that meets our needs. The failure to obtain a license may have a material adverse effect on our business, results of operations and financial condition.

In addition to the rights available to us under completed or pending license agreements, we rely on our proprietary know-how and experience in the development and use of heat for medical therapies, which we seek to protect, in part, through proprietary information agreements with employees, consultants and others. There can be no assurance that these proprietary information agreements will not be breached, that we will have adequate remedies for any breach, or that these agreements, even if fully enforced, will be adequate to prevent third-party use of the Company's proprietary technology. Similarly, we cannot guarantee that technology rights licensed to us by others will not be successfully challenged or circumvented by third parties, or that the rights granted will provide us with adequate protection.

Employees

As of December 22, 2016, we employed 22 full-time employees. We also maintain active independent contractor relationships with various individuals, most of whom have month-to-month or annual consulting agreements. None of our employees are covered by a collective bargaining agreement, and we consider our relations with our employees to be good.

Legal Proceedings

We are not currently a party to any material legal proceedings.

Corporate Information

We were founded in 1982 and are a Delaware corporation. Our shares of common stock trade on NASDAQ under the symbol "CLSN." Our principal executive offices are located at 997 Lenox Drive, Suite 100, Lawrenceville, New Jersey 08648. Our telephone number is (609) 896-9100 and our website is www.celsion.com. The information available on or through our website is not part of or incorporated by reference into, this prospectus and should not be relied upon.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information regarding beneficial ownership of our common stock as of September 30, 2016 by:

- each person known by us to own beneficially more than five percent of our outstanding common stock;
- each of our directors, as well as each executive officer named in the Summary Compensation Table as set forth under the heading “Executive Compensation” in our proxy statement for our 2016 Annual Meeting of Stockholders; and
- our current directors and executive officers as a group.

Our calculation of the percentage of beneficial ownership prior to this offering is based on 26,060,573 shares of our common stock outstanding as of September 30, 2016. We have based our calculation of the percentage of beneficial ownership after this offering on _____ shares of our common stock outstanding immediately after the closing of this offering, assuming no exercise of the base warrants. Unless otherwise noted, we believe that all persons named in the table have sole voting and investment power with respect to all the shares beneficially owned by them.

| Name and Address of Beneficial Owner* | Shares Beneficially Owned⁽¹⁾ | Percentage of Shares Beneficially Owned⁽²⁾ | |
|--|--|--|---------------------------|
| | | Before Offering | After Offering |
| <u>5% or more stockholders</u> | | | |
| Sabby Management LLC ⁽³⁾ | 2,606,057 | 9.9% | |
| EGWU, Inc. ⁽⁴⁾ | 2,309,367 | 8.9% | |
| <u>Directors and named executive officers</u> | | | |
| Augustine Chow ⁽⁵⁾ | 161,106 | ** | |
| Robert W. Hooper ⁽⁶⁾ | 142,418 | ** | |
| Alberto Martinez ⁽⁷⁾ | 197,744 | ** | |
| Frederick J. Fritz ⁽⁸⁾ | 139,755 | ** | |
| Donald P. Braun | 5,000 | ** | |
| Andreas Voss | 5,000 | ** | |
| Michael H. Tardugno ⁽⁹⁾ | 902,368 | 3.5% | |
| Nicholas Borys ⁽¹⁰⁾ | 286,694 | 1.1% | |
| Jeffrey Church ⁽¹¹⁾ | 283,064 | 1.1% | |
| Khursheed Anwer ⁽¹²⁾ | 55,833 | ** | |
| Current Directors and Executive Officers as a group (10 persons) ⁽¹³⁾ | 2,178,982 | 8.4% | |

* The address of each of the individuals named is c/o Celsion Corporation, 997 Lenox Drive, Suite 100, Lawrenceville, NJ 08648.

** Less than one percent.

- (1) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and generally includes voting or investment power with respect to securities. Shares of common stock subject to options, warrants and convertible securities currently exercisable or convertible, or exercisable or convertible within 60 days of September 30, 2016, are deemed outstanding, including for purposes of computing the percentage ownership of the person holding such option, warrant or convertible security, but not for purposes of computing the percentage of any other holder.
- (2) Based on 26,060,573 shares of common stock outstanding as of September 30, 2016.
- (3) Sabby Management, LLC is the investment manager of Sabby Healthcare Master Fund, Ltd. and Sabby Volatility Warrant Master Fund, Ltd. and shares voting and investment power with respect to these shares in this capacity. As manager of Sabby Management, LLC, Hal Mintz also shares voting and investment power on behalf of each selling stockholder. Each of Sabby Management, LLC and Hal Mintz disclaims beneficial ownership over the securities listed except to the extent of their pecuniary interest therein. The address of principal business office of each of Sabby Healthcare Master Fund, Ltd., Sabby Volatility Warrant Master Fund, Ltd., Sabby Management, LLC and Hal Mintz is 10 Mountainview Road, Suite 205, Upper Saddle River, New Jersey 07458. Neither Sabby Healthcare Master Fund, Ltd. nor Sabby Volatility Warrant Master Fund, Ltd. is a registered broker-dealer or an affiliate of a registered broker-dealer. Based on information supplied to us and excluding (i) 8,823,528 shares of common stock, issuable upon exercise of the common stock purchase warrants exercisable at \$1.40 per share, the terms of which warrants include a blocker provision that restricts exercise to the extent the securities beneficially owned by the selling stockholder and its affiliates would represent beneficial ownership in excess of 4.99% of shares of our common stock outstanding immediately after giving effect to such exercise, subject to the holder's option, on 61 days' prior notice to us, to increase or decrease this beneficial ownership limitation not to exceed 9.99% of shares of our common stock and (ii) 142,382 shares of common stock upon exercise of the Pre-Funded Series B Warrants, which may only be exercised to the extent beneficial ownership by Sabby Management LLC, in the aggregate, does not exceed 9.99% of our common stock.
- (4) Based on information supplied to us by EGWU, Inc. (formerly known as Egen, Inc.), an Alabama corporation ("EGEN") including reports and amendments thereto filed with the SEC on Schedule 13G. EGEN has the sole voting power and sole dispositive power with respect to 2,309,367 shares of common stock. The address of EGEN is 601 Genome Way, Suite 3400, Huntsville, Alabama 35806.
- (5) Includes 140,891 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.
- (6) Includes 113,419 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.
- (7) Includes 97,663 shares of common stock underlying options currently exercisable or exercisable within 60 days of September 30, 2016.
- (8) Includes 92,885 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.
- (9) Includes 759,347 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.
- (10) Includes 266,768 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.
- (11) Includes 250,836 shares of common stock underlying options currently exercisable or exercisable within 60 days of September 30, 2016.
- (12) Includes 50,833 shares of common stock underlying options currently exercisable or exercisable within 60 days of September 30, 2016.
- (13) Includes 1,772,642 shares of common stock underlying options and warrants currently exercisable or exercisable within 60 days of September 30, 2016.

EXECUTIVE COMPENSATION

Summary Compensation Table

The following table sets forth the aggregate cash and other compensation paid for the year ended December 31, 2016 and, to the extent required under SEC executive compensation disclosure rules, for the years ended December 31, 2015 and 2014.

| Name and Principal Position | Year | Salary | Bonus | Stock Awards (1) | Option Awards (1) | Non-Equity Incentive Plan Compensation (2) | All Other Compensation (3) | Total (\$) |
|---|------|------------|---------|------------------------|-------------------------|---|----------------------------------|------------|
| Michael H. Tardugno (4) Chairman, President & CEO | 2016 | \$ 509,418 | \$ – | \$ 33,250 | \$ 296,998 | \$ – | \$ 29,834 | \$ 869,500 |
| | 2015 | 481,216 | – | – | 438,480 | 256,563 | 25,309 | 1,201,568 |
| | 2014 | 462,422 | – | 34,760 | 583,197 | 298,803 | 308,365 | 1,687,547 |
| Jeffrey W. Church (5) Senior VP & CFO | 2016 | \$ 334,719 | \$ – | \$ 15,960 | \$ 95,285 | \$ – | \$ 19,317 | \$ 465,281 |
| | 2015 | 311,434 | 35,000 | – | 107,850 | 79,795 | 19,617 | 553,696 |
| | 2014 | 293,485 | 75,000 | 36,750 | 310,620 | 71,352 | 18,336 | 805,543 |
| Nicholas Borys (6) Senior VP & CMO | 2016 | \$ 373,579 | \$ – | 15,960 | \$ 97,857 | \$ – | \$ 8,249 | \$ 495,645 |
| | 2015 | 360,215 | 7,500 | – | 107,850 | 78,270 | 7,615 | 561,450 |
| | 2014 | 346,876 | 100,000 | – | 279,250 | 90,590 | 8,250 | 824,966 |
| Khursheed Anwer (7) Executive VP & CSO | 2016 | \$ 307,821 | \$ – | \$ – | \$ 41,276 | \$ – | \$ 7,500 | \$ 356,597 |
| | 2015 | 301,782 | – | – | 80,888 | 62,309 | 6,923 | 451,902 |
| | 2014 | 154,731 | – | 140,000 | 125,480 | 55,964 | 3,173 | 479,348 |

- (1) The value reported for Stock and Option Awards is the aggregate grant date fair value of stock awards and stock options, respectively, granted to the Named Executive Officers in the years shown, determined in accordance with FASB ASC Topic 718, disregarding adjustments for forfeiture assumptions. The assumptions for making the valuation determinations are set forth in the Note 11 in the financial statements in the Company's 2015 Annual Report on Form 10-K filed with the SEC on March 30, 2016 and in the Company's Quarterly Report for the period ended September 30, 2016 on Form 10-Q filed with the SEC on November 10, 2016.
- (2) Historically, the Compensation Committee will award the incentive bonus for each year in the first quarter of the following year. The Compensation Committee has determined that the 2016 incentive bonus, if any, will not be considered until the third quarter of 2017.
- (3) This column includes other compensation as indicated below and matching contributions made by the Company for the Named Executive Officers under the Company's 401(k) plan. The Company's matching contribution is equal to 50% of the employee's deferrals under the plan up to 6% of the employee's compensation and are made in shares of the Company's common stock.
- (4) For Mr. Tardugno, "All Other Compensation" for 2016 consists of \$17,942 for discretionary spending allowance and a 401(k) plan matching contribution of \$11,892 in Celsion common stock.
- (5) For Mr. Church "All Other Compensation" for 2016 consists of temporary living and relocation allowance.
- (6) For Dr. Borys, "All Other Compensation" for 2016 consists of a 401(k) plan matching contribution in Celsion Common Stock.
- (6) For Dr. Anwer, "All Other Compensation" for 2016 consists of a 401(k) plan matching contribution in Celsion Common Stock .

