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SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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AMENDMENT NO. 2  
TO  
FORM S-1  
REGISTRATION STATEMENT  
UNDER THE SECURITIES ACT OF 1933

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**CELLECTAR BIOSCIENCES, INC.**  
*(Exact name of registrant as specified in its charter)*

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

**04-3321804**  
*(I.R.S. Employer  
Identification Number)*

**3301 Agriculture Drive  
Madison, WI 53716  
(608) 441-8120**  
*(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)*

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**James Caruso  
President and Chief Executive Officer  
3301 Agriculture Drive  
Madison, WI 53716  
(608) 441-8120**  
*(Name, address, including zip code, and telephone number,  
including area code, of agent for service)*

**Copies to:**

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Boston, Massachusetts 02210  
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*Approximate date of commencement of proposed sale to the public:* As soon as practicable after this registration statement is declared effective.

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

Smaller reporting company

(Do not check if a  
smaller reporting company)

**CALCULATION OF REGISTRATION FEE**

<b>Title of Each Class of Securities to be Registered (1)</b>	<b>Proposed Maximum Aggregate Offering Price (1)(2)</b>	<b>Amount of Registration Fee (2)(3)</b>
Common Stock, par value \$0.00001 per share	\$	\$
Preferred Stock, par value \$0.00001 per share		
Common Stock issuable upon conversion of Preferred Stock		
Warrants to purchase Common Stock		
Common Stock issuable upon exercise of Warrants		
Total	\$ 25,000,000	\$ 2,897.50

(1) Pursuant to Rule 416 under the Securities Act of 1933 (the "Securities Act"), the securities being registered hereunder include such indeterminate number of additional shares of common stock as may be issued after the date hereof as a result of stock splits, stock dividends or similar transactions.

(2) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price.

(3) Of this amount, \$1,159.00 has already been paid.

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**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, 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.**

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

**PROSPECTUS**

**SUBJECT TO COMPLETION, DATED NOVEMBER 18, 2016**

**Up to \$10,000,000 in Shares of Common Stock,  
Warrants to Purchase Shares of Common Stock and  
Shares of Series A Convertible Preferred Stock**



We are offering up to \_\_\_\_\_ shares of common stock, together with warrants (the “Series C Warrants”) to purchase \_\_\_\_\_ shares of common stock at a purchase price of \_\_\_\_\_ (and the shares issuable from time to time upon exercise of the warrants) pursuant to this prospectus. The shares and warrants will be separately issued, but the shares and warrants will be issued and sold to purchasers in the ratio of \_\_\_\_\_ to \_\_\_\_\_. Each Series C Warrant will have an exercise price of \_\_\_\_\_ per share, will be exercisable upon issuance and will expire five years from the date of issuance. The warrants will be issued in book-entry form pursuant to a warrant agency agreement between us and American Stock Transfer and Trust Company, as warrant agent, respectively.

We are also offering to those purchasers, whose purchase of shares of common stock in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% of our outstanding common stock following the consummation of this offering, the opportunity to purchase, if they so choose, in lieu of the shares of our common stock that would result in ownership in excess of 4.99%, shares of Series A Convertible Preferred Stock (“Series A Preferred Stock”), convertible at any time at the holder’s option into a number of shares of common stock equal to \$100,000 divided by \$ \_\_\_\_\_ (the “Conversion Price”), at a public offering price of \$ \_\_\_\_\_ per share of Series A Preferred Stock. Each share of Series A Preferred Stock is being sold together with the same Series C Warrants described above being sold with each share of common stock. Each share of Series A Preferred Stock entitles its holder to receive \_\_\_\_\_ shares of common stock.

Our common stock is listed on the Nasdaq Capital Market under the symbol “CLR.B.” On November 11, 2016, the last reported sale price of our common stock on the Nasdaq Capital Market was \$1.91 per share.

**Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page 9 of this prospectus for more information.**

**NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.**

	Per Share of Common Stock and Series C Warrant	Per Share of Series A Preferred Stock and Series C Warrant	Total
Public offering price	[●]	[●]	[●]
Underwriting discount	[●]	[●]	[●]
Proceeds, before expenses, to us	[●]	[●]	[●]

We have granted a 45-day option to the underwriter, to purchase up to an additional \_\_\_\_\_ shares of common stock and/or warrants from us solely to cover over-allotments, if any. The shares of common stock and/or warrants issuable upon exercise of the underwriter option are identical to those offered by this prospectus and have been registered under the registration statement of which this prospectus forms a part. If the underwriters exercise the option in full, the total discount and commission will be \$ \_\_\_\_\_ and the total net proceeds, before expenses, to us will be \$ \_\_\_\_\_.

The underwriter expects to deliver the shares and warrants to purchasers in the offering on or about \_\_\_\_\_, 2016.

*Sole Bookrunner*

**LADENBURG THALMANN**

*Co-Manager*

**Aegis Capital Corp.**

The date of this prospectus is November \_\_\_\_\_, 2016.



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No dealer, salesperson or other person has been authorized to give any information or to make any representations other than those contained in this prospectus in connection with the offer contained in this prospectus and, if given or made, such information or representations must not be relied upon as having been authorized by us.

Neither the delivery of this prospectus nor any sale made hereunder shall under any circumstances create an implication that there has been no change in our affairs since the date hereof. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy securities other than those specifically offered hereby or of any securities offered hereby in any jurisdiction where, or to any person to whom, it is unlawful to make such offer or solicitation. The information contained in this prospectus speaks only as of the date of this prospectus unless the information specifically indicates that another date applies. In this prospectus, references to “Collectar Biosciences, Inc.,” “Collectar Bio,” “the Company,” “we,” “us,” and “our,” refer to Collectar Biosciences, Inc.

This prospectus has been prepared based on information provided by us and by other sources that we believe are reliable. This prospectus summarizes certain documents and other information in a manner we believe to be accurate, but we refer you to the actual documents, if any, for a more complete understanding of what we discuss in this prospectus. All of such documents are filed as exhibits to the registration statement of which this prospectus is a part. In making a decision to invest in the securities offered in this prospectus, you must rely on your own examination of us and the terms of the offering and securities offered in this prospectus, including the merits and risks involved.

We are not making any representation to you regarding the legality of an investment in the securities offered in this prospectus under any legal investment or similar laws or regulations. You should not consider any information in this prospectus to be legal, business, tax or other advice. You should consult your own attorney, business advisor and tax advisor for legal, business and tax advice regarding an investment in our securities. You may only rely on the information contained in or incorporated by reference into this prospectus or that we have referred you to.

You should also read and consider the information in the documents to which we have referred you under the captions “Where You Can Find More Information” and “Incorporation of Documents by Reference” in this prospectus.

On March 4, 2016 at 5:00 p.m. Eastern Standard Time, the Company effected a reverse stock split at a ratio of 1-for-10. All share and per share information presented herein has been retroactively restated to reflect the reverse split.

## PROSPECTUS SUMMARY

*This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including the documents to which we have referred you under the headings “Where You Can Find More Information” and “Incorporation of Documents by Reference” and the information set forth under the headings “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in each case included elsewhere in this prospectus.*

**Please refer to the Glossary of Certain Scientific Terms on page [●] of this prospectus for definitions of certain technical and scientific terms used throughout this prospectus.**

### Overview

Collectar Biosciences, Inc. (the Company) is a clinical stage biopharmaceutical company focused on the development of targeted phospholipid drug conjugates (PDCs) for the treatment and imaging of cancer. The Company’s research and development program is based on its proprietary PDC cancer targeting delivery platform. The delivery platform possesses the potential for the discovery and development of a broad range of cancer targeting agents. The Company’s pipeline is comprised of pre-clinical and clinical product candidates including radiotherapeutic and chemotherapeutic PDC’s. The pipeline also includes diagnostic and optical imaging assets. The Company’s research and development resources are focused on the clinical advancement of its therapeutic PDC’s.

Our core Company strategy is to leverage our industry leading PDC, proprietary cancer targeting delivery platform to generate capital, supplement internal resources and accelerate and broaden product candidate clinical development through strategic asset and research collaborations.

Our shares are listed on the Nasdaq® Capital Market under the symbol CLRB; prior to August 15, 2014, our shares were quoted on the OTCQX® marketplace, and prior to February 12, 2014 were quoted under the symbol NVLT.

Our PDC platform is based on our cancer-targeting and delivery technology which provides selective delivery of a diverse range of oncologic payloads to cancer cells and cancer stem cells. By linking various drug payloads to our proprietary phospholipid ether cancer-targeting vehicle, we believe we can generate PDCs with the potential to provide highly targeted delivery of chemotherapeutic and radiotherapeutic payloads to a broad range of cancers. As a result, our PDC platform has the potential to improve the therapeutic index of drug payloads, enhancing or maintaining efficacy while reducing adverse events by minimizing drug delivery to healthy cells, increasing delivery to cancer cells and cancer stem cells in a broad range of cancerous tumors. The PDC product portfolio includes:

- CLR 131 is a small-molecule, broad-spectrum, cancer-targeting radiotherapeutic PDC that is designed to deliver cytotoxic (cell-killing) radiation directly and selectively to cancer cells and cancer stem cells. CLR 131 is our lead therapeutic PDC product candidate and is currently being evaluated in a Phase 1 study for the treatment of relapse or refractory multiple myeloma. Multiple myeloma is the second most common hematologic cancer and an incurable cancer of plasma cells. This cancer type was selected for clinical, regulatory and commercial rationales, including multiple myeloma’s highly radiosensitive nature, continued unmet medical need in the relapse/refractory setting and the receipt of an orphan drug designation. The primary goals of the Phase 1 study are to assess the compound’s safety and tolerability in patients with relapsed or refractory multiple myeloma. Secondary objectives includes establishment of a recommended Phase II dose, both with and without dexamethasone, as well as an assessment of therapeutic activity, including progression free survival (PFS) and efficacy endpoints. The Investigational New Drug (IND) application was accepted by the U.S. Food and Drug Administration (FDA) in March 2014. In December 2014, the FDA granted orphan drug designation for CLR 131 for the treatment of multiple myeloma. The Phase 1 study was initiated in April 2015 and we announced positive performance results from the first patient cohort in January 2016. The study’s Data Monitoring Committee (DMC), unanimously agreed to allow us to increase the dose of CLR 131 by 50% and advance into the second cohort. The DMC reviewed Cohort 2 patient data in September 2016, and unanimously agreed to allow us to increase the dose by 33% and advance to Cohort 3; patients are currently being enrolled. In July 2016, the Company was awarded a \$2,000,000 National Cancer Institute Fast-Track Small Business Innovation Research (SBIR) grant to further advance CLR 131. The funds will support a Phase 2 study the Company plans to initiate in the first half of 2017 to further define the clinical benefits of CLR 131 in multiple myeloma and other hematologic malignancies.

- The Company is exploring the creation of additional PDCs ranging from newly discovered to well-characterized chemotherapeutic payloads under its CLR CTX Chemotherapeutic PDC program. The objective of our CTX program is to develop PDC chemotherapeutics through conjugation of our delivery vehicle and non-targeted anti-cancer agents to improve therapeutic indices and expand potential indications through the targeted delivery of chemotherapeutic payloads. Initial CTX product candidates include CLR 1601-PTX, CLR 1602-PTX and CLR 1603-PTX; all are small-molecule, broad-spectrum, cancer-targeting chemotherapeutics in pre-clinical research. These PDCs are designed to selectively deliver paclitaxel, a chemotherapeutic payload to cancer cells and cancer stem cells to increase the therapeutic index of paclitaxel as a monotherapy. Each of our paclitaxel PDC's have been evaluated in vitro to demonstrate formulation stability and CLR 1602-PTX is currently being studied in vivo to further explore the PDC's cancer targeting selectivity. In December 2015, the Company initiated a research collaboration for our PDC technology with Pierre Fabre Laboratories, the third largest French pharmaceutical company. The objective of the research collaboration is to co-design a library of PDC's employing Pierre Fabre's natural product derived chemotherapeutics in combination with our proprietary cancer targeting delivery vehicle. The newly developed PDC's may provide enhanced therapeutic indices to otherwise highly potent, non-targeted payloads through the targeted delivery to cancer cells provided by our cancer targeted delivery vehicle.
- CLR 125 is a broad-spectrum, cancer-targeting radiotherapeutic currently under pre-clinical investigation for the treatment of micrometastatic disease. Similar to CLR 131, the selective uptake and retention of CLR 125 has been observed in malignant tissues during pre-clinical studies.
- CLR 124 is a small-molecule, broad-spectrum, cancer-targeting positron emission tomography (PET) imaging PDC that we believe has the potential to be the first of its kind for the selective detection of tumors and metastases in a broad range of cancers. CLR 124 has been used for PET/CT imaging in a broad array of tumor types through Company and investigator-sponsored clinical trials. We are in the process of evaluating the data from those studies. In April 2014, the FDA granted CLR 124 orphan status as a diagnostic for the management of glioma.
- CLR 1502 is a small-molecule, broad-spectrum, cancer-targeting near-infrared (NIR)-fluorophore optical imaging PDC for intraoperative tumor and tumor margin illumination. After review of the Company's IND application, the FDA determined that CLR 1502 will be evaluated as a combination product and assigned to the Center for Devices and Radiological Health (CDRH). As a result of this classification, the FDA has advised Collectar that it will need to submit a new investigational application for the combination product prior to initiating its Phase 1 study in breast cancer surgery. Collectar is working to identify the optimal clinical development and value optimizing strategic pathway. Based on our assessment, the Company believes that product will be similarly treated post marketing approval regardless of the regulatory pathway.