Narrative Disclosure to Executive Summary Compensation Table

Employment Agreements

The Company and Mr. Tardugno entered into an employment agreement, effective March 30, 2016, which superseded the previous employment agreements with Mr. Tardugno. In March 2016, the Company and Mr. Tardugno entered into an amended and restated employment agreement, which generally maintained the same terms as set forth in the December 2014 agreement, but removed the modified single-trigger provision included in the agreement. Under that provision, Mr. Tardugno was eligible to receive severance following a change in control if Mr. Tardugno elected to terminate his employment for any reason or no reason commencing with the sixth and ending with the twelfth month following the change in control. In accordance with commonly viewed best practices, the parties agreed to remove this provision so that it is no longer operative, effective March 30, 2016. The following narrative describes the terms of the December 2014 employment agreement, as in effect on December 31, 2016.

Subject to earlier termination pursuant to the terms of the December 2014 agreement, the initial term of the agreement ends on January 31, 2018, with automatic one year renewals thereafter, unless either party provides a notice of non-renewal. Mr. Tardugno's December 2014 agreement provides for an initial annual base salary of \$465,462, subject to annual adjustment by the Board of Directors of the Company or the Compensation Committee. Mr. Tardugno is also eligible for an annual performance bonus from the Company, pursuant to the Company's management incentive bonus program in effect from time to time. The amount of such bonus will be determined by the Board or the Compensation Committee in its sole and absolute discretion and will not exceed 100% of the then-current base salary except pursuant to a specific finding by the Board or the Compensation Committee that a higher percentage is appropriate. Under the December 2014 agreement, the Company agreed to grant to Mr. Tardugno, at the time of its usual annual grant to employees, annual stock options to purchase shares of the Company's common stock as the Board or the Compensation Committee shall determine.

In the event, (A) that the Company terminates the agreement other than for "cause" (as defined in the agreement) or (B) Mr. Tardugno terminates the agreement upon the occurrence of: (i) a material adverse change in his duties or authority; (ii) a situation in which he is no longer at least one of the President or the Chief Executive Officer of the Company; (iii) a bankruptcy filing or similar action by or against the Company; or (iv) another material breach of the Agreement by the Company (each, a "Triggering Event"), or (C) the agreement terminates for nonrenewal, Mr. Tardugno will be entitled to receive a severance payment equal to his base annual salary at the time of termination (the "Severance Amount"), payable in accordance with the Company's normal payroll practices, COBRA premiums for up to twelve months and may generally exercise any vested options through the remainder of their original terms.

In the event of termination of his employment upon a Triggering Event within two years following a "change in control" (as described below), or, if within such two-year period (i) there is a material adverse change in his compensation or benefits, or (ii) any successor to the Company does not assume the Company's obligation under the agreement, and he terminates his employment, Mr. Tardugno is entitled to a lump sum severance payment equal to the Severance Amount and any previously unvested options granted to Mr. Tardugno and covered by the employment agreement shall immediately vest and remain fully exercisable through the remainder of their original maximum terms and otherwise in accordance with their respective original terms.

In the event of termination of his employment upon a Triggering Event within two years following a "change in control" (as described below), or, if within such two-year period (i) there is a material adverse change in his compensation or benefits, or (ii) any successor to the Company does not assume the Company's obligation under the agreement, and he terminates his employment, Mr. Tardugno is entitled to a lump sum severance payment equal to the Severance Amount and any previously unvested options granted to Mr. Tardugno and covered by the employment agreement shall immediately vest and remain fully exercisable through the remainder of their original maximum terms and otherwise in accordance with their respective original terms. The December 2014 agreement also provided that such severance is payable following a change in control if Mr. Tardugno elects to terminate his employment for any reason or no reason commencing with the sixth and ending with the twelfth month following the change in control; however, as noted above, this provision is no longer operative as of March 30, 2016. Under the December 2014 agreement, a "change in control" is deemed to occur: (i) if any person becomes the direct or indirect beneficial owner of more than 50% of the combined voting power of the Company's then-outstanding securities; (ii) there is a change in a majority of the directors in office during any twenty-four (24) month period; (iii) the Company engages in a recapitalization, reorganization, merger, consolidation or similar transaction after which the holders of the Company's voting securities before the transaction do not continue to hold at least 50% of the voting securities of the Company or its successor after the transaction; or (iv) upon the complete liquidation or dissolution of the Company or the sale or other disposition of substantially all of its assets after which the holders of the Company's voting securities before such sale or disposition do not continue to hold at least 50% of the voting securities of the Company or its successor after such sale or disposition.

In the event that Mr. Tardugno is terminated for cause or is receiving severance payments contemplated under the employment agreement, Mr. Tardugno shall, among other things, not provide any services, directly or indirectly, to any other business or commercial entity in the Company's "Field of Interest" (as such term is defined in his employment agreement), solicit any customers or suppliers of the Company, directly or indirectly, or employ or seek to employ an employee of the Company for a period of two years following the date of termination. In addition, at no time during the term of the employment agreement or thereafter will Mr. Tardugno knowingly make any written or oral untrue statement that disparages the Company. Mr. Tardugno is also subject to confidentiality provisions in his employment agreement.

The Company and Dr. Borys entered into an employment offer letter on August 23, 2007, pursuant to which Dr. Borys agreed to serve as the Vice President and Chief Medical Officer of the Company. Under the terms of the offer letter, the Company agreed to pay Dr. Borys an annual starting salary of \$270,000, subject to annual review. Dr. Borys is also eligible for an annual bonus, with a target of 35% of his annual base salary, conditioned on his and the Company's performance against key performance objectives, and annual discretionary stock option awards. In connection with his promotion to Senior Vice President in June 2014, Dr. Borys' target bonus was increased to 40%. Dr. Borys' employment with the Company is "at-will"; however, subject to a retention agreement the Company provided to Dr. Borys on February 19, 2013, if the Company terminates Dr. Borys' employment for any reason other than just cause, the Company will pay Dr. Borys a salary continuation and COBRA premiums for up to six months. The salary and COBRA premiums will cease at the end of the six-month period or, if he finds new employment prior to the end of the six month period, the benefit will be reduced by the amount of compensation which he will receive from any new employer.

The Company and Mr. Church entered into an employment offer letter on June 15, 2010. Pursuant to the offer letter, Mr. Church will receive a starting base salary of \$250,000 and will be eligible for an annual bonus, with a target of 35% of his annual base salary, conditioned on his and the Company's performance against key business objectives. In connection with his promotion to Senior Vice President in July 2011, Mr. Church's target bonus was increased to 40%. Mr. Church's employment is "at-will"; however, if the Company terminates Mr. Church for any reason other than just cause, the Company will pay Mr. Church a salary continuation and COBRA premiums for up to six months. The salary and COBRA premiums will cease at the end of the six month period or if he finds new employment prior to the six month period, the benefit will be reduced by the amount of compensation which he will receive from any new employer.

The Company and Dr. Anwer entered into an employment offer letter effective as of June 20, 2014. Pursuant to the offer letter, Dr. Anwer will receive a starting base salary of \$298,000 and will be eligible for an annual incentive bonus, with a target of 40% of his annual base salary contingent upon meeting personal goals and the Company's objectives established by the Company. The Compensation Committee will determine his actual bonus amount each year. Dr. Anwer's employment with the Company is "at-will"; however, subject to the retention and severance agreement, if the Company terminates Dr. Anwer's employment without cause (as such term is defined in the retention and severance agreement), he will be entitled to receive cash severance equal to 12 months of his base salary and reimbursement of his COBRA premiums for up to 12 months. Dr. Anwer's right to receive these severance benefits is subject to his providing a release of claims in favor of the Company.

Change in Control Agreements

In November 2011, the Company entered into change in control severance agreements (CIC Agreements) with each of the Named Executive Officers (other than Dr. Anwer), to provide severance benefits to these executives should their employment terminate in certain circumstances in connection with a change in control of the Company. The following summary is qualified in its entirety by the provisions of the CIC Agreement. In September 2016, the Company entered into amended and restated change in control agreements with each of the Named Executive Officers (other than Dr. Anwer).

Under the amended and restated CIC Agreements, in the event that the Company terminates the executive's employment without cause or in the event that the executive terminates his employment for good reason, in either case on or within two years after a change in control of the Company, the executive would be entitled to receive a cash lump sum payment equal to two (2) times the sum of (1) the executive's annual base salary and (2) the executive's target annual bonus for the fiscal year in which the termination occurs. (For these purposes, the terms "cause," "good reason" and "change in control" are each defined in the CIC Agreement.) In addition, the Company will pay or reimburse the executive for the cost of COBRA premiums and life insurance coverage for the executive and his eligible dependents, in each case for a period of up to two years following the termination. The executive would also be entitled to full acceleration of his then-outstanding equity awards granted to him by the Company. However, as to any equity award agreement that is subject to performance-based vesting requirements, the vesting of such award will continue to be governed by its terms. In the case of options or similar awards, the award would generally remain exercisable for the remainder of the original term of the award (or, in the case of awards that vested after the date of the change in control, for the lesser of 12 months following the last day such award would have been exercisable under the applicable award agreement and the remainder of the original term). The benefits provided under the CIC Agreement are in addition to, and not in lieu of, any severance benefits the executive may be entitled to receive in connection with the termination of his employment under any other agreement with the Company. The executive's right to benefits under the CIC Agreement is subject to his executing a release of claims in favor of the Company upon the termination of his employment.

Material Terms of Option Grants During 2016

Each of the stock options awarded to the Named Executive Officers in 2016 and reported in the 2016 Grants of Plan-Based Awards Table below was granted under, and is subject to, the terms of the 2007 Plan. The 2007 Plan is administered by the Compensation Committee, which has authority to interpret the plan provisions and make all required determinations under the plan. This authority includes making required proportionate adjustments to outstanding awards upon the occurrence of certain corporate events such as reorganizations, mergers and stock splits, and making provision to ensure that any tax withholding obligations incurred in respect of awards are satisfied. Awards granted under the plan are generally only transferable to a beneficiary of a Named Executive Officer upon his death. Under the terms of the 2007 Plan, if there is a change in control of the Company, each Named Executive Officer's outstanding awards granted under the plan will generally terminate, unless the Compensation Committee provides for the substitution, assumption, exchange or other continuation or settlement (in cash, securities or property) of the outstanding awards. The Compensation Committee has discretion to provide for outstanding awards to become vested in connection with a change in control.