We believe our PDC platform has potential to provide targeted delivery of a diverse range of oncologic payloads, as exemplified by the product candidates listed above, that may result in improvements upon current standard of care (SOC) for the treatment and imaging of a broad range of human cancers.

### **Key Risks and Uncertainties**

We are subject to numerous risks and uncertainties, including the following:

- We will require additional capital in order to continue our operations, and may have difficulty raising additional capital;
- We are a clinical-stage company with a going concern qualification to our financial statements and a history of losses, and we can provide no assurance as to our future operating results;
- We have a history of recurring losses and an accumulated deficit, which, among other factors, raise substantial doubt about our ability to continue as a going concern, which in turn may hinder our ability to obtain future financing;
- We have had significant management turnover in the last year, we continue to depend on key personnel who may terminate their employment with us at any time and our success will depend on our ability to hire additional qualified personnel;
- At present, our success depends solely on the successful development and commercialization of our compounds in development, which cannot be assured;
- The failure to complete development of our technology, to obtain government approvals, including required FDA approvals, or to comply with ongoing governmental regulations could prevent, delay or limit the introduction or sale of proposed products and result in failure to achieve revenues or maintain our ongoing business;
- Clinical trials involve a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results;
- We may be required to suspend or discontinue clinical trials due to unexpected side effects or other safety risks that could preclude approval of our product candidates;
- We have limited in-house research and manufacturing capacity and will continue to rely, to some extent, on research and manufacturing facilities at various universities, hospitals, contract research organizations and contract manufacturers for a portion of our research, development and manufacturing. In the event we exceed our in-house capacity or lose access to those facilities, our ability to gain FDA approval and commercialization of our drug delivery technology and products could be delayed or impaired;



- We expect to rely heavily on orphan drug status to develop and commercialize our product candidates, but our orphan drug designations may not confer marketing exclusivity or other expected benefits;
- We are exposed to product, clinical and pre-clinical liability risks that could create a substantial financial burden should we be sued;
- Acceptance of our products in the marketplace is uncertain and failure to achieve market acceptance will prevent or delay our ability to generate revenues;
- We may face litigation from third parties who claim that our products infringe on their intellectual property rights, particularly because there is often substantial uncertainty about the validity and breadth of medical patents;
- If we are unable to protect or enforce our rights to intellectual property adequately or to secure rights to third-party patents, we may lose valuable rights, experience reduced market share, assuming any, or incur costly litigation to protect our intellectual property rights;
- Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete;
- We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers;
- The use of hazardous materials, including radioactive materials, in our research and development imposes certain compliance costs on us and may subject us to liability for claims arising from the use or misuse of these materials;
- Due to our limited marketing, sales and distribution experience, we may be unsuccessful in our efforts to sell our proposed products, enter into relationships with third parties or develop a direct sales organization;
- If we are unable to convince physicians of the benefits of our intended products, we may incur delays or additional expense in our attempt to establish market acceptance;
- The market for our proposed products is rapidly changing and competitive, and new therapeutics, new drugs and new treatments that may be developed by others could impair our ability to maintain and grow our business and remain competitive;
- If users of our products are unable to obtain adequate reimbursement from third-party payers, or if additional healthcare reform measures are adopted, it could hinder or prevent our product candidates' commercial success;
- Our stock price has experienced price fluctuations;
- Four of our stockholders own in the aggregate approximately 26% of our outstanding common stock, which limits the influence of other stockholders;
- If we fail to maintain effective internal controls over financial reporting, the price of our common stock may be adversely affected;
- We are required to comply with certain provisions of Section 404 of the Sarbanes-Oxley Act of 2002 and if we fail to continue to comply, our business could be harmed and our stock price could decline;
- Our common stock could be further diluted as the result of the issuance of additional shares of common stock, convertible securities, warrants or options;
- Provisions of our charter, bylaws, and Delaware law may make an acquisition of us or a change in our management more difficult; and
- We have not paid dividends in the past and do not expect to pay dividends for the foreseeable future. Any return on investment may be limited to the value of our common stock.

For more information regarding the material risks and uncertainties we face, please see "Risk Factors" beginning on page [●] of this prospectus.

### **Corporate Information**

Our headquarters and manufacturing operation is located at 3301 Agriculture Drive, Madison, Wisconsin 53716. We maintain a website at [www.cellectar.com](http://www.cellectar.com). The information included or referred to on, or accessible through, our website does not constitute part of, and is not incorporated by reference into, this prospectus.

## The Offering

<i>Securities offered by us:</i>	Up to      shares of our common stock or Series A Preferred Stock and Series C Warrants to purchase up to      shares of common stock.
<i>Description of Series C Warrants:</i>	The shares and warrants will be separately transferable immediately upon issuance, but the shares and warrants will be issued and sold to purchasers in the ratio of      to      . Each warrant will have an exercise price of      per share, will be exercisable upon issuance and will expire      from the date of issuance. The Series C Warrants are callable by us in certain circumstances.
<i>Description of Series A Preferred Stock:</i>	Each share of Series A Preferred Stock is convertible at any time at the holder's option into a number of shares of common stock equal to \$100,000 divided by the Conversion Price. Notwithstanding the foregoing, we shall not effect any conversion of Series A Preferred Stock, to the extent that, after giving effect to an attempted conversion, the holder of shares of Series A Preferred Stock (together with such holder's affiliates, and any persons acting as a group together with such holder or any of such holder's affiliates) would beneficially own a number of shares of our common stock in excess of 4.99% of the shares of our common stock then outstanding after giving effect to such exercise. For additional information, see "Description of Securities—Preferred Capital Stock" on page [●] of this prospectus. The Series A Preferred Stock is callable by us in certain circumstances.
<i>Shares of common stock outstanding before this offering:</i>	5,368,235 shares
<i>Shares of common stock to be outstanding after this offering:</i>	[●] shares
<i>Use of Proceeds:</i>	We expect to use the net proceeds received from this offering to fund our research and development activities and for general corporate purposes. For a more complete description of our anticipated use of proceeds from this offering, see "Use of Proceeds."
<i>Risk Factors:</i>	See "Risk Factors" beginning on page [●] and the other information included in this prospectus for a discussion of factors you should carefully consider before deciding whether to purchase our securities.
<i>NASDAQ symbol for our common stock:</i>	CLRB

Unless we specifically state otherwise, the share information in this prospectus, including the number of shares of common stock outstanding before this offering, is as of November 7, 2016 and reflects or assumes no exercise of outstanding options or warrants to purchase shares of our common stock.

The number of shares of our common stock outstanding before and after this offering is based on 5,368,235 shares of common stock outstanding as of November 7, 2016 and excludes, as of that date:

- an aggregate of 488,142 shares of common stock issuable upon the exercise of outstanding stock options issued to employees, directors and consultants;
- an aggregate of 4,629,842 additional shares of common stock reserved for issuance under outstanding warrants having expiration dates between December 6, 2016 and October 20, 2021, and exercise prices ranging from \$2.13 per share to \$250.00 per share.

### Summary Historical Financial Information

The following table summarizes our financial data. We derived the following summary of our statements of operations data for the nine months ended September 30, 2016 and 2015 and the summary of our balance sheet data as of September 30, 2016 from our unaudited consolidated financial statements, for the applicable periods, which have been incorporated by reference in this prospectus. We derived the following summary of our statements of operations data for the years ended December 31, 2015 and 2014 and the summary of our balance sheet data as of December 31, 2015 and 2014 from our audited consolidated financial statements, for the applicable periods, which have been incorporated by reference in this prospectus. The summary of our financial data set forth below should be read together with our financial statements and the related notes to those statements referred to under the heading “Documents Incorporated by Reference.”

	<b>Nine Months Ended</b>		<b>Year Ended</b>	
	<b>September 30,</b>		<b>December 31,</b>	
	<b>2016</b>	<b>2015</b>	<b>2015</b>	<b>2014</b>
	(Unaudited)			
<b>Statement of Operations Data:</b>				
Costs and expenses:				
Research and development	\$ 3,310,248	\$ 4,194,727	\$ 5,158,874	\$ 5,964,453
General and administrative	3,491,259	2,595,979	3,395,360	3,704,676
Restructuring costs	—	180,348	203,631	221,816
Total costs and expenses	<u>6,801,507</u>	<u>6,971,054</u>	<u>8,757,865</u>	<u>9,890,945</u>
Loss from operations	<u>(6,801,507)</u>	<u>(6,971,054)</u>	<u>(8,757,865)</u>	<u>(9,890,945)</u>
Other income:				
Gain on revaluation of derivative warrants	3,201,004	526,024	3,667,826	2,285,157
Loss on issuance of derivative warrants	—	—	(404,150)	—
Interest income (expense), net	5,303	(913)	(841)	(446,314)
Total other income, net	<u>3,206,307</u>	<u>525,111</u>	<u>3,262,835</u>	<u>1,838,843</u>
Net loss	<u>\$ (3,595,200)</u>	<u>\$ (6,445,943)</u>	<u>\$ (5,495,030)</u>	<u>\$ (8,052,102)</u>
Basic and diluted net loss per common share	<u>\$ (1.02)</u>	<u>\$ (8.53)</u>	<u>\$ (7.03)</u>	<u>\$ (17.53)</u>
Shares used in computing basic and diluted net loss per common share	<u>3,541,000</u>	<u>756,308</u>	<u>781,975</u>	<u>459,266</u>
	<b>September 30,</b>		<b>December 31,</b>	
	<b>2016</b>		<b>2015</b>	<b>2014</b>
	(Unaudited)			
<b>Balance Sheet Data:</b>				
Current assets	\$ 6,138,569		\$ 4,180,574	\$ 9,698,238
Working capital	4,712,886		(1,522,471)	3,465,232
Total assets	9,296,013		7,596,379	13,419,516
Long term debt, including current portion	147,939		330,222	450,000
Total stockholders' equity	7,716,572		1,649,803	6,697,533

## RISK FACTORS

### Risks Related to Our Business and Industry

#### **We will require additional capital in order to continue our operations, and may have difficulty raising additional capital.**

We expect that we will continue to generate operating losses for the foreseeable future. At September 30, 2016, our consolidated cash balance was approximately \$5,646,000. We believe our cash balance at September 30, 2016 is adequate to fund operations into the first quarter of 2017. We will require additional funds to conduct research and development, establish and conduct clinical and preclinical trials, establish commercial-scale manufacturing arrangements and provide for the marketing and distribution of our products. Our ability to execute our operating plan depends on our ability to obtain additional funding via the sale of equity and/or debt securities, a strategic transaction or otherwise. We plan to actively pursue financing alternatives. However, there can be no assurance that we will obtain the necessary funding in the amounts we seek or that it will be available on a timely basis or upon terms acceptable to us. If we obtain capital by issuing debt or preferred stock, the holders of such securities would likely obtain rights that are superior to those of holders of our common stock.

Our capital requirements and our ability to meet them depend on many factors, including:

- the number of potential products and technologies in development;
- continued progress and cost of our research and development programs;
- progress with preclinical studies and clinical trials;
- the time and costs involved in obtaining regulatory clearance;
- costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims;
- costs of developing sales, marketing and distribution channels and our ability to sell our drugs;
- costs involved in establishing manufacturing capabilities for clinical trial and commercial quantities of our drugs;
- competing technological and market developments;
- market acceptance of our products;
- costs for recruiting and retaining management, employees and consultants;
- costs for educating physicians regarding the application and use of our products;
- whether we are able to maintain our listing on a national exchange;
- uncertainty and economic instability resulting from terrorist acts and other acts of violence or war; and
- the condition of capital markets and the economy generally, both in the U.S. and globally.

We may consume available resources more rapidly than currently anticipated, resulting in the need for additional funding sooner than expected. We may seek to raise any necessary additional funds through the issuance of warrants, equity or debt financings or executing collaborative arrangements with corporate partners or other sources, which may be dilutive to existing stockholders or have a material effect on our current or future business prospects. In addition, in the event that additional funds are obtained through arrangements with collaborative partners or other sources, we may have to relinquish economic and/or proprietary rights to some of our technologies or products under development that we would otherwise seek to develop or commercialize by ourselves. If we cannot secure adequate financing when needed, we may be required to delay, scale back or eliminate one or more of our research and development programs or to enter into license or other arrangements with third parties to commercialize products or technologies that we would otherwise seek to develop ourselves and commercialize ourselves. In such an event, our business, prospects, financial condition, and results of operations may be adversely affected.