Each option granted to the Named Executive Officers in 2016 was granted with a per-share exercise price equal to the closing price of our Common Stock on the grant date. Each option is scheduled to vest in three installments, with one-third vesting on the date of grant and the balance vesting in annual installments over each of the next two years, subject in each case to the executive's continued employment through the applicable vesting date, and has a maximum term of ten years. However, vested options may terminate earlier in connection with a change in control transaction or a termination of the Named Executive Officer's employment. Subject to any accelerated vesting that may apply in the circumstances, the unvested portion of the option will immediately terminate upon a termination of the Named Executive Officer's employment.

2016 Grants of Plan-Based Awards Table

The following table presents information regarding the incentive awards granted to the Named Executive Officers during 2016. Each of the equity awards reported in the table below was granted under the 2007 Plan.

| Name | Grant Date | Estimated Future Payouts Under Non-Equity Incentive Plan Awards Target (\$)(1) | All other Stock Awards: Number of Shares or Units of Stock (#)(2) | All Other Option Awards: Number of Securities Underlying Options (#)(3) | Exercise or Base Price of Option Awards (\$/Share) | Grant Date Fair Value of Stock and Option Awards (\$)(4) |
|---------------------|------------|--|---|---|--|--|
| Michael H. Tardugno | N/A | \$ 501,023 | | | | |
| | 2/2/2016 | | 25,000 | | \$ – | \$ 33,250 |
| | 2/2/2016 | | | 150,000 | 1.33 | 154,800 |
| | 9/6/2016 | | | 125,000 | 1.22 | 142,250 |
| Jeffrey W. Church | N/A | \$ 134,556 | | | | |
| | 2/2/2016 | | 12,000 | | \$ – | \$ 15,960 |
| | 2/2/2016 | | | 60,000 | 1.33 | 61,920 |
| | 9/6/2016 | | | 29,332 | 1.22 | 33,380 |
| Nicholas Borys | N/A | \$ 150,017 | | | | |
| | 2/2/2016 | | 12,000 | | \$ – | \$ 15,960 |
| | 2/2/2016 | | | 50,000 | 1.33 | 51,600 |
| | 9/6/2016 | | | 40,663 | 1.22 | 46,274 |
| Khursheed Anwer | N/A | \$ 123,408 | | | | |
| | 2/2/2016 | | | 40,000 | 1.33 | 41,280 |

- (1) The amounts reported in this column represent the target bonus opportunity under the Company's annual bonus program. See "Employment Agreements" above for information on the terms of these bonuses.
- (2) The amounts reported in this column represent vested stock awards granted to the Named Executive Officer under the 2007 Plan.
- (3) The amounts reported in this column represented stock option awards granted under the 2007 Plan. Each option granted to each Named Executive Officer is scheduled to vest in three installments, with one-third vesting on the date of grant and the balance vesting in annual installments over each of the next two years, subject in each case to the executive's continued employment through the applicable vesting date, and has a maximum term of ten years.
- (4) The value reported for Stock and Option Awards is the aggregate grant date fair value of stock awards and stock options, respectively, granted to the Named Executive Officers in the years shown, determined in accordance with FASB ASC Topic 718, disregarding adjustments for forfeiture assumptions. The assumptions for making the valuation determinations are set forth in the Note 11 in the financial statements in the Company's 2015 Annual Report on Form 10-K filed with the SEC on March 30, 2016 and in the Company's Quarterly Report for the period ended September 30, 2016 on Form 10-Q filed with the SEC on November 10, 2016.

Outstanding Equity Awards

The following table summarizes the unexercised stock options held by each of the Named Executive Officers as of December 31, 2016. None of the Named Executive Officers held any other outstanding stock awards as of December 31, 2016.

| Name | Grant Date | Option Awards | | Option Exercise Price (\$) | Option Expiration Date |
|---------------------|-------------------|--|--|----------------------------|------------------------|
| | | No. of Securities Underlying Unexercised Options (#) Exercisable | No. of Securities Underlying Unexercised Options (#) Unexercisable | | |
| Michael H. Tardugno | 1/3/2007 | 95,555 | – | \$ 10.89 | 1/3/2017 |
| | 2/19/2008 | 16,666 | – | \$ 24.75 | 2/19/2018 |
| | 1/19/2009 | 16,666 | – | \$ 12.24 | 1/19/2019 |
| | 2/19/2010 | 18,888 | – | \$ 13.23 | 2/19/2020 |
| | 2/25/2011 | 40,000 | – | \$ 11.21 | 2/25/2021 |
| | 2/22/2012 | 7,333 | – | \$ 9.27 | 2/22/2022 |
| | 6/15/2012 | 19,333 | – | \$ 9.68 | 6/15/2022 |
| | 5/6/2013 | 44,444 | – | \$ 4.37 | 5/6/2023 |
| | 2/11/2014 | 44,444 | – | \$ 3.66 | 2/11/2024 |
| | 6/20/2014 | 140,556 | – | \$ 3.50 | 6/20/2024 |
| | 3/17/2015 | 93,334 | 46,666(1) | \$ 2.45 | 3/17/2025 |
| | 6/19/2015 | 43,334 | 21,666(1) | \$ 2.39 | 6/19/2025 |
| | 2/2/2016 | 50,000 | 100,000(1) | \$ 1.33 | 2/2/2026 |
| | 9/6/2016 | 125,000 | –(2) | \$ 1.22 | 9/6/2026 |
| | Jeffrey W. Church | 7/6/2010 | 22,222 | – | \$ 15.26 |
| 2/25/2011 | | 15,555 | – | \$ 11.21 | 2/25/2021 |
| 2/27/2012 | | 3,055 | – | \$ 9.41 | 2/27/2022 |
| 6/15/2012 | | 8,055 | – | \$ 9.68 | 6/15/2022 |
| 5/6/2013 | | 17,777 | – | \$ 4.37 | 5/6/2023 |
| 2/11/2014 | | 40,000 | – | \$ 3.66 | 2/11/2024 |
| 6/20/2014 | | 60,000 | – | \$ 3.50 | 6/20/2024 |
| 3/17/2015 | | 33,334 | 16,666(1) | \$ 2.45 | 3/17/2025 |
| 2/2/2016 | | 20,000 | 40,000(1) | \$ 1.33 | 2/2/2026 |
| 9/6/2016 | 29,332 | –(2) | \$ 1.22 | 9/6/2026 | |
| Nicholas Borys | 9/24/2007 | 16,666 | – | \$ 27.45 | 9/24/2017 |
| | 2/19/2008 | 7,777 | – | \$ 24.75 | 2/19/2018 |
| | 1/19/2009 | 7,777 | – | \$ 12.24 | 1/19/2019 |
| | 2/19/2010 | 8,888 | – | \$ 13.23 | 2/19/2020 |
| | 2/25/2011 | 15,555 | – | \$ 11.21 | 2/25/2021 |
| | 2/27/2012 | 3,055 | – | \$ 9.27 | 2/22/2022 |
| | 6/15/2012 | 8,055 | – | \$ 9.68 | 6/15/2022 |
| | 5/6/2013 | 17,777 | – | \$ 4.37 | 5/6/2023 |
| | 2/11/2014 | 40,000 | – | \$ 3.66 | 2/11/2024 |
| | 6/20/2014 | 50,000 | – | \$ 3.50 | 6/20/2024 |
| | 3/17/2015 | 33,334 | 16,666(1) | \$ 2.45 | 3/17/2025 |
| | 2/2/2016 | 16,666 | 33,444(1) | \$ 1.33 | 2/2/2026 |
| | 9/6/2016 | 40,663 | –(2) | \$ 1.22 | 9/6/2026 |
| Khursheed Anwer | 6/20/2014 | 17,500 | 22,500(3) | \$ 3.50 | 6/20/2024 |
| | 3/17/2015 | 12,500 | 25,000(4) | \$ 2.45 | 3/17/2025 |
| | 2/2/2016 | 13,333 | 26,667(1) | \$ 1.33 | 2/2/2026 |

- (1) Each of these stock options vests in three equal installments, with the first installment vesting on the date of grant and an additional installment vesting on each of the first two anniversaries thereafter.
- (2) Each of these stock options vested on the date of grant
- (3) These stock options vests in five installments, with the first installment of 10,000 vesting on the date of grant and an additional 7,500 installment vesting on each of the first four anniversaries thereafter.
- (4) These stock options vest in three annual installments commencing on the first anniversary of the date of grant.

The following table summarizes the unvested stock grants held by each of the Named Executive Officers as of December 31, 2016. None of the Named Executive Officers held any other outstanding stock grants as of December 31, 2016.

| Name | Grant Date | Stock Awards | |
|-----------------|------------|---|---|
| | | Number of Shares or Units of Stock That Have Not Vested | Market Value of Shares or Units of Stock That Have Not Vested |
| Khursheed Anwer | 6/20/2014 | 35,000(1) | \$ 10,500 |

(1) This amount represents a restricted stock award granted to Dr. Anwer under the 2007 Plan on June 20, 2014. This award will vest on the third anniversary of the grant date, subject to Dr. Anwer's continued employment through such date.

Option Exercises and Stock Vested

None of the Named Executive Officers exercised any of their stock options that vested during 2016. During 2016, Mr. Tardugno, Mr. Church and Dr. Borys were each granted 25,000, 12,000 and 12,000 fully vested shares of common stock, respectively, with a grant date fair value of \$1.33 per share.

Potential Payments Upon Termination or Change in Control

As described above under "Narrative Disclosure to Executive Compensation Tables," the Company has entered into agreements with each of the Named Executive Officers currently employed by the Company that provide benefits that may become payable to the executives in connection with a termination of their employment. The Company has also entered into agreements with Mr. Tardugno, Mr. Church and Dr. Borys that provides benefits that may become payable to the executives in connection with a termination of employment following a change in control of the Company. If in the event the Named Executive Officer is entitled to receive severance benefits in connection with a termination of employment under both their severance agreement and their change in control agreement, the executive shall be entitled to receive the benefits from both agreements. The first table below indicates the benefits that would be payable to each executive if a termination of employment in the circumstances described above had occurred on December 31, 2016 outside of a change in control. The second table below indicates the benefits that would be payable to each executive if a change in control of the Company and such a termination of employment had occurred on that date.

| Severance Benefits (Outside of a Change in Control) Name | Cash Severance | Continuation of Health/Life Benefit | Equity Acceleration | Total |
|---|----------------|-------------------------------------|---------------------|------------|
| Michael H. Tardugno | \$ 501,023 | \$ 12,852 | – | \$ 513,875 |
| Jeffrey W. Church | \$ 168,195 | \$ 9,132 | – | \$ 177,327 |
| Nicholas Borys | \$ 187,521 | \$ 9,324 | – | \$ 196,845 |
| Khursheed Anwer | \$ 308,519 | \$ 19,008 | – | \$ 327,527 |

| Change of Control Severance Benefits Name | Cash Severance | Continuation of Health/Life Benefit | Equity Acceleration | Total |
|--|----------------|-------------------------------------|---------------------|--------------|
| Michael H. Tardugno | \$ 1,503,069 | \$ 12,852 | – | \$ 1,515,921 |
| Jeffrey W. Church | \$ 807,336 | \$ 18,264 | – | \$ 825,600 |
| Nicholas Borys | \$ 900,101 | \$ 18,648 | – | \$ 918,749 |

2016 Director Compensation Table

The following table sets forth the cash and noncash compensation paid to the Company's directors who are not employed by the Company or any of its subsidiaries ("Non-Employee Directors") for the year ended December 31, 2016. The compensation paid to any director who was also one of our employees during fiscal year 2016 is presented in the "Summary Compensation Table" and the information that follows that table. Such employee directors do not receive separate compensation for service on the Board or any of its committees.

| Name | Fees Earned (\$) | Stock Grants (\$ (1)) | Option Awards (\$ (2)) | Total (\$) |
|---------------------|---------------------|--------------------------|---------------------------|------------|
| Augustine Chow | \$ 39,400 | \$ 6,650 | \$ 51,592 | \$ 97,642 |
| Robert W. Hooper | 43,400 | 6,650 | 40,213 | 90,263 |
| Alberto R. Martinez | 39,400 | 6,650 | 36,420 | 82,470 |
| Frederick J. Fritz | 102,900 | 6,650 | 34,144 | 143,694 |
| Donald P. Braun | 35,400 | 6,650 | – | 42,050 |
| Andreas Voss | 41,900 | 6,650 | – | 48,550 |

- (1) During 2016, each Director was awarded a stock grant of 5,000 vested shares of common stock from the 2007 Plan. The grant date fair value of each award was \$1.33 per share.
- (2) The value reported for Stock and Option Awards is the aggregate grant date fair value of stock awards and stock options, respectively, granted to the Named Executive Officers in the years shown, determined in accordance with FASB ASC Topic 718, disregarding adjustments for forfeiture assumptions. The assumptions for making the valuation determinations are set forth in the Note 11 in the financial statements in the Company's 2015 Annual Report on Form 10-K filed with the SEC on March 30, 2016 and in the Company's Quarterly Report for the period ended September 30, 2016 on Form 10-Q filed with the SEC on November 10, 2016.

The following table sets forth stock options and grants awarded to the Company's Non-Employee Directors for the year ended December 31, 2016. The stock option grants to any director who was also one of our employees during fiscal year 2016 is presented in the "2016 Grants of Plan-Based Awards Table" and the information that follows that table. Employee directors do not receive separate option awards for service on the Board or any of its committees.

| Name | Non-Employee Director Stock Option and Grant Awards Table | | | | | | |
|-------------------------|---|---------------------------------|-------------------|---------------|--------------------|--------------------------|------|
| | Number of Stock Awards Granted | Number of Options Granted | Exercise Price | Grant Date | Expiration Date | Grant Date Fair Value | |
| Augustine Chow | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |
| | | | 25,000(2) | 1.33 | 2/2/2016 | 2/2/2026 | 1.03 |
| | | | 22,664(3) | 1.22 | 9/6/2016 | 9/6/2026 | 1.14 |
| Robert W. Hooper | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |
| | | | 25,000(2) | 1.33 | 2/2/2016 | 2/2/2026 | 1.03 |
| | | | 12,665(3) | 1.22 | 9/6/2016 | 9/6/2026 | 1.14 |
| Alberto R. Martinez (1) | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |
| | | | 25,000(2) | 1.33 | 2/2/2016 | 2/2/2026 | 1.03 |
| | | | 9,332(3) | 1.22 | 9/6/2016 | 9/6/2026 | 1.14 |
| Frederick J. Fritz (1) | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |
| | | | 25,000(2) | 1.33 | 2/2/2016 | 2/2/2026 | 1.03 |
| | | | 7,332(3) | 1.22 | 9/6/2016 | 9/6/2026 | 1.14 |
| Donald P. Braun (1) | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |
| Andreas Voss (1) | 5,000(1) | | \$ – | 2/2/2016 | 2/2/2026 | \$ 1.33 | |

- (1) During 2016, each Director was awarded a stock grant of 5,000 vested shares of common stock from the 2007 Plan. The grant date fair value of each award was \$1.33 per share.
- (2) Each of these stock option grants vest in three equal installments, with one-third of the grant vesting on the date of grant and the remainder vesting in two annual installments thereafter.
- (3) Each of these stock option grants vest on the date of grant.

The following table presents the aggregate number of outstanding unexercised (vested and unvested) options held by each of our Non-Employee Directors as of December 31, 2016. None of the Non-Employee Directors held any other outstanding stock awards on that date.

| Director | Number of Stock Options Outstanding |
|---------------------|---|
| Augustine Chow | 158,215 |
| Robert W. Hooper | 131,551 |
| Alberto R. Martinez | 122,663 |
| Frederick J. Fritz | 117,330 |
| Donald P. Braun | 40,000 |
| Andreas Voss | 40,000 |

During the year ended December 31, 2016, each Non-Employee Director of the Company received annual cash compensation in the amount of \$27,500 payable in quarterly installments, and an additional \$1,100 or \$1,700 for attendance, telephonically or in person, respectively, at regular meetings of the Board of Directors and each meeting of a committee of the Board of Directors that was not held in conjunction with a meeting of the Board of Directors. Each Non-Employee director is reimbursed for the out-of-pocket costs of attending meetings of the Board of Directors and of committees of the Board of Directors. The Chairman of the Audit Committee received an additional annual cash fee of \$10,500, the Chairman of the Nominating and Corporate Governance Committee received an additional annual cash fee of \$6,000, the Chairman of the Compensation Committee received an additional annual cash fee of \$8,000 and the Chairman of the Science and Technology Committee received an additional annual cash fee of \$6,500 in 2016. Mr. Fritz also received fees totaling \$48,000 for strategic and tactical advisory services to the Company.

Equity Compensation Plan Information as of December 31, 2016

| Plan Category | Number of securities to be issued upon exercise of outstanding options, warrants and rights (a) | Weighted-average exercise price of outstanding options, warrants and rights (b) | Number of Securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c) |
|--|---|---|--|
| Equity compensation plans approved by security holders | 2,902,272(1) | \$ 4.05 | 535,925(2) |
| Equity compensation plans not approved by security holders | 95,555(3) | 10.89 | — |
| Total | 2,997,827 | \$ 4.27 | 535,925 |

- (1) Includes both vested and unvested options to purchase Common Stock under the 2001 Plan, the 2004 Plan and the 2007 Plan. These options have a weighted average remaining term of 7.2 years.
- (2) Represents shares available for award grant purposes under the 2007 Plan. Subject to certain express limits of the plan, shares available under the plan generally may be used for any type of award authorized under that plan including options, stock appreciation rights, restricted stock and other forms of awards granted or denominated in shares of our common stock or units of our common stock.
- (3) Includes the grant of an option to purchase 95,555 shares of our Common Stock (after giving effect to the reverse stock split announced by the Company on October 28, 2013) to Mr. Tardugno on January 3, 2007. The option was approved by our Board of Directors as an inducement to Mr. Tardugno to join the Company and was not approved by stockholders. The option vested over the four-year period following the grant date and has a per-share exercise price of \$10.89 and a maximum term of ten years. These options expired on January 3, 2017.

Compensation Committee Interlocks and Insider Participation

Mr. Hooper and Drs. Chow and Martinez each served on the Compensation Committee of the Board of Directors for 2016. No director who served on our Compensation Committee at any time during 2016 is or was a current or former executive officer or employee of the Company, or had any relationships requiring disclosure by the Company under the SEC's rules requiring disclosure of certain relationships and related party transactions. None of the members of the Compensation Committee during fiscal year 2016 was, or has ever been, an officer or employee of the Company, and, during fiscal year 2016, no executive officer of the Company served on the board and/or compensation committee of any company that employed as an executive officer any member of the Company's Board and/or Compensation Committee.

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 112,500,000 shares of common stock, \$0.01 par value per share, and 100,000 shares of preferred stock, \$0.01 par value per share. As of September 30, 2016, there were 26,060,573 shares of our common stock outstanding and no shares of preferred stock outstanding.

The following summary description of our capital stock is based on the applicable provisions of the Delaware General Corporation Law, as amended (the “DGCL”), and on the provisions of our certificate of incorporation, as amended (our “certificate of incorporation”), and our bylaws, as amended (our “bylaws”). This information is qualified entirely by reference to the applicable provisions of the DGCL, our certificate of incorporation and bylaws. For information on how to obtain copies of our certificate of incorporation and bylaws, which are exhibits to the registration statement of which this prospectus is a part, see the section titled “Where You Can Find More Information” in this prospectus.

Common Stock

Holders of common stock to be registered hereunder are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Subject to any preferential rights of any outstanding preferred stock, holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the board of directors of the Company (our board) out of funds legally available therefor. In the event of a dissolution, liquidation or winding-up of the Company, holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities and any preferential rights of any outstanding preferred stock.

Holders of common stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which may be designated and issued in the future.

Preferred Stock

Pursuant to our certificate of incorporation, our board has the authority, without further action by the stockholders (unless such stockholder action is required by applicable law or NASDAQ rules), to designate and issue shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the designations, powers (including voting), privileges, preferences and relative participating, optional or other rights, if any, of the shares of each such series and the qualifications, limitations or restrictions thereof and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

The DGCL provides that the holders of preferred stock will have the right to vote separately as a class or, in some cases, as a series on an amendment to our certificate of incorporation if the amendment would change the par value or, unless our certificate of incorporation provides otherwise, the number of authorized shares of the class or the powers, preferences or special rights of the class or series so as to adversely affect the class or series, as the case may be. This right is in addition to any voting rights that may be provided in the applicable certificate of designation.

Our board may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock or other securities. Preferred stock could be issued quickly with terms designed to delay or prevent a change in control of our company or make removal of management more difficult. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of our common stock.

Anti-Takeover Considerations and Special Provisions of Our Certificate of Incorporation, Our Bylaws and the Delaware General Corporation Law

Certificate of Incorporation and Bylaws

A number of provisions of our certificate of incorporation and bylaws concern matters of corporate governance and the rights of our stockholders. Provisions that grant our board the ability to issue shares of preferred stock and to set the voting rights, preferences and other terms thereof may discourage takeover attempts that are not first approved by our board, including takeovers that may be considered by some stockholders to be in their best interests, such as those attempts that might result in a premium over the market price for the shares held by stockholders. Certain provisions could delay or impede the removal of incumbent directors even if such removal would be beneficial to our stockholders, such as the classification of our board and the lack of cumulative voting. Since our board has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management.