We will require additional funds to conduct research and development, establish and conduct preclinical and clinical trials, establish commercial-scale manufacturing arrangements and provide for the marketing and distribution of our products. Our ability to execute our operating plan depends on our ability to obtain additional funding via the sale of equity and/or debt securities, a strategic transaction or otherwise.

We have incurred net losses of approximately \$68.2 million, and negative cash flows since inception. We currently have no product revenues, and may not succeed in developing or commercializing any products that will generate product or licensing revenues. We do not expect to have any products on the market for several years. Our primary activity to date has been research and development and conducting clinical trials. Development of our product candidates requires a process of preclinical and clinical testing, during which our product candidates could fail. We may not be able to enter into agreements with one or more companies experienced in the manufacturing and marketing of therapeutic drugs and, to the extent that we are unable to do so, we may not be able to market our product candidates. We have experienced net losses and negative cash flows from operating activities since inception and we expect such losses and negative cash flows to continue for the foreseeable future. As of September 30, 2016, we had a stockholders' equity of approximately \$7,717,000. The operating loss for the nine months ended September 30, 2016 was approximately \$6,802,000 and we may never achieve profitability.

**We have received notices from Nasdaq of non-compliance with its continuing listing rules.**

On August 14, 2015 we received a notice from Nasdaq of non-compliance with its continuing listing rules, namely that our stockholders' equity at June 30, 2015 of \$2,373,371, as reported in our Form 10-Q for the quarter then ended, was less than \$2,500,000 minimum. The failure to meet continuing compliance standards subjects our common stock to delisting. The Company submitted a plan to Nasdaq to regain compliance, which was approved by Nasdaq that required a number of actions to be completed by February 10, 2016, including the filing of a registration statement with the SEC for an underwritten public offering of equity and the closing of that offering. The registration statement was timely filed, however the Company did not complete the offering by that date. Nasdaq issued a second notice of noncompliance on February 11, 2016, which the Company appealed. At a hearing on March 31, 2016, the Company requested, and Nasdaq subsequently granted, an extension of time to effect transactions to allow us to regain compliance and to report the same. On April 20, 2016, we closed the 2016 Underwritten Offering, and on May 16, 2016, Nasdaq issued a determination that the Company had evidenced compliance with all requirements for continued listing on The Nasdaq Capital Market and, accordingly, the listing qualifications matter had been closed.

On January 21, 2016 we received a notice from NASDAQ of non-compliance with its listing rules regarding the requirement that the listed securities maintain a minimum bid price of \$1 per share. Based upon the closing bid price for the 30 consecutive business days preceding the notice, the Company no longer met this requirement. However, the Rules also provide the Company a period of 180 calendar days in which to regain compliance. On March 4, 2016, the Company effected a reverse stock split at a ratio of 1-for-10, which, among other things, resulted in an increase in the bid price adequate to allow the Company to regain compliance with the minimum bid price requirement. On March 21, 2016, Nasdaq notified the Company that we had regained compliance with the minimum bid price requirement.

**We are a clinical-stage company with a going concern qualification to our financial statements and a history of losses, and we can provide no assurance as to our future operating results.**

We are a clinical-stage company and have incurred net losses and negative operating cash flows since inception. We currently have no product revenues, and may not succeed in developing or commercializing any products that will generate product or licensing revenues. We do not expect to have any products on the market for several years. Our primary activity to date has been research and development. In addition, development of our product candidates requires a process of pre-clinical and clinical testing, during which our product candidates could fail. We may not be able to enter into agreements with one or more companies experienced in the manufacturing and marketing of therapeutic drugs and, to the extent that we are unable to do so, we may not be able to market our product candidates. Whether we achieve profitability or not will depend on our success in developing, manufacturing, and marketing our product candidates.

**We have a history of recurring losses and an accumulated deficit, which, among other factors, raise substantial doubt about our ability to continue as a going concern, which in turn may hinder our ability to obtain future financing.**

Our financial statements as of December 31, 2015 were prepared under the assumption that we will continue as a going concern. The independent registered public accounting firm that audited our 2015 financial statements, in their report, included an explanatory paragraph referring to our recurring losses since inception and expressing substantial doubt in our ability to continue as a going concern. Our financial statements do not include any adjustments that might result from the outcome of this uncertainty. Our ability to continue as a going concern depends on our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce expenditures, and, ultimately, to generate revenue.

**We depend on key personnel who may terminate their employment with us at any time, and our success will depend on our ability to hire additional qualified personnel.**

Our success will depend to a significant degree on the continued services of our executive officers. There can be no assurance that these individuals will continue to provide services to us. In addition, our success may depend on our ability to attract and retain other highly skilled personnel. We may be unable to recruit such personnel on a timely basis, if at all. Our management and other employees may voluntarily terminate their employment with us at any time. The loss of services of key personnel, or the inability to attract and retain additional qualified personnel, could result in delays in development or approval of our products, loss of sales and diversion of management resources. To date, we have not experienced difficulties in attracting and retaining highly qualified personnel, but there can be no assurance we will be successful in doing so in the future.

At present, our success is dependent on one or more of the following to occur: The successful development of CLR 131 for the treatment of multiple myeloma or another cancer type, the development of new phospholipid drug conjugates, specifically new products developed from our CTX program and the advancement of our therapeutic or diagnostic imaging agents through research and development and/or commercialization partnerships, none of which can be assured.

We are focused on the development of radiotherapeutic and chemotherapeutic compounds for the treatment of cancer. We possess cancer diagnostic imaging agents also based on our PDC Platform. Our PDC platform is based on our cancer-targeting and delivery technology which provides selective delivery of a diverse range of oncologic payloads to cancer cells and cancer stem cells. By linking various payloads to our proprietary phospholipid ether cancer-targeting vehicle, we believe we can create PDCs with the potential to provide highly targeted delivery of chemotherapeutic and radiotherapeutic payloads to a broad range of cancers. As a result, our PDC platform has the potential to improve the therapeutic index of payloads by minimizing delivery to healthy cells while enhancing delivery to a broad range of cancers.

Our proposed products and their potential applications are in an early stage of clinical and manufacturing/process development and face a variety of risks and uncertainties. Principally, these risks include the following:

- future clinical trial results may show that our cancer-targeting technologies are not well tolerated by recipients at its effective doses or are not efficacious;
- future clinical trial results may be inconsistent with testing results obtained to-date;
- even if our cancer-targeting technologies are shown to be safe and effective for their intended purposes, we may face significant or unforeseen difficulties in obtaining or manufacturing sufficient quantities at reasonable prices or at all;
- our ability to complete the development and commercialization of our cancer-targeting technologies for their intended use is substantially dependent upon our ability to raise sufficient capital or to obtain and maintain experienced and committed partners to assist us with obtaining clinical and regulatory approvals for, and the manufacturing, marketing and distribution of, our products;
- even if our cancer-targeting technologies are successfully developed, commercially produced and receive all necessary regulatory approvals, there is no guarantee that there will be market acceptance of our products; and
- our competitors may develop therapeutics or other treatments which are superior or less costly than our own with the result that our product candidates, even if they are successfully developed, manufactured and approved, may not generate sufficient revenues to offset the development and manufacturing costs of our product candidates.

If we are unsuccessful in dealing with any of these risks, or if we are unable to successfully advance the development of our cancer-targeting technologies for some other reason, our business, prospects, financial condition, and results of operations may be adversely affected.

**The failure to complete development of our technology, to obtain government approvals, including required FDA approvals, or to comply with ongoing governmental regulations could prevent, delay or limit introduction or sale of proposed products and result in failure to achieve revenues or maintain our ongoing business.**

Our research and development activities and the manufacture and marketing of our intended products are subject to extensive regulation for safety, efficacy and quality by numerous government authorities in the U.S. and abroad. Before receiving clearance to market our proposed products by the FDA, we will have to demonstrate that our products are safe and effective for the patient population for the diseases that are to be treated. Clinical trials, manufacturing and marketing of drugs are subject to the rigorous testing and approval process of the FDA and equivalent foreign regulatory authorities. The Federal Food, Drug and Cosmetic Act and other federal, state and foreign statutes and regulations govern and influence the testing, manufacturing, labeling, advertising, distribution and promotion of drugs and medical devices. As a result, clinical trials and regulatory approval can take many years to accomplish and require the expenditure of substantial financial, managerial and other resources.

In order to be commercially viable, we must successfully research, develop, obtain regulatory approval for, manufacture, introduce, market and distribute our technologies. This includes meeting a number of critical developmental milestones including:

- demonstrating benefit from delivery of each specific drug for specific medical indications;
- demonstrating through pre-clinical and clinical trials that each drug is safe and effective; and
- demonstrating that we have established viable Good Manufacturing Practices capable of potential scale-up.

The timeframe necessary to achieve these developmental milestones may be long and uncertain, and we may not successfully complete these milestones for any of our intended products in development.

In addition to the risks previously discussed, our technology is subject to developmental risks that include the following:

- uncertainties arising from the rapidly growing scientific aspects of drug therapies and potential treatments;
- uncertainties arising as a result of the broad array of alternative potential treatments related to cancer and other diseases; and
- expense and time associated with the development and regulatory approval of treatments for cancer and other diseases.

In order to conduct the clinical trials that are necessary to obtain approval by the FDA to market a product, it is necessary to receive clearance from the FDA to conduct such clinical trials. The FDA can halt clinical trials at any time for safety reasons or because we or our clinical investigators do not follow the FDA's requirements for conducting clinical trials. If any of our trials are halted, we will not be able to obtain FDA approval until and unless we can address the FDA's concerns. If we are unable to receive clearance to conduct clinical trials for a product, we will not be able to achieve any revenue from such product in the U.S. as it is illegal to sell any drug for use in humans in the U.S. without FDA approval.

Even if we do ultimately receive FDA approval for any of our products, these products will be subject to extensive ongoing regulation, including regulations governing manufacturing, labeling, packaging, testing, dispensing, prescription and procurement quotas, record keeping, reporting, handling, shipment and disposal of any such drug. Failure to obtain and maintain required registrations or to comply with any applicable regulations could further delay or preclude development and commercialization of our drugs and subject us to enforcement action.

**Clinical trials involve a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.**

In order to obtain regulatory approval for the commercialization of our product candidates, we must conduct, at our own expense, extensive clinical trials to demonstrate safety and efficacy of these product candidates. Clinical testing is expensive, it can take many years to complete and its outcome is uncertain. Failure can occur at any time during the clinical trial process.

We may experience delays in clinical testing of our product candidates. We do not know whether planned clinical trials will begin on time, will need to be redesigned or will be completed on schedule, if at all. Clinical trials can be delayed for a variety of reasons, including delays in obtaining regulatory approval to commence a trial, in reaching agreement on acceptable clinical trial terms with prospective sites, in obtaining institutional review board approval to conduct a trial at a prospective site, in recruiting patients to participate in a trial or in obtaining sufficient supplies of clinical trial materials. Many factors affect patient enrollment, including the size of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, competing clinical trials and new drugs approved for the conditions we are investigating. Prescribing physicians will also have to decide to use our product candidates over existing drugs that have established safety and efficacy profiles. Any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and delay our ability to generate revenue.

In addition, the results of pre-clinical studies and early clinical trials of our product candidates do not necessarily predict the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through initial clinical testing. The data collected from clinical trials of our product candidates may not be sufficient to support the submission of a new drug application or to obtain regulatory approval in the United States or elsewhere. Because of the uncertainties associated with drug development and regulatory approval, we cannot determine if or when we will have an approved product for commercialization or achieve sales or profits.

Our clinical trials may not demonstrate sufficient levels of efficacy necessary to obtain the requisite regulatory approvals for our drugs, and our proposed drugs may not be approved for marketing.

**We may be required to suspend or discontinue clinical trials due to unexpected side effects or other safety risks that could preclude approval of our product candidates.**

Our clinical trials may be suspended at any time for a number of reasons. For example, we may voluntarily suspend or terminate our clinical trials if at any time we believe that they present an unacceptable risk to the clinical trial patients. In addition, regulatory agencies may order the temporary or permanent discontinuation of our clinical trials at any time if they believe that the clinical trials are not being conducted in accordance with applicable regulatory requirements or that they present an unacceptable safety risk to the clinical trial patients.

Administering any product candidates to humans may produce undesirable side effects. These side effects could interrupt, delay or halt clinical trials of our product candidates and could result in the FDA or other regulatory authorities denying further development or approval of our product candidates for any or all targeted indications. Ultimately, some or all of our product candidates may prove to be unsafe for human use. Moreover, we could be subject to significant liability if any volunteer or patient suffers, or appears to suffer, adverse health effects as a result of participating in our clinical trials.

**We have limited in-house research and manufacturing capacity and will continue to rely, to some extent, on research and manufacturing facilities at various universities, hospitals, contract research organizations and contract manufacturers for a portion of our research, development, and manufacturing. In the event we exceed our in-house capacity or lose access to those facilities, our ability to gain FDA approval and commercialization of our drug delivery technology and products could be delayed or impaired.**

We remain in the research and development and clinical and pre-clinical trial phase of product commercialization and have limited experience in establishing, supervising and conducting commercial manufacturing. Accordingly, if our products are approved for commercial sale, we will need to establish the capability, work with our existing contract manufacturer to expand their capability, or engage a contract manufacturer that has the capability, to commercially manufacture our products in accordance with FDA and other regulatory requirements. There can be no assurance that we would be able to successfully establish any such capability, or identify a suitable manufacturing partner on acceptable terms.

At the present time, we have limited research, development or manufacturing capabilities within our facilities. Our manufacturing facility in Madison, Wisconsin has capacity to supply drug product for Phase 2 studies of CLR 131. The Company would need to expand internal capacity for a Phase 3 study, or engage a third party current Good Manufacturing Practices (cGMP) manufacturing vendor. cGMP manufacturing of CLR 124 is currently conducted by our collaborator, the University of Wisconsin in Madison, using drug substance produced in our Madison manufacturing facility. CLR 1502 is synthesized at our facility in Madison, WI facility. We rely and expect to continue to rely, to some extent, on contracting with third parties to use their facilities to conduct research, development and manufacturing. The limited facilities we have to conduct research, development and manufacturing may delay or impair our ability to gain FDA approval and commercialization of our drug delivery technology and products.

We may rely on third-party contract research organizations, service providers and suppliers to support development and clinical testing of our products. This may expose us to the risks of not being able to directly oversee the production and quality of the manufacturing process. Furthermore, these contractors, whether foreign or domestic, may experience regulatory compliance difficulties, mechanical shutdowns, employee strikes or other unforeseeable acts that may delay production. Failure of any of these contractors to provide the required services in a timely manner or on commercially reasonable terms could materially delay the development and approval of our products, increase our expenses and materially harm our business, prospects, financial condition and results of operations.

We believe that we have a good working relationship with our contractors. However, should the situation change, we may be required to relocate these activities on short notice, and we do not currently have access to alternate facilities to which we could relocate our research, development and/or manufacturing activities. The cost and time to establish or locate an alternate research, development and/or manufacturing facility to develop our technology would be substantial and would delay obtaining FDA approval and commercializing our products.

**We expect to rely heavily on orphan drug status to develop and commercialize our product candidates, but our orphan drug designations may not confer marketing exclusivity or other expected commercial benefits.**

We expect to rely heavily on orphan drug exclusivity for our product candidates. Orphan drug status confers seven years of marketing exclusivity under the Federal Food, Drug, and Cosmetic Act, and up to ten years of marketing exclusivity in Europe for a particular product in a specified indication. We have been granted orphan drug designation in the United States for CLR 124 as a diagnostic for the management of glioma and for CLR 131 as a therapeutic for the treatment of multiple myeloma. While we have been granted these orphan designations, we will not be able to rely on them to exclude other companies from manufacturing or selling products using the same principal molecular structural features for the same indication beyond these timeframes. For any product candidate for which we have been or will be granted orphan drug designation in a particular indication, it is possible that another company also holding orphan drug designation for the same product candidate will receive marketing approval for the same indication before we do. If that were to happen, our applications for that indication may not be approved until the competing company's period of exclusivity expires. Even if we are the first to obtain marketing authorization for an orphan drug indication, there are circumstances under which a competing product may be approved for the same indication during the seven-year period of marketing exclusivity, such as if the later product is shown to be clinically superior to the orphan product, or if the later product is deemed a different product than ours. Further, the seven-year marketing exclusivity would not prevent competitors from obtaining approval of the same product candidate as ours for indications other than those in which we have been granted orphan drug designation, or for the use of other types of products in the same indications as our orphan product, or during such seven-year period for other indications.

**We are exposed to product, clinical and pre-clinical liability risks that could create a substantial financial burden should we be sued.**

Our business exposes us to potential product liability and other liability risks that are inherent in the testing, manufacturing and marketing of pharmaceutical products. In addition, the use, in our clinical trials, of pharmaceutical products that we or our current or potential collaborators may develop and then subsequently sell may cause us to bear a portion of or all product liability risks. While we carry an insurance policy covering up to \$5,000,000 per occurrence and \$5,000,000 in the aggregate of liability incurred in connection with such claims should they arise, there can be no assurance that our insurance will be adequate to cover all situations. Moreover, there can be no assurance that such insurance, or additional insurance, if required, will be available in the future or, if available, will be available on commercially reasonable terms. Furthermore, our current and potential partners with whom we have collaborative agreements or our future licensees may not be willing to indemnify us against these types of liabilities and may not themselves be sufficiently insured or have a net worth sufficient to satisfy any product liability claims. A successful product liability claim or series of claims brought against us could have a material adverse effect on our business, prospects, financial condition and results of operations.

**Acceptance of our products in the marketplace is uncertain and failure to achieve market acceptance will prevent or delay our ability to generate revenues.**

Our future financial performance will depend, at least in part, on the introduction and customer acceptance of our proposed products. Even if approved for marketing by the necessary regulatory authorities, our products may not achieve market acceptance. The degree of market acceptance will depend on a number of factors including:

- receiving regulatory clearance of marketing claims for the uses that we are developing;
- establishing and demonstrating the advantages, safety and efficacy of our technologies;
- pricing and reimbursement policies of government and third-party payers such as insurance companies, health maintenance organizations and other health plan administrators;
- our ability to attract corporate partners, including pharmaceutical companies, to assist in commercializing our intended products; and
- our ability to market our products.

Physicians, patients, payers, or the medical community in general, may be unwilling to accept, use or recommend any of our products. If we are unable to obtain regulatory approval or commercialize and market our proposed products as planned, we may not achieve any market acceptance or generate revenue.

**We may face litigation from third parties who claim that our products infringe on their intellectual property rights, particularly because there is often substantial uncertainty about the validity and breadth of medical patents.**

We may be exposed to future litigation by third parties based on claims that our technologies, products or activities infringe on the intellectual property rights of others or that we have misappropriated the trade secrets of others. This risk is exacerbated by the fact that the validity and breadth of claims covered in medical technology patents and the breadth and scope of trade-secret protection involve complex legal and factual questions for which important legal principles are unresolved. Any litigation or claims against us, whether or not valid, could result in substantial costs, could place a significant strain on our financial and managerial resources and could harm our reputation. The U. Mich. License does require, and license agreements that we may enter into in the future would likely require, that we pay the costs associated with defending this type of litigation. In addition, intellectual property litigation or claims could force us to do one or more of the following:

- cease selling, incorporating or using any of our technologies and/or products that incorporate the challenged intellectual property, which would adversely affect our ability to generate revenue;
- obtain a license from the holder of the infringed intellectual property right, which license may be costly or may not be available on reasonable terms, if at all; or
- redesign our products, which would be costly and time-consuming.

**If we are unable to protect or enforce our rights to intellectual property adequately or to secure rights to third-party patents, we may lose valuable rights, experience reduced market share, assuming any, or incur costly litigation to protect our intellectual property rights.**

Our ability to obtain licenses to patents, maintain trade-secret protection and operate without infringing the proprietary rights of others will be important to commercializing any products under development. Therefore, any disruption in access to the technology could substantially delay the development of our technology.

The patent positions of biotechnology and pharmaceutical companies, such as ours, that involve licensing agreements are frequently uncertain and involve complex legal and factual questions. In addition, the coverage claimed in a patent application can be significantly reduced before the patent is issued or in subsequent legal proceedings. Consequently, our patent applications and any issued and licensed patents may not provide protection against competitive technologies or may be held invalid if challenged or circumvented. To the extent we license patents from third parties, as in the case of the U. Mich. License, the early termination of any such license agreement would result in the loss of our rights to use the covered patents, which could severely delay, inhibit or eliminate our ability to develop and commercialize compounds based on the licensed patents. Our competitors may also independently develop products similar to ours or design around or otherwise circumvent patents issued or licensed to us. In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as U.S. law.

We also rely on trade secrets, technical know-how and continuing technological innovation to develop and maintain our competitive position. Although we generally require our employees, consultants, advisors and collaborators to execute appropriate confidentiality and assignment-of-inventions agreements, our competitors may independently develop substantially equivalent proprietary information and techniques, reverse engineer our information and techniques, or otherwise gain access to our proprietary technology. We may be unable to meaningfully protect our rights in trade secrets, technical know-how and other non-patented technology.

We may have to resort to litigation to protect our rights for certain intellectual property or to determine their scope, validity or enforceability of our intellectual property rights. Enforcing or defending our rights is expensive, could cause diversion of our resources and may not prove successful. Any failure to enforce or protect our rights could cause us to lose the ability to exclude others from using our technology to develop or sell competing products.

**Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.**

We operate in the highly technical field of research and development of small molecule drugs, and rely in part on trade-secret protection in order to protect our proprietary trade secrets and unpatented know-how. However, trade secrets are difficult to protect, and we cannot be certain that our competitors will not develop the same or similar technologies on their own. We have taken steps, including entering into confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors, to protect our trade secrets and unpatented know-how. These agreements generally require that the other party keep confidential and not disclose to third parties all confidential information developed by the party or made known to the party by us during the course of the party's relationship with us. We also typically obtain agreements from these parties that provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, these agreements may not be honored and may not effectively assign intellectual property rights to us. Enforcing a claim that a party has illegally obtained and is using our trade secrets or know-how is difficult, expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets or know-how. The failure to obtain or maintain trade-secret protection could adversely affect our competitive position.

**We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.**

As is common in the biotechnology and pharmaceutical industry, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that we or these employees have used or disclosed trade secrets or other proprietary information of their former employers, either inadvertently or otherwise. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

**The use of hazardous materials, including radioactive materials, in our research and development imposes certain compliance costs on us and may subject us to liability for claims arising from the use or misuse of these materials.**

Our research and development, manufacturing and administration of our drugs involve the controlled use of hazardous materials, including chemicals and radioactive materials, such as radioactive isotopes. We are subject to federal, state and local laws and regulations governing the storage, use and disposal of these materials and some waste products and are required to maintain both a manufacturer's license and a radioactive materials license with State of Wisconsin agencies. We believe that our safety procedures for the storage, use and disposal of these materials comply with the standards prescribed by federal, state and local regulations. However, we cannot completely eliminate the risk of accidental contamination or injury from these materials. If there were to be an accident, we could be held liable for any damages that result, which could exceed our financial resources. We currently maintain insurance coverage, with limits of up to \$2,500,000 depending on the nature of the claim, for damages resulting from the hazardous materials we use; however, future claims may exceed the amount of our coverage. Also, we do not have insurance coverage for pollution cleanup and removal. Currently the costs of complying with federal, state and local regulations are not significant, and consist primarily of waste disposal expenses and permitting fees. However, they could become expensive, and current or future environmental regulations may impair our research, development, production and commercialization efforts. If we are unable to maintain the required licenses and permits for any reason, it will negatively impact our research and development activities.

**Due to our limited marketing, sales and distribution experience, we may be unsuccessful in our efforts to sell our proposed products, enter into relationships with third parties or develop a direct sales organization.**

We have not established marketing, sales or distribution capabilities for our proposed products. Until such time as our proposed products are further along in the development process, we will not devote any meaningful time and resources to this effort. At the appropriate time, we will determine whether we will develop our own sales and marketing capabilities or enter into agreements with third parties to sell our products.

We have limited experience in developing, training or managing a sales force. If we choose to establish a direct sales force, we may incur substantial additional expenses in developing, training and managing such an organization. We may be unable to build a sales force on a cost-effective basis or at all. Any such direct marketing and sales efforts may prove to be unsuccessful. In addition, we will compete with many other companies that currently have extensive marketing and sales operations. Our marketing and sales efforts may be unable to compete against these other companies. We may be unable to establish a sufficient sales and marketing organization on a timely basis, if at all.

If we choose to enter into agreements with third parties to sell our proposed products, we may be unable to establish or maintain third-party relationships on a commercially reasonable basis, if at all. In addition, these third parties may have similar or more established relationships with our competitors.

We may be unable to engage qualified distributors. Even if engaged, these distributors may:

- fail to adequately market our products;
- fail to satisfy financial or contractual obligations to us;
- offer, design, manufacture or promote competing products; or
- cease operations with little or no notice.