These provisions may have the effect of deterring hostile takeovers or delaying changes in our control or in our management. These provisions are intended to enhance the likelihood of continued stability in the composition of our board and in the policies they implement and to discourage certain types of transactions that may involve an actual or threatened change of our control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

These provisions also could discourage or make more difficult a merger, tender offer or proxy contest, even if they could be favorable to the interests of stockholders, and could potentially depress the market price of our common stock. Our board believes that these provisions are appropriate to protect our interests and the interests of our stockholders.

Classification of Board; No Cumulative Voting. Our certificate of incorporation and bylaws provide for our board to be divided into three classes, with staggered three-year terms. Only one class of directors is elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders representing a majority of the shares of common stock outstanding will be able to elect all of our directors due to be elected at each annual meeting of our stockholders.

Meetings of and Actions by Stockholders. Our bylaws provide that annual meetings of our stockholders may take place at the time and place designated by our board. A special meeting of our stockholders may be called at any time by our board, the chairman of our board or the president. Our bylaws provide that (i) our board can fix separate record dates for determining stockholders entitled to receive notice of a stockholder meeting and for determining stockholders entitled to vote at the meeting; (ii) we may hold a stockholder meeting by means of remote communications; (iii) any stockholder seeking to have the stockholders authorize or take corporate action by written consent shall, by written notice to the secretary of the Company, request that the board fix a record date and the board shall adopt a resolution fixing the record date in all events within ten calendar days after a request is received; and (iv) a written consent of stockholders shall not be effective unless a written consent signed by a sufficient number of stockholders to take such action is received by us within 60 calendar days of the earliest dated written consent received.

Advance Notice Requirements for Stockholder Proposals and Director Nominations. Our bylaws provide that stockholders seeking to bring business before an annual meeting of stockholders or to nominate candidates for election as directors at an annual meeting of stockholders must provide timely notice in writing. To be timely, a stockholder's notice must be delivered to, or mailed and received by, the secretary of the Company at our principal executive offices not later than the close of business on the 90th calendar day, nor earlier than the close of business on the 120th calendar day in advance of the date specified in the Company's proxy statement released to stockholders in connection with the previous year's annual meeting of stockholders. If the date of the annual meeting is more than 30 calendar days before or after such anniversary date, notice by the stockholder to be timely must be so not earlier than the close of business on the 120th calendar day in advance of such date of annual meeting and not later than the close of business on the later of the 90th calendar day in advance of such date of annual meeting or the tenth calendar day following the date on which public announcement of the date of the meeting is made. In no event shall the public announcement of an adjournment or postponement of an annual meeting commence a new time period (or extend any time period) for the giving of an advance notice by any stockholder. Any stockholder that proposes director nominations or other business must be a stockholder of record at the time the advance notice is delivered by such stockholder to us and entitled to vote at the meeting. Our bylaws also specify requirements as to the form and content of a stockholder's notice. These provisions may preclude stockholders from bringing matters before an annual meeting of stockholders or from making nominations for the election of directors at an annual meeting of stockholders. Unless otherwise required by law, any director nomination or other business shall not be made or transacted if the stockholder (or a qualified representative of the stockholder) does not appear at the meeting to present the director nominee or other proposed business.

Filling of Board Vacancies. Our certificate of incorporation and bylaws provide that the authorized size of our board shall be determined by the board by board resolution from time to time and that our board has the exclusive power to fill any vacancies and newly created directorships resulting from any increase in the authorized number of directors and the stockholders do not have the power to fill such vacancies. Vacancies in our board and newly created directorships resulting from any increase in the authorized number of directors on our board may be filled by a majority of the directors remaining in office, even though that number may be less than a quorum of our board, or by a sole remaining director. A director so elected to fill a vacancy shall serve for the remaining term of the predecessor he or she replaced and until his or her successor is elected and has qualified, or until his or her earlier resignation, removal or death.

Amendment of the Certificate of Incorporation. Our certificate of incorporation may be amended, altered, changed or repealed at a meeting of our stockholders entitled to vote thereon by the affirmative vote of a majority of the outstanding stock entitled to vote thereon and a majority of the outstanding stock of each class entitled to vote thereon as a class, in the manner prescribed by the DGCL.

Amendment of the Bylaws. Our bylaws may be amended or repealed, or new bylaws may be adopted, by either our board or the affirmative vote of at least 66 2/3 percent of the voting power of our outstanding shares of capital stock.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the DGCL, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion 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 began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) pursuant to employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3 percent of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, lease, transfer, pledge or other disposition of ten percent or more of the assets of the corporation to or with the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 of the DGCL defines an “interested stockholder” as an entity or person who, together with the entity’s or person’s affiliates and associates, beneficially owns, or is an affiliate of the corporation and within three years prior to the time of determination of interested stockholder status did own, 15 percent or more of the outstanding voting stock of the corporation.

A Delaware corporation may “opt out” of these provisions with an express provision in its certificate of incorporation. We have not opted out of these provisions, which may as a result, discourage or prevent mergers or other takeover or change of control attempts of us.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC (“AST”), located at 6201 15th Avenue, Brooklyn, New York 11219. AST’s phone number is (800) 937-5449.

NASDAQ Capital Market Listing

Our common stock is listed on NASDAQ under the symbol "CLSN." We do not plan on applying to list the base warrants or the pre-funded warrants on NASDAQ, any national securities exchange or any other nationally recognized trading system.

DESCRIPTION OF SECURITIES WE ARE OFFERING

We are offering (i) shares of our common stock, (ii) pre-funded warrants to purchase shares of our common stock and (iii) base warrants to purchase shares of our common stock. Each share of common stock and each pre-funded warrant is being sold together with a base warrant to purchase _____ of a share of common stock. The shares of common stock and base warrants will be issued separately. We are also registering the shares of common stock issuable from time to time upon exercise of the base warrants and pre-funded warrants offered hereby.

Common Stock

The material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock are described under the caption "Description of Capital Stock" in this prospectus.

Warrants

The following summary of certain terms and provisions of warrants that are being offered hereby, including the pre-funded warrants and the base warrants being offered together with our common stock and the pre-funded warrants, is not complete and is subject to, and qualified in its entirety by, the provisions of the base warrants and the pre-funded warrants, the forms of which are filed as exhibits to the registration statement of which this prospectus forms a part. We refer in this section to the warrants offered together with our common stock and the pre-funded warrants as the base warrants, and we refer to the pre-funded warrants and the base warrants together as the warrants. Prospective investors should carefully review the terms and provisions of the form of warrant for a complete description of the terms and conditions of the warrants.

Duration and Exercise Price. Each base warrant offered hereby will have an exercise price per share equal to _____ % of the last reported sale price of our common stock as of the close of the trading day immediately preceding the pricing of this offering. Each pre-funded warrant offered hereby will have an exercise price of \$0.01 per share. The base warrants will be immediately exercisable and will expire on the fifth anniversary of the original issuance date. The pre-funded warrants will be immediately exercisable and will expire on the _____ anniversary of the original issuance date, subject to a 90 day extension if, on the expiration date, the holder's exercise in full would cause the holder to own more than the maximum percentage ownership allowed under the terms of the pre-funded warrants. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price. The base warrants will be issued separately from the common stock and the pre-funded warrants, and all of the warrants may be transferred separately immediately thereafter. A base warrant to purchase _____ of a share of our common stock will be issued for every one share sold in this offering.

Exercisability. The base warrants and the pre-funded warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of a base warrant or a pre-funded warrant to the extent that the holder would own more than _____ of the outstanding common stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase or decrease the amount of ownership of outstanding stock after exercising the holder's warrants, as applicable, up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will round down to the next whole share.

Cashless Exercise. If, at the time a holder exercises its warrant, there is no effective registration statement registering, or the prospectus contained therein is not available for an issuance of the shares underlying the warrant to the holder, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the warrant.

Fundamental Transactions. In the event of any fundamental transaction, as described in the warrants and generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our common stock, then upon any subsequent exercise of a warrant, the holder will have the right to receive as alternative consideration, for each share of our common stock that would have been issuable upon such exercise immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of our company, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of our common stock for which the warrant is exercisable immediately prior to such event. In addition, in the event of a fundamental transaction, we or any successor entity will be required to purchase, at a holder's option, exercisable at any time concurrently with or within thirty (30) days after the consummation of the fundamental transaction, such holder's warrants for cash in an amount equal to the value of the unexercised portion of such holder's warrants, determined in accordance with the Black Scholes option pricing model as specified in the warrants.

Transferability. Subject to applicable laws and the restriction on transfer set forth in the warrant, the warrant may be transferred at the option of the holder upon surrender of the warrant to us together with the appropriate instruments of transfer.

Listing. We do not plan on applying to list the base warrants or the pre-funded warrants on NASDAQ, any national securities exchange or any other nationally recognized trading system. Without an active trading market, the liquidity of the base warrants and the pre-funded warrants will be limited.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holders of at least a majority of the then-outstanding warrants.

PLAN OF DISTRIBUTION

Pursuant to a placement agency agreement, dated June 6, 2016, as amended from time to time, we have engaged H.C. Wainwright & Co., LLC to act as our exclusive lead placement agent in connection with this offering of our shares of common stock and base warrants pursuant to this registration statement. Maxim Group LLC acts as co-placement agent in connection with this offering. The placement agents have agreed to be our exclusive placement agents on a reasonable best efforts basis, in connection with the issuance and sale by us of the securities being offered in this registration statement. The terms of this offering were subject to market conditions and negotiations between us, the placement agents and prospective investors. The placement agents do not have any commitment to purchase any of our securities, and the placement agents will have no authority to bind us by virtue of the placement agency agreement. Further, the placement agents do not guarantee that they will be able to raise new capital in any prospective offering. The placement agents may engage sub-agents or selected dealers to assist with the offering.

Investors purchasing \$ _____ or more of the securities offered hereby will execute a securities purchase agreement with us, providing such investors with certain representations, warranties and covenants from us, which representations, warranties and covenants will not be available to investors of lesser amounts of our securities. Therefore, investors purchasing \$ _____ or less of the securities shall rely solely on this prospectus in connection with the purchase of securities in the offering.

We will deliver the securities being issued to the investors upon receipt of investor funds for the purchase of the securities offered pursuant to this prospectus. We expect to deliver the securities being offered pursuant to this prospectus on or about _____, 2017.

We have agreed to pay the placement agent a total cash fee equal to 6.5% of the gross proceeds of this offering. We have also agreed to pay the placement agent a management fee equal to 1% of the gross proceeds of this offering and reimburse the lead placement agent (i) \$15,000 for its road show and other out-of-pocket expenses, (ii) up to \$50,000 for its legal fees and expenses and (iii) up to \$50,000 of non-accountable expenses.

Subject to the consummation of this offering, we have also agreed to give the lead placement agent a right of first refusal for three months or until June 12, 2017, whichever is sooner, to act as our lead placement agent for any further capital raising transactions undertaken by us; and tail compensation for three months or until June 12, 2017, whichever is sooner, in certain circumstances.

The placement agent acted as placement agent in our registered direct offering consummated in December 2016, for which it received cash compensation. Our co-placement agent has an advisory agreement with us for which it received, during the period of 180 days prior to the filing of our initial registration statement on Form S-1, and is expected to receive through the period ending 90 days following the effectiveness of this offering, \$125,000.

We have agreed to indemnify the placement agent and specified other persons against some civil liabilities, including liabilities under the Securities Act and the Exchange Act, and to contribute to payments that the placement agent may be required to make in respect of such liabilities.

The placement agents may be deemed to be underwriters within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by them and any profit realized on the resale of the securities sold by them while acting as principals might be deemed to be underwriting discounts or commissions under the Securities Act. As underwriters, the placement agents would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares of common stock and warrants by the placement agents acting as principals. Under these rules and regulations, the placement agents:

- may not engage in any stabilization activity in connection with our securities; and
- may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

Our common stock is listed on the Nasdaq Capital Market under the symbol "CLSN."

LEGAL MATTERS

The validity of the shares of our common stock, pre-funded warrants and related base warrants being offered by this prospectus will be passed upon for us by Sidley Austin LLP, Palo Alto, California. Sheppard, Mullin, Richter & Hampton, LLP, New York, New York is counsel for the placement agents in connection with this offering.

EXPERTS

Stegman & Company, an independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K, as amended by Amendment No. 1 on Form 10-K/A, for the year ended December 31, 2015, as set forth in their report, which is incorporated by reference in this prospectus. Our financial statements are incorporated herein by reference in reliance on Stegman & Company's report, given on their authority as experts in accounting and auditing.

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

We estimate that expenses in connection with the distribution described in this registration statement will be as set forth below. We will pay all of the expenses with respect to the distribution, and such amounts, with the exception of the SEC registration fee and FINRA fee, are estimates.

| | | |
|-------------------------------------|----|----------|
| SEC registration fee | \$ | 1,738.50 |
| FINRA filing fee | \$ | 2,750.00 |
| Accounting fees and expenses | \$ | |
| Legal fees and expenses | \$ | * |
| Printing and miscellaneous expenses | \$ | * |
| Miscellaneous | \$ | * |
| Total | \$ | * |

Item 14. Indemnification of Directors and Officers.

The Company is incorporated under the laws of the State of Delaware. Our bylaws provide that we shall indemnify, to the maximum extent and in the manner permitted by the Delaware General Corporation Law, as amended (the "DGCL"), our current and former directors and officers, and may indemnify our current and former employees and agents, against any and all expenses (including attorneys' fees), judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceeding arising from their services in those capacities.

The DGCL provides that a Delaware corporation has the power generally to indemnify its current and former directors, officers, employees and other agents (each, a "Corporate Agent") against expenses and liabilities, including amounts paid in settlement, in connection with any proceeding involving such person by reason of his being a Corporate Agent, other than a proceeding by or in the right of the corporation, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal proceeding, such person had no reasonable cause to believe his conduct was unlawful.

In the case of an action brought by or in the right of the corporation, indemnification of a Corporate Agent is permitted if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation. However, no indemnification is permitted in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation, unless and only to the extent that the court in which such proceeding was brought shall determine upon application that despite the adjudication of liability, but in view of all the circumstances of the case, such person is fairly and reasonably entitled to such indemnification.

To the extent that a Corporate Agent has been successful on the merits or otherwise in the defense of such proceeding, whether or not by or in the right of the corporation, or in the defense of any claim, issue or matter therein, the corporation is required to indemnify such person for expenses in connection therewith. Under the DGCL, the corporation may advance expenses incurred by a Corporate Agent in connection with a proceeding, provided that the Corporate Agent undertakes to repay such amount if it shall ultimately be determined that such person is not entitled to indemnification. Our certificate of incorporation requires us to advance expenses to any person entitled to indemnification, provided that such person undertakes to repay the advancement if it is determined in a final judicial decision from which there is no appeal that such person is not entitled to indemnification.

The power to indemnify and advance the expenses under the DGCL does not exclude other rights to which a Corporate Agent may be entitled to under our certificate of incorporation, by laws, agreement, vote of stockholders or disinterested directors or otherwise.

Our certificate of incorporation permits us to secure insurance on behalf of our directors, officers, employees and agents for any expense, liability or loss incurred in such capacities, whether or not the Company would have the power to indemnify such person against such liability under the provisions of the DGCL.

The purpose of these provisions is to assist us in retaining qualified individuals to serve as our directors, officers, employees and agents by limiting their exposure to personal liability for serving as such.

Item 15. Recent Sales of Unregistered Securities

On December 23, 2016, we issued and sold approximately 5.1 million shares of our common stock to several institutional investors for an aggregate purchase price of approximately \$1.8 million in a registered direct offering. In a concurrent private transaction, we sold to each investor warrants, each to purchase one share of our common stock. The warrants are initially exercisable six months following issuance, and terminate five and one-half years following issuance. The warrants have an exercise price of \$0.46 per share and are exercisable to purchase an aggregate of approximately 5.1 million shares of our common stock, subject to limited exceptions.

On June 13, 2016, the Company entered into a securities purchase agreement with investors, pursuant to which the Company issued and sold, in a registered direct offering, an aggregate of 2,311,764 shares of common stock, par value \$0.01 per share, of the Company (the “Common Stock”) at an offering price of \$1.36 per share for gross proceeds of approximately \$6.0 million before the deduction of the placement agent fee and offering expenses. In a concurrent private placement, the Company issued to the investor Series A warrants (the “June 2016 Series A Warrants”), each to purchase 0.5 share of Common Stock, Series C warrants (the “June 2016 Series C Warrants”), each to purchase one share of Common Stock, and Series D warrants (the “June 2016 Series D Warrants”), each to purchase 0.5 share of Common Stock (collectively, the “June 2016 Warrants”). The June 2016 Series A Warrants are initially exercisable six months following issuance and terminate five and one-half years following issuance. The June 2016 Series C Warrants are initially exercisable six months following issuance and terminate one year following issuance. The June 2016 Series D Warrants only become exercisable ratably upon the exercise of the June 2016 Series C Warrants, are initially exercisable six months following issuance, and terminate five and one-half years following issuance. The June 2016 Warrants have an exercise price of \$1.40 per share and are exercisable to purchase an aggregate of 8,823,528 shares of Common Stock.

The private placement of the June 2016 Warrants was structured to comply with the requirements of Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

On May 27, 2015, the Company entered into a securities purchase agreement with certain investors, pursuant to which the Company sold and issued on June 1, 2015, in a registered direct offering, an aggregate of 3,000,000 shares of the Company’s common stock at an offering price of \$2.675 per share for gross proceeds of approximately \$8.0 million before the deduction of the placement agent fee and offering expenses (the “May 2015 Offering”). In a concurrent private placement (the “Private Placement Transaction”), the Company agreed to issue to the investors certain warrants at an exercise price of \$2.60 per share. The warrants are exercisable to purchase 0.65 share of common stock for each share of common stock purchased in the May 2015 Offering for an aggregate of 1,950,000 shares of common stock. Each warrant will be exercisable on the date of its issuance until the five-year anniversary of the date of issuance. On July 10, 2015, the Company filed a registration statement on Form S-3 for the resale of any share of common stock issued upon exercise of the warrants on Form S-3 (File No. 333-205608) which was declared effective by the SEC on July 30, 2015.

The Private Placement Transaction was structured to comply with the requirements of Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

On June 20, 2014, we completed the acquisition of substantially all of the assets of Egen, Inc., an Alabama corporation (“EGEN”), pursuant to an Asset Purchase Agreement (the “EGEN Purchase Agreement”). CLSN Laboratories, Inc., a Delaware corporation and a wholly-owned subsidiary of Celsion (“CLSN Laboratories”), acquired all of EGEN’s right, title and interest in and to substantially all of the assets of EGEN, including cash and cash equivalents, accounts receivable, patents, trademarks and other intellectual property rights, clinical data, inventory and raw materials, certain contracts, licenses and permits, machinery, mobile and immobile equipment, furniture, office equipment, furnishings, transportation equipment, supplies and other tangible personal property (the “EGEN Acquisition”). In addition, CLSN Laboratories assumed certain specified liabilities of EGEN, including the liabilities arising out of the acquired contracts and other assets relating to periods after the closing date.

The total aggregate purchase price for the acquisition is up to \$44.4 million, which includes potential future payments of up to \$30.4 million contingent upon achievement of certain milestones set forth in the EGEN Purchase Agreement (the “Earnout Payments”). At the closing, Celsion paid approximately \$3.0 million in cash after the expense adjustment and issued 2,712,188 shares of common stock to EGEN. The shares of common stock were issued in a private transaction exempt from registration under the Securities Act pursuant to Section 4(a)(2) thereof. In addition, 670,070 shares of Celsion common stock are issuable to EGEN on or after August 2, 2016 pending satisfactory resolution of any post-closing adjustments of expenses and EGEN’s indemnification obligations under the EGEN Purchase Agreement. The Earnout Payments of up to \$30.4 million will become payable, in cash, shares of Celsion common stock or a combination thereof, at Celsion’s option, as follows: \$12.4 million will become payable upon achieving certain specified development milestones relating to an EGEN-001 ovarian cancer study to be conducted by Celsion or its subsidiary, \$12.0 million will become payable upon achieving certain specified development milestones relating to an EGEN-001 glioblastoma multiforme brain cancer study to be conducted by Celsion or its subsidiary, and up to \$6.0 million will become payable upon achieving certain specified milestones relating to the TheraSilence technology acquired from EGEN in the acquisition. Our obligations to make the Earnout Payments will terminate on the seventh anniversary of the closing date.

On November 25, 2013, we entered into a loan and security agreement with Hercules Technology Growth Capital, Inc. (“Hercules”) that would permit up to \$20 million in new capital to be distributed in multiple tranches (the “Hercules Credit Agreement”). Celsion drew the first tranche of \$5 million upon closing of the Hercules Credit Agreement on November 25, 2013 and used approximately \$4 million of the proceeds to repay the outstanding obligations under its loan agreement with Oxford Finance LLC and Horizon Technology Finance Corporation. On June 10, 2014, the Company closed the second \$5 million tranche under the Hercules Credit Agreement. The proceeds were used to fund the \$3.0 million upfront cash payment associated with Celsion’s acquisition of EGEN, as well as the Company’s transaction costs associated with the EGEN acquisition. Upon the closing of this second tranche, the Company has drawn down a total of \$10 million under the Hercules Credit Agreement.