If we fail to develop sales, marketing and distribution channels, we would experience delays in product sales and incur increased costs, which would have a material adverse effect on our business, prospects, financial condition, and results of operation.

**If we are unable to convince physicians of the benefits of our intended products, we may incur delays or additional expense in our attempt to establish market acceptance.**

Achieving use of our products in the target market of cancer diagnosis and treatment may require physicians to be informed regarding these products and their intended benefits. The time and cost of such an educational process may be substantial. Inability to successfully carry out this physician education process may adversely affect market acceptance of our proposed products. We may be unable to timely educate physicians regarding our intended proposed products in sufficient numbers to achieve our marketing plans or to achieve product acceptance. Any delay in physician education may materially delay or reduce demand for our proposed products. In addition, we may expend significant funds towards physician education before any acceptance or demand for our proposed products is created, if at all.

**The market for our proposed products is rapidly changing and competitive, and new therapeutics, new drugs and new treatments that may be developed by others could impair our ability to maintain and grow our business and remain competitive.**

The pharmaceutical and biotechnology industries are subject to rapid and substantial technological change. Developments by others may render our technologies and intended products noncompetitive or obsolete, or we may be unable to keep pace with technological developments or other market factors. Technological competition from pharmaceutical and biotechnology companies, universities, governmental entities and others diversifying into the field is intense and is expected to increase. Most of these entities have significantly greater research and development capabilities and budgets than we do, as well as substantially more marketing, manufacturing, financial and managerial resources. These entities represent significant competition for us. Acquisitions of, or investments in, competing pharmaceutical or biotechnology companies by large corporations could increase our competitors' financial, marketing, manufacturing and other resources.

Our resources are limited and we may experience management, operational or technical challenges inherent in such activities and novel technologies. Competitors have developed or are in the process of developing technologies that are, or in the future may be, the basis for competition. Some of these technologies may accomplish therapeutic effects similar to those of our technology, but through different means. Our competitors may develop drugs and drug delivery technologies that are more effective than our intended products and, therefore, present a serious competitive threat to us.

The potential widespread acceptance of therapies that are alternatives to ours may limit market acceptance of our products even if they are commercialized. Many of our targeted diseases and conditions can also be treated by other medication or drug delivery technologies. These treatments may be widely accepted in medical communities and have a longer history of use. The established use of these competitive drugs may limit the potential for our technologies and products to receive widespread acceptance if commercialized.

**If users of our products are unable to obtain adequate reimbursement from third-party payers, or if additional healthcare reform measures are adopted, it could hinder or prevent our product candidates' commercial success.**

The continuing efforts of government and insurance companies, health maintenance organizations and other payers of healthcare costs to contain or reduce costs of healthcare may adversely affect our ability to generate future revenues and achieve profitability, including by limiting the future revenues and profitability of our potential customers, suppliers and collaborative partners. For example, in certain foreign markets, pricing or profitability of prescription pharmaceuticals is subject to government control. The U.S. government is implementing, and other governments have shown significant interest in pursuing, healthcare reform. Any government-adopted reform measures could adversely affect the pricing of healthcare products and services in the U.S. or internationally and the amount of reimbursement available from governmental agencies or other third-party payers. The continuing efforts of the U.S. and foreign governments, insurance companies, managed care organizations and other payers of healthcare services to contain or reduce healthcare costs may adversely affect our ability to set prices for our products, should we be successful in commercializing them, and this would negatively affect our ability to generate revenues and achieve and maintain profitability.

New laws, regulations and judicial decisions, or new interpretations of existing laws, regulations and decisions, that relate to healthcare availability, methods of delivery or payment for healthcare products and services, or sales, marketing or pricing of healthcare products and services, also may limit our potential revenue and may require us to revise our research and development programs. The pricing and reimbursement environment may change in the future and become more challenging for several reasons, including policies advanced by the current or future executive administrations in the U.S., new healthcare legislation or fiscal challenges faced by government health administration authorities. Specifically, in both the U.S. and some foreign jurisdictions, there have been a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. In the U.S., changes in federal healthcare policy were enacted in 2010 and some are still being implemented. Some reforms could result in reduced reimbursement rates for our product candidates, which would adversely affect our business strategy, operations and financial results. Our ability to commercialize our products will depend in part on the extent to which appropriate reimbursement levels for the cost of our products and related treatment are obtained by governmental authorities, private health insurers and other organizations, such as health maintenance organizations (HMOs). Third-party payers are increasingly challenging the prices charged for medical drugs and services. Also, the trend toward managed healthcare in the U.S. and the concurrent growth of organizations such as HMOs that could control or significantly influence the purchase of healthcare services and drugs, as well as legislative proposals to reform healthcare or change government insurance programs, may all result in lower prices for or rejection of our drugs. The cost containment measures that healthcare payers and providers are instituting and the effect of any healthcare reform could materially harm our ability to operate profitably.

**Our stock price has experienced price fluctuations.**

There can be no assurance that the market price for our common stock will remain at its current level and a decrease in the market price could result in substantial losses for investors. The market price of our common stock may be significantly affected by one or more of the following factors:

- announcements or press releases relating to the biopharmaceutical sector or to our own business or prospects;
- regulatory, legislative, or other developments affecting us or the healthcare industry generally;
- sales by holders of restricted securities pursuant to effective registration statements, or exemptions from registration;
- market conditions specific to biopharmaceutical companies, the healthcare industry and the stock market generally; and
- our ability to maintain our status on the Nasdaq exchange.

## **Risks Related to Our Common Stock**

### **Four of our stockholders own approximately 26% of our outstanding common stock, which limits the influence of other stockholders.**

As of November 7, 2016, approximately 26% of our outstanding common stock is owned by four stockholders. The interests of these stockholders may differ from those of other stockholders. These stockholders will likely continue to have the ability to significantly affect the outcome of all corporate actions requiring stockholder approval, including the following actions:

- the election of directors;
- the amendment of charter documents; and
- the approval of certain mergers and other significant corporate transactions, including a sale of substantially all of our assets.

### **If we fail to maintain effective internal controls over financial reporting, the price of our common stock may be adversely affected.**

We identified a material weakness in our internal control over financial reporting, the disclosure of which may have an adverse impact on the price of our common stock. We are required to establish and maintain appropriate internal controls over financial reporting. Failure to establish those controls, or any failure of those controls once established, could adversely affect our public disclosures regarding our business, prospects, financial condition or results of operations. In addition, management's assessment of internal controls over financial reporting may identify weaknesses and conditions that need to be addressed in our internal controls over financial reporting or other matters that may raise concerns for investors. Any actual or perceived weaknesses and conditions that need to be addressed in our internal control over financial reporting or disclosure of management's assessment of our internal controls over financial reporting may have an adverse impact on the price of our common stock.

### **We are required to comply with certain provisions of Section 404 of the Sarbanes-Oxley Act of 2002 and if we fail to continue to comply, our business could be harmed and our stock price could decline.**

Rules adopted by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 require an annual assessment of internal controls over financial reporting, and for certain issuers an attestation of this assessment by the issuer's independent registered public accounting firm. The standards that must be met for management to assess the internal controls over financial reporting as effective are evolving and complex, and require significant documentation, testing, and possible remediation to meet the detailed standards. We expect to incur significant expenses and to devote resources to Section 404 compliance on an ongoing basis. It is difficult for us to predict how long it will take or costly it will be to complete the assessment of the effectiveness of our internal control over financial reporting for each year and to remediate any deficiencies in our internal control over financial reporting. As a result, we may not be able to complete the assessment and remediation process on a timely basis. In addition, although attestation requirements by our independent registered public accounting firm are not presently applicable to us we could become subject to these requirements in the future and we may encounter problems or delays in completing the implementation of any resulting changes to internal controls over financial reporting. In the event that our Chief Executive Officer or Chief Financial Officer determine that our internal control over financial reporting is not effective as defined under Section 404, we cannot predict how regulators will react or how the market prices of our shares will be affected; however, we believe that there is a risk that investor confidence and share value may be negatively affected.

### **Our common stock could be further diluted as the result of the issuance of additional shares of common stock, convertible securities, warrants or options.**

In the past, we have issued common stock, convertible securities (such as convertible preferred stock and notes) and warrants in order to raise capital. We have also issued options as compensation for services and incentive compensation for our employees and directors. We have shares of common stock reserved for issuance upon the exercise of certain of these securities and may increase the shares reserved for these purposes in the future. Our issuance of additional common stock, convertible securities, options and warrants could affect the rights of our stockholders, could reduce the market price of our common stock or could result in adjustments to exercise prices of outstanding warrants (resulting in these securities becoming exercisable for, as the case may be, a greater number of shares of our common stock), or could obligate us to issue additional shares of common stock to certain of our stockholders.

### **Provisions of our charter, bylaws, and Delaware law may make an acquisition of us or a change in our management more difficult.**

Certain provisions of our certificate of incorporation and bylaws could discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which an investor might otherwise receive a premium for their shares. These provisions also could limit the price that investors might be willing to pay in the future for shares of our common stock or warrants, thereby depressing the market price of our common stock. Stockholders who wish to participate in these transactions may not have the opportunity to do so.

Furthermore, these provisions could prevent or frustrate attempts by our stockholders to replace or remove our management. These provisions:

- provide for the division of our board into three classes as nearly equal in size as possible with staggered three-year terms and further limit the removal of directors and the filling of vacancies;
- authorize our board of directors to issue without stockholder approval blank-check preferred stock that, if issued, could operate as a “poison pill” to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that is not approved by our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit stockholder action by written consent;
- establish advance notice requirements for stockholder nominations to our board of directors or for stockholder proposals that can be acted on at stockholder meetings;
- limit who may call stockholder meetings; and
- require the approval of the holders of 75% of the outstanding shares of our capital stock entitled to vote in order to amend certain provisions of our certificate of incorporation and bylaws.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which may, unless certain criteria are met, prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a prescribed period of time.

**We have not paid dividends in the past and do not expect to pay dividends for the foreseeable future. Any return on investment may be limited to the value of our common stock.**

No cash dividends have been paid on our common stock. We do not expect to pay cash dividends in the near future. Payment of dividends would depend upon our profitability at the time, cash available for those dividends, and other factors as our board of directors may consider relevant. If we do not pay dividends, our common stock may be less valuable because a return on an investor’s investment will only occur if our stock price appreciates.

#### **Risks Related to this Offering**

**Our management team will have immediate and broad discretion over the use of the net proceeds from this offering and we may use the net proceeds in ways with which you disagree.**

The net proceeds from this offering will be immediately available to our management to use at their discretion. We currently intend to use the net proceeds from this offering to fund our research and development activities, for general corporate purposes, and possibly for acquisitions of other companies, products or technologies, though no such acquisitions are currently contemplated. See “Use of Proceeds.” We have not allocated specific amounts of the net proceeds from this offering for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for us or our stockholders. The failure of our management to use such funds effectively could have a material adverse effect on our business, prospects, financial condition, and results of operation.

**You will experience immediate and substantial dilution as a result of this offering and may experience additional dilution in the future.**

You will incur immediate and substantial dilution as a result of this offering. After giving effect to the sale by us of up to \$     in securities offered in this offering, at an assumed public offering price of \$     per share and warrant, and after deducting the underwriters discounts and commissions and other estimated offering expenses payable by us, investors in this offering can expect an immediate dilution of \$     per share, or     %, at the assumed public offering price, assuming no exercise of the warrants. In addition, in the past, we issued options and warrants to acquire shares of common stock. To the extent these options are ultimately exercised, you will sustain future dilution. We may also acquire or license other technologies or finance strategic alliances by issuing equity, which may result in additional dilution to our stockholders.

## FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Exchange Act. Such forward-looking statements include those that express plans, anticipation, intent, contingency, goals, targets or future development and/or otherwise are not statements of historical fact. These forward-looking statements are based on our current expectations and projections about future events and they are subject to risks and uncertainties known and unknown that could cause actual results and developments to differ materially from those expressed or implied in such statements.

In some cases, you can identify forward-looking statements by terminology, such as “expects,” “anticipates,” “intends,” “estimates,” “plans,” “believes,” “seeks,” “may,” “should”, “could” or the negative of such terms or other similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus.

You should read this prospectus and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus is accurate as of the date on the front cover of this prospectus or such prospectus supplement only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made, and we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. We qualify all of the information presented in this prospectus and any accompanying prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.

## USE OF PROCEEDS

Based on an assumed public offering price of \$     per share of common stock and warrant, we estimate that the net proceeds to us from the sale of the securities that we are offering, assuming gross proceeds of \$     million and no exercise of the overallotment option, will be approximately \$     million, after deducting underwriting discounts and commissions and estimated offering expenses. In addition, if all of the warrants offered pursuant to this prospectus are exercised in full for cash, we will receive approximately an additional \$     million in cash. However, the warrants contain a cashless exercise provision that permit exercise of warrants on a cashless basis at any time where there is no effective registration statement under the Securities Act of 1933, as amended, covering the issuance of the underlying shares.