As a fee in connection with the Hercules Credit Agreement, we issued Hercules a warrant (the “Warrant”) in a private transaction exempt from registration under the Securities Act, pursuant to Section 4(a)(2) thereof, exercisable for a total of 194,986 shares of Celsion’s common stock at a per share exercise price of \$3.59, with 50% immediately exercisable for cash or by net exercise from November 25, 2013 and the remaining 50% to be exercisable upon Hercules funding any subsequent tranches until the expiration of the Warrant on November 25, 2018. In connection with our borrowing of the additional \$5.0 million, the Warrant became exercisable by Hercules to purchase a total of 194,986 shares of our common stock.

Hercules has certain rights to register the common stock underlying the Warrant pursuant to a Registration Rights Agreement with Celsion dated November 25, 2013. The registration rights expire on the date when such stock may be sold under Rule 144 without restriction or upon the first year anniversary of the registration statement for such stock, whichever is earlier.

Item 16.

Reference is hereby made to the attached Exhibit Index, which is incorporated herein by reference.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

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

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the “Securities Act”);

(ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement; and

(iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

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

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

Each prospectus filed pursuant to Rule 424(b) as part of the registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of the securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act, the registrant has duly caused this amendment to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Lawrenceville, State of New Jersey, on January 20, 2017.

CELSION CORPORATION

By: /s/ Michael H. Tardugno
Michael H. Tardugno
Chairman of the Board, President and Chief
Executive Officer

By: /s/ Jeffrey W. Church
Jeffery W. Church
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

POWER OF ATTORNEY

IN WITNESS WHEREOF, each of the undersigned has executed this Power of Attorney as of the date indicated.

Pursuant to the requirements of the Securities Act, this amendment has been signed by the following persons in the capacities and on the dates indicated:

| <u>SIGNATURE</u> | <u>TITLE</u> | <u>DATE</u> |
|--|---|------------------|
| <u>*</u> Michael H. Tardugno | Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer) | January 20, 2017 |
| <u>*</u> Jeffrey W. Church | Senior Vice President, Chief Financial Officer and Corporate Secretary (Principal Financial Officer) | January 20, 2017 |
| <u>*</u> Timothy J. Tumminello | Controller and Chief Accounting Officer | January 20, 2017 |
| <u>*</u> Augustine Chow, MSc, Ph.D. | Director | January 20, 2017 |
| <u>*</u> Frederick J. Fritz | Director | January 20, 2017 |
| <u>*</u> Robert W. Hooper | Director | January 20, 2017 |
| <u>*</u> Alberto R. Martinez, M.D. | Director | January 20, 2017 |
| <u>*</u> Andrea Voss, M.D. | Director | January 20, 2017 |

* The undersigned does hereby sign this pre-effective amendment to the registration statement on behalf of each of the above indicated directors and officers of Celsion Corporation pursuant to a power of attorney executed by each such director and officer.

By: /s/ Jeffrey W. Church
Jeffrey W. Church
Attorney-in-fact

EXHIBIT INDEX

| EXHIBIT NUMBER | DESCRIPTION |
|----------------|--|
| 2.1* | Asset Purchase Agreement dated as of June 6, 2014, by and between Celsion Corporation and EGEN, Inc., incorporated herein by reference to Exhibit 2.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2014. |
| 3.1 | Certificate of Incorporation of Celsion, as amended, incorporated herein by reference to Exhibit 3.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2004. |
| 3.2 | Certificate of Ownership and Merger of Celsion Corporation (a Maryland Corporation) into Celsion (Delaware) Corporation (inter alia, changing the Company's name to "Celsion Corporation" from "Celsion (Delaware) Corporation), incorporated herein by reference to Exhibit 3.1.3 to the Annual Report on Form 10-K of the Company for the year ended September 30, 2000. |
| 3.3 | Certificate of Amendment of the Certificate of Incorporation effective on February 27, 2006, incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K of the Company filed with the SEC on March 1, 2006. |
| 3.4 | Certificate of Amendment to Certificate of Incorporation effective October 28, 2013, incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K of the Company, filed with the SEC on October 29, 2013. |
| 3.5 | Certificate of Amendment to Certificate of Incorporation effective June 15, 2016, incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K of the Company filed with the SEC on June 15, 2016. |
| 3.6 | Amended and Restated By-laws dated November 27, 2011, incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K of the Company, filed with the SEC on December 1, 2011. |
| 4.1 | Form of Common Stock Certificate, par value \$0.01, incorporated herein by reference to Exhibit 4.1 to the Annual Report on Form 10-K of the Company for the year ended September 30, 2000. |
| 4.2 | Form of Common Stock Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on September 28, 2009. |
| 4.3 | Registration Rights Agreement, dated June 17, 2010, by and between Celsion Corporation and Small Cap Biotech Value, Ltd., incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on June 18, 2010. |
| 4.4 | Form of Common Stock Warrant, incorporated herein by reference to Exhibit 4.2 to the Current Report on Form 8-K of the Company filed on January 18, 2011. |
| 4.5 | Form of Common Stock Warrant incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on June 2, 2011. |
| 4.6 | Registration Rights Agreement, dated May 26, 2011, by and among Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K of the Company filed on June 2, 2011. |
| 4.7 | Form of Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on July 6, 2011. |
| 4.8 | Registration Rights Agreement, dated July 25, 2011, by and between Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.3 to the Current Report on Form 8-K of the Company filed on July 26, 2011. |

- 4.9 Form of Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on July 26, 2011.
- 4.10 Form of Warrant to Purchase Common Stock, incorporated herein by reference to Exhibit 4.2 to the Current Report on Form 8-K of the Company filed on July 26, 2011.
- 4.11 Form Warrant to Purchase Common Stock Purchase, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K filed on December 6, 2011.
- 4.12 Registration Rights Agreement, dated December 1, 2011, by and between Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K of the Company filed on December 6, 2011.
- 4.13 Warrant to Purchase Stock, dated June 27, 2012, by and between Celsion Corporation and Oxford Financing LLC, incorporated herein by reference to Exhibit 4.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2012.
- 4.14 Warrant to Purchase Stock, dated June 27, 2012, by and between Celsion Corporation and Horizon Technology Finance Corporation, incorporated herein by reference to Exhibit 4.2 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2012.
- 4.15 Form of Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on February 26, 2013.
- 4.16 Form of Series A Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on January 21, 2014.
- 4.17 Form of Series B Warrant, incorporated herein by reference to Exhibit 4.2 to the Current Report on Form 8-K of the Company filed on January 21, 2014.
- 4.18 Warrant Agreement to Purchase Shares of the Common Stock dated as of November 25, 2013, by and between Celsion Corporation and Hercules Technology Growth Capital, Inc., incorporated herein by reference to Exhibit 4.2 to the Registration Statement on Form S-3 (File No.: 333-193936) filed on February 13, 2014.
- 4.19 Registration Agreement dated as of November 25, 2013, by and between Celsion Corporation and Hercules Technology Growth Capital, Inc., incorporated herein by reference to Exhibit 4.3 to the Registration Statement on Form S-3 (File No.: 333-193936) filed on February 13, 2014.
- 4.20 Registration Rights Agreement dated as of June 20, 2014, by and between Celsion Corporation and Egen, Inc., incorporated herein by reference to Exhibit 4.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2014.
- 4.21 Form of Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed on May 29, 2015.
- 4.22 Form of Series A Warrant, incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K of the Company filed with the SEC on June 17, 2016.
- 4.23 Form of Series B Warrant, incorporated herein by reference to Exhibit 4.2 to the Current Report on Form 8-K of the Company filed with the SEC on June 17, 2016.
- 4.24 Form of Series C Warrant, incorporated herein by reference to Exhibit 4.3 to the Current Report on Form 8-K of the Company filed with the SEC on June 17, 2016.
- 4.25 Form of Series D Warrant, incorporated herein by reference to Exhibit 4.4 to the Current Report on Form 8-K of the Company filed with the SEC on June 17, 2016.
- 4.26**** Form of Base Warrant.

- 4.27**** Form of Pre-Funded Warrant.
- 4.27**** Form of Securities Purchase Agreement.
- 4.28**** Placement Agency Agreement.
- 5.1+ Opinion of Sidley Austin LLP.
- 10.1*** Celsion Corporation 2004 Stock Incentive Plan, incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2004.
- 10.2*** Celsion Corporation 2007 Stock Incentive Plan, as amended, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on June 19, 2015.
- 10.3*** Form of Restricted Stock Agreement for Celsion Corporation 2004 Stock Incentive Plan, incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2006.
- 10.4*** Form of Stock Option Grant Agreement for Celsion Corporation 2004 Stock Incentive Plan, incorporated herein by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2006.
- 10.5*** Form of Restricted Stock Agreement for Celsion Corporation 2007 Stock Incentive Plan, incorporated herein by reference to Exhibit 10.1.5 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2007.
- 10.6*** Form of Stock Option Grant Agreement for Celsion Corporation 2007 Stock Incentive Plan, incorporated herein by reference to Exhibit 10.1.6 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2007.
- 10.7*** Stock Option Agreement effective January 3, 2007, between Celsion Corporation and Michael H. Tardugno, incorporated herein by reference Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on January 3, 2007.
- 10.8*** Amended and Restated Employment Agreement, effective March 30, 2016, between Celsion Corporation and Mr. Michael H. Tardugno, incorporated herein by reference Exhibit 10.8 to the Annual Report on Form 10-K of the Company filed on March 30, 2016.
- 10.9*** Employment Offer Letter, entered into on June 15, 2010, between the Company and Jeffrey W. Church, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on June 18, 2010.
- 10.10* Patent License Agreement between the Company and Duke University dated November 10, 1999, incorporated herein by reference to Exhibit 10.9 to the Annual Report on Form 10-K of the Company for the year ended September 30, 1999.
- 10.11* License Agreement dated July 18, 2003, between the Company and Duke University, incorporated herein by reference to Exhibit 10.1 to the Registration Statement of the Company (File No. 333-108318) filed on August 28, 2003.
- 10.12* Development, Product Supply and Commercialization Agreement, effective December 5, 2008, by and between the Company and Yakult Honsha Co., Ltd., incorporated herein by reference to Exhibit 10.15 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2008.
- 10.13* The 2nd Amendment To The Development, Product Supply And Commercialization Agreement, effective January 7, 2011, by and between the Company and Yakult Honsha Co., Ltd. incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on January 18, 2011.
- 10.14 Lease Agreement, executed July 21, 2011, by and between Celsion Corporation and Brandywine Operating Partnership, L.P., incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on July 25, 2011.