We expect to use any proceeds received from this offering as follows:

- to fund our research and development activities, including the further development of CLR 131, and the research advancement of our CTX Program, including product candidates, CLR 1601-PTX and CLR 1602-PTX.
- for general corporate purposes, such as human resource acquisition to support organizational priorities, general and administrative expenses, capital expenditures, working capital, repayment of debt, prosecution and maintenance of our intellectual property, and the potential investment in technologies, products or collaborations that complement our business.

Even if we sell all of the securities subject to this offering, we will still need to obtain additional financing in the future in order to fully fund these product candidates through the regulatory approval process. We may seek such additional financing through public or private equity or debt offerings or other sources, including collaborative or other arrangements with corporate partners, and through government grants and contracts. There can be no assurance we will be able to obtain such additional financing. Although we currently anticipate that we will use the net proceeds of this offering as described above, there may be circumstances where a reallocation of funds may be necessary. The amounts and timing of our actual expenditures will depend upon numerous factors, including the progress of our development and commercialization efforts, the progress of our clinical studies, whether or not we enter into strategic collaborations or partnerships and our operating costs and expenditures. Accordingly, our management will have significant flexibility in applying the net proceeds of this offering.

The costs and timing of drug development and regulatory approval, particularly conducting clinical studies, are highly uncertain, are subject to substantial risks and can often change. Accordingly, we may change the allocation of use of these proceeds as a result of contingencies such as the progress and results of our clinical studies and other development activities, the establishment of collaborations, our manufacturing requirements and regulatory or competitive developments.

Pending the application of the net proceeds as described above or otherwise, we may invest the proceeds in short-term, investment-grade, interest-bearing securities or guaranteed obligations of the U.S. government or other securities.

## CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization, each as of September 30, 2016:

- on an actual basis; and
- a pro forma as adjusted basis to give effect to the adjustments described above and the issuance of the securities offered hereby.

You should consider this table in conjunction with our financial statements and the notes to those financial statements incorporated by reference in this prospectus.

	<b>As of September 30, 2016</b>	
	<b>(Unaudited)</b>	
	<b>Actual</b>	<b>Pro Forma, As Adjusted</b>
Cash and cash equivalents	\$ 5,645,968	\$
Notes payable	147,939	
Deferred rent	147,800	
Capital lease obligations	8,612	
Total debt obligations	304,351	
Stockholders' equity:		
Preferred stock, par value \$0.00001 per share: 7,000 shares authorized; none actual; [●] pro forma	—	
Common stock, par value \$0.00001 per share: 40,000,000 shares authorized; 5,368,235 actual; [●] pro forma	54	
Additional paid in capital	75,918,419	
Accumulated deficit	(68,201,901)	
Total stockholders' equity	7,716,572	
Total capitalization	\$ 8,020,923	\$

## MARKET FOR COMMON EQUITY

Prior to February 12, 2014, our stock was quoted under the ticker symbol NVLT; on that date, our ticker symbol was changed to CLRB in connection with the change in our corporate name. Our common stock was quoted under the CLRB ticker symbol on the OTCQX platform until August 15, 2014, since which time it has been listed on the NASDAQ Capital Market.

The following table provides, for the periods indicated, the high and low intraday sale prices for our common stock as reported by Nasdaq. Historical stock prices have been adjusted to give effect to a 1-for-10 reverse split of the Company's common stock effective at the close of business on March 4, 2016.

<b>Fiscal Year 2016</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 12.30	\$ 3.25
Second Quarter	5.05	1.00
Third Quarter	3.57	2.06
Fourth Quarter (through November 7, 2016)	2.91	1.50

  

<b>Fiscal Year 2015</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 32.90	\$ 21.50
Second Quarter	34.90	25.00
Third Quarter	38.90	1.80
Fourth Quarter	22.30	6.20

  

<b>Fiscal Year 2014</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 90.00	\$ 70.00
Second Quarter	92.00	60.00
Third Quarter	72.00	20.90
Fourth Quarter	37.00	17.60

On November 7, 2016 there were 345 holders of record of our common stock. This number does not include stockholders for whom shares were held in a "nominee" or "street" name.

We have not declared or paid any cash dividends on our common stock and do not anticipate declaring or paying any cash dividends in the foreseeable future. We currently expect to retain future earnings, if any, for the continued development of our business.

Our transfer agent and registrar is American Stock Transfer and Trust Company, 6201 15<sup>th</sup> Avenue, Brooklyn, NY 11219.

## DILUTION

Our net tangible book value as of September 30, 2016, was approximately \$6.2 million, or \$1.16 per share of common stock, based upon 5,368,235 shares outstanding. Net tangible book value per share is determined by dividing such number of outstanding shares of common stock into our net tangible book value, which is our total tangible assets, less total liabilities, excluding the derivative liability of \$187,650 at that date.

After giving effect to the sale of the securities in this offering at the public offering price of \$ per share of common stock, together with a warrant to purchase one share of common stock, excluding the exercise of the underwriter's overallotment option and after deducting underwriting discounts and commission and other estimated offering expenses payable by us, our adjusted net tangible book value at September 30, 2016 would have been approximately \$ million, or \$ per share. This represents an immediate decrease in net tangible book value of approximately \$ per share to our existing stockholders, and an immediate dilution of \$ per share to investors purchasing securities in the offering.

The following table illustrates the per share dilution to investors purchasing securities in the offering:

Assumed public offering price per share of common stock, together with a warrant to purchase one share of common stock		\$
Net tangible book value per share as of September 30, 2016	\$	1.16
Decrease per share attributable to sale of securities to investors	\$	
Adjusted net tangible book value per share after the offering		\$
Dilution per share to investors		\$

The foregoing illustration does not reflect potential dilution from the exercise of outstanding options or warrants to purchase shares of our common stock. The foregoing illustration also does not reflect the dilution that would result from the exercise of the warrants sold in the offering.

## BUSINESS

### Business Overview

Collectar Biosciences, Inc. (the Company) is a clinical stage biopharmaceutical company focused on the development of targeted phospholipid drug conjugates (PDCs) for the treatment and imaging of cancer. The Company's research and development program is based on its proprietary PDC cancer targeting delivery platform. The delivery platform possesses the potential for the discovery and development of a broad range of cancer targeting agents. The Company's pipeline is comprised of pre-clinical and clinical product candidates including radiotherapeutic and chemotherapeutic PDC's. The pipeline also includes diagnostic and optical imaging assets. The Company's research and development resources are focused on the clinical advancement of its therapeutic PDC's.

Our core Company strategy is to leverage our industry leading PDC, proprietary cancer targeting delivery platform to generate capital, supplement internal resources and accelerate and broaden product candidate clinical development through strategic asset and research collaborations.

Our shares are listed on the NASDAQ® Capital Market under the symbol CLRB; prior to August 15, 2014, our shares were quoted on the OTCQX® marketplace, and prior to February 12, 2014 were quoted under the symbol NVLT.

Our PDC platform is based on our cancer-targeting and delivery technology which provides selective delivery of a diverse range of oncologic payloads to cancer cells and cancer stem cells. By linking various drug payloads to our proprietary phospholipid ether cancer-targeting vehicle, we believe we can generate PDCs with the potential to provide highly targeted delivery of chemotherapeutic and radiotherapeutic payloads to a broad range of cancers. As a result, our PDC platform has the potential to improve the therapeutic index of drug payloads, enhancing or maintaining efficacy while reducing adverse events by minimizing drug delivery to healthy cells, increasing delivery to cancer cells and cancer stem cells in a broad range of cancerous tumors. The PDC product portfolio includes:

- CLR 131 is our lead therapeutic PDC product candidate and is currently being evaluated in a Phase 1 study for the treatment of relapse or refractory multiple myeloma. Multiple myeloma is the second most common hematologic cancer and an incurable cancer of plasma cells. This cancer type was selected for clinical, regulatory and commercial rationales, including multiple myeloma's highly radiosensitive nature, continued unmet medical need in the relapse/refractory setting and the receipt of an orphan drug designation. The primary goals of the Phase 1 study are to assess the compound's safety and tolerability in patients with relapsed or refractory multiple myeloma. Secondary objectives includes establishment of a recommended Phase II dose, both with and without dexamethasone, as well as an assessment of therapeutic activity, including progression free survival (PFS) and efficacy endpoints. The Investigational New Drug (IND) application was accepted by the U.S. Food and Drug Administration (FDA) in March 2014. In December 2014, the FDA granted orphan drug designation for CLR 131 for the treatment of multiple myeloma. The Phase 1 study was initiated in April 2015 and we announced positive performance results from the first patient cohort in January 2016. The study's Data Monitoring Committee (DMC), unanimously agreed to allow us to increase the dose of CLR 131 by 50% and advance into the second cohort. The DMC reviewed Cohort 2 patient data in September 2016, and unanimously agreed to allow us to increase the dose by 33% and advance to Cohort 3; patients are currently being enrolled. In July 2016, the Company was awarded a \$2,000,000 National Cancer Institute Fast-Track Small Business Innovation Research (SBIR) grant to further advance CLR 131. The funds will support a Phase 2 study the Company plans to initiate in the first half of 2017 to further define the clinical benefits of CLR 131 in multiple myeloma and other hematologic malignancies.
- The Company is exploring the creation of additional PDCs ranging from newly discovered to well-characterized chemotherapeutic payloads under its CLR CTX Chemotherapeutic PDC program. The objective of our CTX program is to develop PDC chemotherapeutics through conjugation of our delivery vehicle and non-targeted anti-cancer agents to improve therapeutic indices and expand potential indications through the targeted delivery of chemotherapeutic payloads. Initial CTX product candidates include CLR 1601-PTX, CLR 1602-PTX and CLR 1603-PTX; all are small-molecule, broad-spectrum, cancer-targeting chemotherapeutics in pre-clinical research. These PDCs are designed to selectively deliver paclitaxel, a chemotherapeutic payload to cancer cells and cancer stem cells to increase the therapeutic index of paclitaxel as a monotherapy. Each of our paclitaxel PDC's have been evaluated in vitro to demonstrate formulation stability and CLR 1602-PTX is currently being studied in vivo to further explore the PDC's cancer targeting selectivity. In December of 2015, the Company initiated a research collaboration for our PDC technology with Pierre Fabre Laboratories, the third largest French pharmaceutical company. The objective of the research collaboration is to co-design a library of PDC's employing Pierre Fabre's natural product derived chemotherapeutics in combination with our proprietary cancer targeting delivery vehicle. The newly developed PDC's may provide enhanced therapeutic indices to otherwise highly potent, non-targeted payloads through the targeted delivery to cancer cells provided by our cancer targeted delivery vehicle.
- CLR 125 is a broad-spectrum, cancer-targeting radiotherapeutic currently under pre-clinical investigation for the treatment of micrometastatic disease. Similar to CLR 131, the selective uptake and retention of CLR 125 has been observed in malignant tissues during pre-clinical studies. CLR 125 uses the radioisotope Iodine-125 (which has a 60-day half-life), which may provide an excellent tumor kinetics match with Collectar's proprietary delivery vehicle. CLR 125 has shown efficacy in a pre-clinical xenograft tumor models of triple negative breast cancer.

- CLR 124 is a small-molecule, broad-spectrum, cancer-targeting positron emission tomography (PET) imaging PDC that we believe has the potential to be the first of its kind for the selective detection of tumors and metastases in a broad range of cancers. CLR 124 has been used for PET/CT imaging in a broad array of tumor types through Company and investigator-sponsored clinical trials. We are in the process of evaluating the data from those studies. In April 2014, the FDA granted CLR 124 orphan status as a diagnostic for the management of glioma.
- CLR 1502 is a small-molecule, broad-spectrum, cancer-targeting NIR-fluorophore optical imaging PDC for intraoperative tumor and tumor margin illumination. After review of the Company's IND application, the FDA determined that CLR 1502 will be evaluated as a combination product and assigned to the Center for Devices and Radiological Health (CDRH). As a result of this classification, the FDA has advised Collectar that it will need to submit a new investigational application for the combination product prior to initiating its Phase 1 study in breast cancer surgery. Collectar is working to identify the optimal clinical development and value optimizing strategic pathway. Based on our assessment, the Company believes that product will be similarly treated post marketing approval regardless of the regulatory pathway.

We believe our PDC platform has potential to provide targeted delivery of a diverse range of oncologic payloads, as exemplified by the product candidates listed above, that may result in improvements upon current standard of care (SOC) for the treatment and imaging of a broad range of human cancers.

## Technology Overview

Our product candidates are based on a cancer-targeting delivery platform of optimized PLE analogs (phospholipid ether proprietary delivery vehicle) that interact with lipid rafts. Lipid rafts are specialized regions of a cell's membrane phospholipid bilayer that contain high concentrations of cholesterol and sphingolipids and serve to organize cell surface and intracellular signaling molecules. As a result of enrichment of lipid rafts in cancer cells, including cancer stem cells, our products provide selective targeting preferentially over normal healthy cells. The cancer-targeting PLE delivery vehicle was deliberately designed to be combined with therapeutic, diagnostic and imaging molecules. For example, iodine can be attached via a very stable covalent bond resulting in distinct products differing only with respect to the isotope of iodine they contain; CLR 131 contains radioactive I-131, CLR 125 contains radioactive I-125, and CLR 124 contains the shorter-lived radioactive I-124. In addition, non-radioactive molecules, including cytotoxic compounds can also be attached to the delivery vehicle.

The Company is focused on exploring the creation of additional PDCs ranging from newly discovered to well-characterized chemotherapeutic payloads under its CLR CTX Chemotherapeutic PDC program. The objective of our CTX program is to develop PDC chemotherapeutics through conjugation of our delivery vehicle and non-targeted anti-cancer agents to improve therapeutic indices and expand potential indications through the targeted delivery of chemotherapeutic payloads. Initial CTX product candidates include CLR 1601-PTX, CLR 1602-PTX and CLR 1603-PTX; all are small-molecule, broad-spectrum, cancer-targeting chemotherapeutics in pre-clinical research. To date, multiple cancer-targeting product profiles have been generated from a single chemical core structure that is the foundation of our technology platform. We also believe that additional cytotoxic PDCs may be developed possessing enhanced therapeutic indices versus the original, non-targeted cytotoxic payload as a monotherapy.

In the case of CLR 1502, this is a near-infrared (800 nm) emitting fluorophore whose signal can penetrate through up to approximately 1 cm of tissue. This may enable the use of CLR 1502 to visualize tumor margins during cancer surgery, effectively acting as an adjunct to a therapeutic agent, and to non-invasively detect relatively superficial tumors

Malignant tumor targeting, including targeting of cancer stem cells, has been demonstrated *in vivo*. Mice without intact immune systems, and inoculated with Panc-1 (pancreatic carcinoma) cells, were injected with CLR 1502, 24 or 96 hours prior to imaging. *In vivo* optical imaging showed pronounced accumulation of CLR 1502 in tumors versus non-target organs and tissues. Similarly, PET imaging of tumor-bearing animals (colon, glioma, triple negative breast and pancreatic tumor xenograft models) administered the imaging agent CLR 124 clearly shows selective uptake and retention by both primary tumors and metastases, including cancer stem cells. PET/CT analysis following co-injection of CLR 131 (for therapy) and CLR 124 (for imaging) revealed time-dependent tumor responses and disappearance over nine days in a cancer xenograft model. We believe that the capability of our technology to target and be selectively retained by cancer stem cells *in vivo*, was demonstrated by treating glioma stem cell-derived orthotopic tumor-bearing mice with another fluorescent-labeled PDC (CLR 1501), and then removing the tumor and isolating cancer stem cells, which continued to display CLR 1501 labeling even after three weeks in cell culture.

The basis for selective tumor targeting of our compounds lies in differences between the plasma membranes of cancer cells as compared to those of most normal cells. Data suggests that lipid rafts serve as portals of entry for PDCs such as CLR 131, CLR 124 and CLR 1502. The marked selectivity of our compounds for cancer cells versus non-cancer cells is due to the fact that cancer cells are over-expressed with lipid rafts as compared to normal cells. Following cell entry via lipid rafts, CLR 131, CLR 124 and CLR 1502 are transported into the cytoplasm, where they distribute to organelle membranes (mitochondria, ER, lysosomes) but not the nucleus. The pivotal role played by lipid rafts is underscored by the fact that disruption of lipid raft architecture significantly suppresses uptake of our PDC delivery vehicle into cancer cells.

Our core technology platform is based on research conducted by Collectar, Inc.'s founder and former Chief Scientific Officer, beginning in 1994 at the University of Michigan (U. Mich.), where phospholipid ether analogs were initially designed, synthesized, radiolabeled, and evaluated. Our founder had continued his research at the University of Wisconsin (U. Wisc.) between 1998 and the subsequent founding of Collectar, Inc. in 2002 to further develop and commercialize the technology. Collectar, Inc. obtained exclusive rights to the related technology patents owned by U. Mich. in 2003 and continued development of the PDC platform while obtaining ownership of numerous additional patents and patent applications (lasting until 2025, 2028, 2030 and 2034 without extensions).

## Products in Development

### *CLR 131*

CLR 131 is a small-molecule, broad-spectrum, cancer-targeting molecular radiotherapeutic PDC that we believe has the potential to be the first radiotherapeutic agent to use PLEs to target cancer cells. CLR 131 is comprised of our proprietary PLE, 18-(p-[I-131]iodophenyl) octadecyl phosphocholine, acting as a cancer-targeting delivery and retention vehicle, covalently labeled with iodine-131, a cytotoxic (cell-killing) radioisotope with a half-life of eight days that is already in common use to treat thyroid and other cancer types. It is this "intracellular radiation" mechanism of cancer cell killing, coupled with delivery to a wide range of malignant tumor types that we believe provides CLR 131 with broad-spectrum anti-cancer activity. Selective uptake and retention has been demonstrated in cancer stem cells compared with normal cells, offering the prospect of longer lasting cancer activity.

Pre-clinical experiments in tumor models have demonstrated selective killing of cancer cells along with a benign safety profile. CLR 131's anti-tumor/survival-prolonging activities have been demonstrated in more than a dozen models including breast, prostate, lung, brain, pancreatic, ovarian, uterine, renal, and colorectal cancers as well as, melanoma and multiple myeloma. In all but two models, a single administration of a well-tolerated dose of CLR 131 was sufficient to demonstrate efficacy. Moreover, efficacy was also seen in a model employing human uterine sarcoma cells that have known resistance to many standard chemotherapeutic drugs. CLR 131 was also tested in combination with a standard efficacious dose of gemcitabine in a pancreatic cancer model. Single doses of CLR 131 or gemcitabine given alone were equally efficacious while the combination therapy was significantly more efficacious than either treatment alone (additive). In each study, the dose of CLR 131 was ~100  $\mu$ Ci, which is approximately 50-fold less than the maximum tolerated dose (MTD) of CLR 131 determined in a six-month rat radiotoxicity study.

Extensive IND-enabling, Good Laboratory Practices (GLP) *in vivo* and *in vitro* pre-clinical pharmacokinetic/ distribution, toxicology and drug safety studies were successfully completed in 2007 through 2009 using non-pharmacological concentrations/doses of PLE consistent with its role as a delivery/retention vehicle in CLR 131. Tissue distribution studies supported prediction of acceptable human organ exposures and body clearance for CLR 131. Importantly, and in sharp distinction from biological products labeled with I-131, the small-molecule CLR 131 showed very minimal variation in excretion kinetics and tissue distribution among individuals within species or across a 500-fold variation in dose. Single- and repeated-dose animal toxicology studies indicated very high margins of safety with our PLE delivery and retention vehicle even when administered at 80-200x over the amount required to deliver the anticipated maximum human therapy dose of CLR 131.

In 2009, we filed an IND with the FDA to study CLR 131 in humans. In February 2010, we completed a Phase 1 dosimetry trial with a single intravenous dose of 10 mCi/m<sup>2</sup> CLR 131 in eight patients with relapsed or refractory advanced solid tumors. Single doses of CLR 131 were well tolerated. The reported adverse events were all considered minimal, manageable and either not dose limiting or not related to CLR 131. There were no serious adverse events reported. Analysis of total body imaging and blood and urine samples collected over 42 days following injection indicated that doses of CLR 131 expected to be therapeutically effective could be administered without harming vital organs. Two subjects (one with colorectal cancer metastasized to lung and another with prostate cancer) had tumors that were imaged with 3D nuclear scanning (SPECT/CT) on day 6 after administration of CLR 131. Uptake of CLR 131 into tumor tissue (but not adjacent normal tissue or bone marrow) was clearly demonstrated in both subjects. Echoing animal studies, pharmacokinetic analyses demonstrated a prolonged half-life of radioactivity in the plasma after CLR 131 administration (approximately 200 hours) and that there was no significant variation in excretion or radiation dosimetry among subjects. The trial established an initial dose of 12.5 mCi/m<sup>2</sup>, for the Phase 1b escalating dose trial that commenced in January 2012.

The primary objective of the multicenter Phase 1b dose-escalation trial in patients with a range of advanced solid tumors was to define the MTD of CLR 131. In addition to determining the MTD, the Phase 1b trial was intended to evaluate overall tumor response (using standard RESIST 1.1 criteria) and safety. In September 2012, we announced that we had successfully completed the second cohort in this Phase 1b dose-escalation trial. The second two-patient cohort was successfully dosed with 25 mCi/m<sup>2</sup> of CLR 131, triggering enrollment into the third cohort at 37.5 mCi/m<sup>2</sup>. Data from the second cohort indicated CLR 131 was well-tolerated, without any dose limiting or sub-dose limiting toxicities, enabling enrollment of the third cohort. Data from the two-patient, third cohort indicated the onset of dose-limiting hematologic toxicities with CLR 131, triggering enrollment into a five-patient, fourth cohort at a dose midway between those used in the second and third cohorts, as per trial protocol. Four patients were enrolled in the fourth cohort and we ended enrollment in November 2013. Complete study results, including data from the fourth cohort of this trial were completed in the first quarter 2014. The results of the trial were presented at the American Society of Clinical Oncology (ASCO) Annual Meeting in June 2014.

Tumor treatment with radioactive isotopes has been used as a fundamental cancer therapeutic for decades. The goals of targeted cancer therapy — selective delivery of effective doses of isotopes that destroy tumor tissue, sparing of surrounding normal tissue, and non-accumulation in vital organs such as the liver and kidneys — remains the focus of new therapies as well. We believe our isotope delivery technology is poised to achieve these goals. Because, to date, CLR 131 has been shown to reliably and near-universally accumulate in cancer cells, including cancer stem cells, and because the therapeutic properties of iodine-131 are well known, we believe the risk of non-efficacy in human clinical trials is less than that of other cancer therapies at this stage of development, although no assurance can be given.

In view of CLR 131's selective uptake and retention in a wide range of solid tumors and in cancer stem cells, its single-agent efficacy in animal models and its non-specific mechanism of cancer-killing (radiation), we are initially developing CLR 131 as a monotherapy for cancer indications with significant unmet medical need. While a number of indications were evaluated as the initial target treatment, multiple myeloma was selected principally because it is an incurable hematologic disease that is highly radiosensitive with significant unmet medical need in the relapse or refractory clinical setting, and is designated as an orphan disease. All of which may provide an accelerated regulatory pathway due to CLR 131 unique benefits versus existing therapeutic treatment options such as a novel mechanism of action and single dose treatment. The Investigational New Drug (IND) application was accepted by the FDA in September 2014. In December 2014, the FDA granted orphan drug designation for CLR 131 for the treatment of multiple myeloma. We initiated our Phase 1 Study of CLR 131 for the treatment of Relapsed or Refractory multiple myeloma in April 2015, and provided a performance update on the first patient cohort and initiated the second study cohort in January 2016. CLR 131 is being evaluated as a monotherapy and will subsequently be explored as a combination therapy with chemotherapeutic agents, immunomodulatory agents and in combination with external beam radiotherapy. CLR 131 will also be evaluated in a Phase 2 clinical study examining relapse refractory multiple myeloma patients as well as selected other hematological malignancies. This study is funded through a Fast Track NCI SBIR award. The SBIR award was granted to the company in July 2016.

### ***CTX Product Portfolio***

The Company is exploring the creation of additional PDCs ranging from newly discovered to well-characterized chemotherapeutic payloads under its CLR CTX Chemotherapeutic PDC program. The objective of our CTX program is to develop PDC chemotherapeutics through conjugation of our delivery vehicle and non-targeted anti-cancer agents to improve therapeutic indices and expand potential indications through the targeted delivery of chemotherapeutic payloads. Initial CTX product candidates include CLR 1601-PTX, CLR 1602-PTX and CLR 1603-PTX; both all are small-molecule, broad-spectrum, cancer-targeting chemotherapeutics in pre-clinical research. These PDCs are designed to selectively deliver paclitaxel, a chemotherapeutic payload to cancer cells and cancer stem cells increasing the therapeutic index of paclitaxel as a monotherapy. Each of our paclitaxel PDC's are being evaluated *in vitro* to demonstrate formulation stability and CLR 1602-PTX is currently being studied *in vivo* to demonstrate formulation stability and further explore the PDC's cancer targeting selectivity. In December of 2015, the Company entered into a research collaboration for our PDC technology with Pierre Fabre laboratories, the third largest French pharmaceutical company. The objective of the research collaboration is to co-design a library of PDC's employing Pierre Fabre's natural product derived chemotherapeutics in combination with our proprietary cancer targeting delivery vehicle. The newly developed PDC's may provide enhanced therapeutic indices to otherwise highly potent, non-targeted payloads through the targeted delivery to cancer cells provided by our cancer targeted delivery vehicle.