- 10.15*** Change in control severance agreement, dated November 29, 2011, by and between Celsion Corporation and Michael H. Tardugno, incorporated herein by reference to Exhibit 10.38 to the Annual Report on Form 10-K/A of the Company for the year ended December 31, 2011.
- 10.16*** Change in control severance agreement, dated November 29, 2011, by and between Celsion Corporation and Nicholas Borys, M.D., incorporated herein by reference to Exhibit 10.40 to the Annual Report on Form 10-K/A of the Company for the year ended December 31, 2011.
- 10.17*** Change in control severance agreement, dated November 29, 2011, by and between Celsion Corporation and Jeffrey W. Church, incorporated herein by reference to Exhibit 10.41 to the Annual Report on Form 10-K/A of the Company for the year ended December 31, 2011.
- 10.18* Technology Development Agreement effective as of May 7, 2012, by and between Celsion Corporation and Zhejiang Hisun Pharmaceutical Co. Ltd., incorporated herein by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2012.
- 10.19 Loan and Security Agreement, dated June 27, 2012, by and among Celsion Corporation, Oxford Finance LLC, as collateral agent, and the lenders named therein, incorporated herein by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of the Company for the quarter ended June 30, 2012.
- 10.20 Controlled Equity OfferingSM Sales Agreement, dated February 1, 2013, by and between Celsion Corporation and Cantor Fitzgerald & Co., incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on February 1, 2013.
- 10.21 Securities Purchase Agreement, dated February 22, 2013, by and among Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on February 26, 2013.
- 10.22* Technology Development Contract dated as of January 18, 2013, by and between Celsion Corporation and Zhejiang Hisun Pharmaceutical Co. Ltd., incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended March 31, 2013.
- 10.23 Loan and Security Agreement dated as of November 25, 2013, by and between Celsion Corporation and Hercules Technology Growth Capital, Inc., incorporated herein by reference to Exhibit 10.28 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2013.
- 10.24 Securities Purchase Agreement dated as of January 15, 2014, by and between Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on January 21, 2014.
- 10.25*** Employment Offer Letter effective as of June 2, 2014, between the Company and Khurshed Anwer incorporated herein by reference to Exhibit 10.27 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2014.
- 10.26* Early Access Agreement dated as of January 13, 2015, by and between the Company and Impatiens N.V., incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q/A of the Company for the quarter ended March 31, 2015.
- 10.27 Securities Purchase Agreement dated as of May 27, 2015, by and among Celsion Corporation and the purchasers named therein, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed on May 29, 2015.
- 10.28 Securities Purchase Agreement dated as of June 13, 2016, by and among the Company and the purchasers named therein, incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of the Company filed with the SEC on June 17, 2016.
- 10.29*** Amended and Restated Change in Control Agreement dated as of September 6, 2016, by and between the Company and Michael H. Tardugno, incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2016.

- 10.30*** Amended and Restated Change in Control Agreement dated as of September 6, 2016, by and between the Company and Nicholas Borys, M.D., incorporated herein by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2016.
- 10.31*** Amended and Restated Change in Control Agreement dated as of September 6, 2016, by and between the Company and Jeffrey W. Church, incorporated herein by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2016.
- 10.32*** Amended and Restated Change in Control Agreement dated as of September 6, 2016, by and between the Company and Timothy J Tumminello, incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2016.
- 21.1 Subsidiaries of Celsion Corporation incorporated herein by reference to Exhibit 21.1 to the Annual Report on Form 10-K of the Company for the year ended December 31, 2015.
- 23.1+ Consent of Stegman & Company, independent registered public accounting firm for the Company.
- 23.2 Consent of Sidley Austin LLP (included in Exhibit 5.1).
- 24.1 Power of Attorney (included on the signature page hereto).
- 101** The following materials from the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015, formatted in XBRL (Extensible Business Reporting Language): (i) the audited Consolidated Balance Sheets, (ii) the audited Consolidated Statements of Operations, (iii) the audited Consolidated Statements of Comprehensive Loss, (iv) the audited Consolidated Statements of Cash Flows, (v) the audited Consolidated Statements of Changes in Stockholders' Equity and (vi) Notes to Consolidated Financial Statements.
- * Portions of this exhibit have been omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Securities Exchange Act and the omitted material has been separately filed with the SEC.
- + Filed herewith.
- ** Exhibit 101 was previously filed with the Annual Report on Form 10-K filed with the SEC on March 30, 2016, which is being amended hereby.
- *** Management contract or compensatory plan or arrangement.
- **** To be filed by amendment.



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SAN FRANCISCO
 SHANGHAI
 SINGAPORE
 SYDNEY
 TOKYO
 WASHINGTON, D.C.

FOUNDED 1866

January 20, 2017

Celsion Corporation
 997 Lenox Drive, Suite 100
 Lawrenceville, NJ 08648

Re: Registration Statement on Form S-1

Ladies and Gentlemen:

We refer to the Registration Statement on Form S-1, File No. 333-215321, filed by Celsion Corporation, a Delaware corporation (the "Company"), on December 23, 2016 with the Securities and Exchange Commission (the "SEC") under the Securities Act of 1933, as amended (the "Securities Act"), as amended by Pre-Effective Amendment No. 1 being filed with the SEC on the date hereof (as amended, the "Registration Statement"). The Registration Statement relates to the registration under the Securities Act of: (i) shares of Common Stock, \$0.01 par value per share of the Company (the "Common Stock"), (ii) base warrants to purchase shares of Common Stock (the "Base Warrants") and (iii) pre-funded warrants to purchase shares of Common Stock (the "Pre-Funded Warrants"), to be offered and sold at an aggregate price of up to \$15,000,000 (such shares of Common Stock, the shares of Common Stock underlying the Base Warrants and the shares of Common Stock underlying the Pre-Funded Warrants are collectively referred to herein as the "Shares").

This opinion letter is being delivered in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act.

We have examined and relied upon copies of the Registration Statement, the exhibits thereto, the form of Base Warrant, the form of Pre-Funded Warrant, the Company's certificate of incorporation, as in effect on the date hereof (the "Certificate of Incorporation"), the Company's amended and restated bylaws, as in effect on the date hereof (the "Bylaws") and the resolutions adopted by the board of directors of the Company relating to the Registration Statement and the issuance of the Shares, the Base Warrants and the Pre-Funded Warrants by the Company (the "Resolutions"). We have also examined originals, or copies of originals certified to our satisfaction, of such agreements, documents, certificates and statements of the Company and other corporate documents and instruments, and have examined such questions of law, as we have considered relevant and necessary as a basis for this opinion letter. We have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures, the legal capacity of all persons and the conformity with the original documents of any copies thereof submitted to us for examination. As to facts relevant to the opinions expressed herein, we have relied without independent investigation or verification upon, and assumed the accuracy and completeness of, certificates, letters and oral and written statements and representations of public officials and officers and other representatives of the Company.

Sidley Austin (CA) LLP is a Delaware limited liability partnership doing business as Sidley Austin LLP and practicing in affiliation with other Sidley Austin partnerships.

Based on and subject to the foregoing and the other limitations, qualifications and assumptions set forth herein, we are of the opinion that:

1. The Shares will be validly issued, fully paid and non-assessable when (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) the Company's board of directors or a duly authorized committee thereof shall have duly adopted final resolutions authorizing the issuance and sale of the Shares as contemplated by the Registration Statement; and (iii) certificates representing the Shares shall have been duly executed, countersigned and registered and duly delivered to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof, or, if any Shares are to be issued in uncertificated form, the Company's books shall reflect the issuance of such Shares to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof.

2. The Base Warrants will constitute valid and binding obligations of the Company when (i) the Registration Statement as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) the Company's board of directors or a duly authorized committee thereof shall have duly adopted final resolutions authorizing the issuance and sale of such Base Warrants as contemplated by the Registration Statement; (iii) the actions described in paragraph 1 above shall have been taken; and (iv) certificates representing such issue of Base Warrants shall have been duly executed, countersigned and issued and duly delivered to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof.

3. The Pre-Funded Warrants will constitute valid and binding obligations of the Company when (i) the Registration Statement as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) the Company's board of directors or a duly authorized committee thereof shall have duly adopted final resolutions authorizing the issuance and sale of such Pre-Funded Warrants as contemplated by the Registration Statement; (iii) the actions described in paragraph 1 above shall have been taken; and (iv) certificates representing such issue of Pre-Funded Warrants shall have been duly executed, countersigned and issued and duly delivered to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof.

Our opinions are subject to bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance, fraudulent transfer and other similar laws relating to or affecting creditors' rights generally and to general equitable principles (regardless of whether considered in a proceeding in equity or at law), including concepts of commercial reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief.



Celsion Corporation
January 20, 2017
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For purposes of this opinion letter, we have assumed that (i) at the time of the issuance, sale and delivery of any Shares, the Certificate of Incorporation, the Bylaws and the Resolutions will not have been modified or amended and will be in full force and effect, that the consideration paid for each of the Shares will not be less than the par value thereof and that there will be a sufficient number of Shares authorized and then available for issuance under the Certificate of Incorporation and (ii) the Base Warrants and the Pre-Funded Warrants will each be in the form reviewed by us and will be governed by the laws of the State of New York, and that the Certificate of Incorporation, Bylaws and the Resolutions will not have been modified or amended and will be in full force and effect.

This opinion letter is limited to the General Corporation Law of the State of Delaware and the laws of the State of New York (excluding the securities laws of the State of New York). We express no opinion as to the laws, rules or regulations of any other jurisdiction, including, without limitation, the federal laws of the United States of America or any state securities or blue sky laws.

We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement and to all references to our Firm included in or made a part of the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

/s/ Sidley Austin LLP



CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Form S-1 and the related prospectus to be filed on January 20, 2017 by Celsion Corporation of our report dated March 30, 2016 relating to the financial statements included in Celsion Corporation's Annual Report on Form 10-K, as amended by Amendment No. 1 on Form 10K/A, for the year ended December 31, 2015. We also consent to reference to us under the heading "Experts" in such Registration Statement.

A handwritten signature in cursive script that reads "Stegman & Company".

Baltimore, Maryland
January 20, 2017

Suite 200, 809 Glen Eagles Court Baltimore, Maryland 21286 - 410-823-8000 - 1-800-686-3883 - Fax: 410-296-4815 - www.stegman.com

Member The logo for the American Group of Nations (AGN), featuring the letters "AGN" in a stylized font inside a circular emblem.