### ***CLR 125***

CLR 125 is a broad-spectrum, cancer-targeting, radiotherapeutic currently under pre-clinical investigation for the treatment of micrometastatic disease. Similar to CLR 131, the selective uptake and retention of CLR 125 has been observed in malignant tissues during pre-clinical studies. CLR 125 uses the radioisotope iodine-125. CLR 125 research has recently been funded through an NCI SBIR award. The feasibility and safety of CLR 125 was being investigated for the treatment of triple-negative breast cancer (TNBC) in the (neo) adjuvant setting. This program was successfully completed on June 30, 2016 showing appropriate biodistribution, tolerability, and dose response.

## **Additional Assets**

### ***CLR 124***

CLR 124 is a small-molecule, broad-spectrum, cancer-targeting imaging agent that we believe has first-in-class potential for selective detection of primary tumors and metastases in a broad range of cancers. Chemically, CLR 124 is comprised of our proprietary PLE, 18-(p-[I-124] iodophenyl) octadecyl phosphocholine, acting as a cancer-targeting delivery and retention vehicle, covalently labeled with iodine-124, a PET imaging radioisotope with a radiation half-life of four days. PET imaging used in conjunction with CT scanning has now become the imaging method of choice in much of oncology. In pre-clinical studies to date, CLR 124 selectively illuminated malignant tumors in over 60 animal models of different cancer types, demonstrating broad-spectrum, cancer-selective uptake and retention. Investigator-sponsored Phase 1/2 clinical trials of CLR 124 as a PET imaging agent are ongoing across multiple solid tumor indications. These trials have demonstrated positive initial imaging results in multiple tumor types. Based on positive initial CLR 124 imaging results in 29 primary and metastatic brain cancer patients, we believe CLR 124 has potential to address a significant unmet medical need for post-treatment efficacy assessment and differentiating tumor growth from pseudo-progression. In brain cancer, this has the potential to avoid unnecessary surgeries, biopsies and inappropriate treatment, resulting in better patient management and lower healthcare costs. We expect glioblastoma to be our lead indication for CLR 124 with additional development opportunities that could include brain metastases and other primary brain tumors.

These human trials are intended to provide proof-of-concept for CLR 124 as a PET imaging agent with the potential to supplant current imaging standards of care, FDG for various solid tumors, or MRI in the case of brain cancers. This is due to what we believe to be CLR 124's superior cancer selectivity. Furthermore, the radiation half-life of only 110 minutes for fluorine-18 labeled agents, such as FDG, severely limits their use to locations close to the point of manufacture. CLR 124's much longer radiation half-life affords a longer imaging window of up to seven days following injection, resulting in more favorable logistics of clinical use, including the ability to be distributed to clinics throughout the U.S. from a single manufacturing site. As a chemically identical biomarker for CLR 131, CLR 124 imaging may also be capable of estimating an efficacious dose of CLR 131 in individual cancer patients.

A three-part investigator-sponsored Phase 1/2 trial of radiolabeled CLR 1404 for patients with advanced non-small cell lung cancer (NSCLC) was initiated in February 2004 at the University of Wisconsin Carbone Cancer Center (UWCCC). The first part of the trial evaluated imaging characteristics of CLR 131 in seven patients and the second part of the trial evaluated tumor accumulation in one patient. The third part of the trial is now evaluating tumor imaging with CLR 124 at increasing doses. Dr. Anne M. Traynor at UWCCC is the principal investigator for this trial. We provided funding and the data was shared with us while the study progressed and at the conclusion of the study. A total of 11 patients were enrolled across four dose levels (1.5 mCi/m<sup>2</sup>, 3 mCi/m<sup>2</sup>, 5 mCi/m<sup>2</sup> and 7.5 mCi/m<sup>2</sup>) in this part of the Phase 1/2 trial. With the 5 mCi/m<sup>2</sup> dose level, we saw clear and sustained uptake of CLR 124 in cancerous tumors against low background and have not observed any adverse safety signals. In addition, in one patient, three brain metastases were detected with CLR 124 that were not identified with FDG PET, which following confirmation with current standard of care (SOC), prompted an alteration to the treatment plan for this patient. Having observed initial cancer-specific uptake with CLR 124 at a 7.5 mCi/m<sup>2</sup> dose in NSCLC patients, study investigators continued exploration of dose and imaging time points in an effort to optimize dosing and results.

An investigator-sponsored Phase 1/2 trial of CLR 124 as a PET imaging agent for brain cancer was initiated in December 2011 at UWCCC and the first patient was enrolled in March 2012. This trial was funded by both the UWCCC and an Institute for Clinical and Translational Research (ICTR) grant, and the data is shared with the Company. Enrollment to the trial is complete; 12 patients were dosed with 5 mCi/m<sup>2</sup> of CLR 124. The preliminary results showed avid and sustained uptake of CLR 124 in cancerous tumors against very low background and no adverse safety signals were observed.

An investigator-sponsored Phase 1/2 trial of CLR 124 as a PET imaging agent for glioma was initiated in January 2012 at UWCCC and the clinical trial protocol evaluates 7.5 mCi/m<sup>2</sup> and 10 mCi/m<sup>2</sup> doses of CLR 124. A total of 19 patients were enrolled.

An investigator-sponsored Phase 1/2 trial of CLR 124 as a PET imaging agent for patients with multiple solid tumor types (triple negative breast, prostate, colorectal, gastric, ovarian, pancreatic, esophageal, soft tissue sarcoma, and head & neck cancer) was initiated in August 2012 at the UWCCC and the first patient was enrolled in October 2012. We provided funding for the trial and the data was shared with us. Twelve patients were enrolled, completing the enrollment of the trial.

### ***CLR 1502***

CLR 1502 is a small-molecule, broad-spectrum, cancer-targeting, non-radioactive optical imaging agent that we believe has the potential to be the first of its kind for intraoperative tumor margin illumination and non-invasive tumor imaging. CLR 1502 is comprised of a proprietary PLE, acting as a cancer-targeting delivery and retention vehicle, covalently attached to a near-infrared (800nm) fluorophore. According to the American Cancer Society, the majority of cancer patients were expected to have some type of surgery and more than 1.6 million new cancers diagnosed in the U.S. alone in 2014. CLR 1502 may facilitate and enable diagnostic, staging, debulking and curative cancer surgeries, intraoperatively in real-time, by defining tumor margins and regional lymph node involvement, resulting in more complete tumor resections and improving outcome and prognosis. In this context, CLR 1502 could effectively act as an adjunct therapeutic agent. In pre-clinical tumor models, non-invasive optical imaging showed pronounced accumulation of CLR 1502 in tumors versus normal tissues and successfully delineated tumor margins during tumor resection. CLR 1502 may also have utility for non-invasive imaging of relatively superficial tumor types (e.g., melanoma, head & neck, colon, esophageal).

## Market Overview

Our target market is broad and represents the market for the treatment and imaging of cancer. The American Cancer Society estimated that approximately 1.67 million new cancer cases were diagnosed in the U.S. in 2015 and approximately 590,000 are expected to die of cancer. The global market for cancer drugs has reached \$100 billion in annual sales (May 2015), and could reach \$147 billion by 2018, according to a new report by the IMS Institute for Healthcare Informatics, a unit of drug data provider IMS Health. This growth will be driven by emerging targeted therapies, which are expected to change the cancer treatment landscape (Cowen), and an increased use of cancer drug combination regimens. The National Institutes of Health (NIH) estimated that the direct medical cost for treating cancer in 2010 (the latest figure available) was \$124.6 billion in the U.S., and projects that by 2020, this cost will have risen to at least \$158 billion.

According to the National Cancer Institute SEER data base, multiple myeloma is the second most common hematologic cancer with a U.S. incidence rate of 24,050 and a relapse or refractory patient population of 10,000 to 15,000. A Market Research Engine report from December 2015 indicated the global cancer diagnostics market is expected to grow at a compound annual growth rate of 7.6% during 2015 to 2022.

## Manufacturing

We maintain a current Good Manufacturing Practices compliant (cGMP) radiopharmaceutical manufacturing facility in Madison, Wisconsin, in which we manufacture drug substance for CLR 131, CLR 124, and CLR 1502 product candidates and also manufacture CLR 131 for clinical trials. This facility, consisting of approximately 19,500 square feet, contains offices, laboratories, a radiopharmaceutical research lab, a cGMP radiopharmaceutical manufacturing suite and a cGMP analytical laboratory for product release. Our manufacturing facility holds a State of Wisconsin Department of Health Services Radioactive Materials License which authorizes the use and possession of radioactive material for both manufacturing and distribution activities. The facility also holds a State of Wisconsin DHS Radioactive Materials License that authorizes the use and possession of radioactive materials for research and development. The research and development license permits the use and possession of iodine-125, iodine-131 and iodine-124 in quantities sufficient to support in-house drug substance and CLR 131 manufacturing for current clinical programs and other research needs. Each of these iodine isotopes is purchased from third party vendors.

Manufacturing of cGMP CLR 124 is currently conducted by our collaborator, the University of Wisconsin-Madison, using drug substance produced in our Madison manufacturing facility. The agreement contains standard provisions for the protection of data and intellectual property and may be terminated by either party with 60-days' notice, pending the completion of any obligations by either party set forth in an outstanding statement of work. The proprietary contract manufacturing process is sufficient to provide materials for Phase 2 trials and is scalable for larger trials. We do not plan to build in-house manufacturing capability for CLR 124.

The drug substance is identical for CLR 131 and CLR 124 products. The base molecule is a dry powder produced via a six-step synthetic scheme. The release specifications for drug substance have been established and validated. The impurity levels at small scale are very low, suggesting that larger scale production is feasible. We have also demonstrated 60-month stability for the drug substance in desiccated and refrigerated forms. We believe our laboratories are well equipped with the appropriate equipment for manufacturing pilot and small-scale batches in accordance with cGMP. We believe we have adequate drug substance manufacturing and CLR 131 drug product manufacturing capacity expertise and capacity for non-pivotal clinical trials.

CLR 1502 drug substance is synthesized at the Madison facility via a cGMP process from the same chemical precursor used in the manufacture of CLR 131. The facility has the capability to manufacture the CLR 1502 drug product to support Phase 1 clinical trials. Manufacturing of drug substance and drug product for subsequent clinical trials will likely be achieved through contract manufacturing.

All investigational drug substance and product intended for human use during clinical studies will be manufactured according to the guidelines of the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, FDA requirements (21 CFR part 211) and cGMP.

## Sales and Marketing

We have not entered into any joint development, licensing or similar partnering agreements with respect to any of our clinical stage product candidates or pre-clinical compounds. We plan to pursue and evaluate all available options to develop, launch and commercialize our compounds. These options presently include, but are not limited to: entering into a partnering arrangement with one or more pharmaceutical, imaging agent or imaging device companies with strong development and commercial expertise and infrastructure in the U.S., Europe and/or Japan. While we currently do not plan to build our own sales force or utilize a contract sales organization for launch and commercialization of our compounds, we may reconsider that in the future.

## Competition for Our Clinical-Stage Compounds

### *CLR 131*

Currently, several classes of approved products with various mechanisms of action exist, including: immune-modulating agents, proteasome inhibitors, histone deacetylase inhibitors, monoclonal antibodies, corticosteroids, and traditional chemotherapeutics. While a number of indications were evaluated as the initial target treatment for CLR 131, multiple myeloma was selected principally because of its highly radiosensitive nature, single dose treatment, and novel mechanism of action relative to all existing classes of approved drugs. As a result, we believe CLR 131 is an ideal therapeutic option in the relapse or refractory setting either as a monotherapy or in combination with currently approved agents, some of which are radiosensitive and maintain exclusive adverse event profiles.



### **CLR 124**

FDG is the current SOC for cancer PET imaging. FDG accumulates in any tissue having increased glucose metabolism (i.e. energy utilization) compared to surrounding tissue. As a result, and in contrast to CLR 124, FDG is not selective for malignant tumors. FDG localizes in certain normal tissue such as heart, liver and brain tissues that also have high glucose metabolism as well as kidney and bladder due to FDG excretion paths. FDG is also known to localize in inflammatory sites, which are often found in the vicinity of malignancies and can result in diagnostic and treatment plan uncertainties. Other major limitations to the use of FDG are found in pelvic imaging due to the high renal (kidney) clearance of the compound. Moreover, there are clinically important malignancies that do not demonstrate reliable FDG activity such as prostate cancer. We believe these characteristics of FDG decrease its diagnostic specificity for certain malignancies. FDG is no longer covered by patent and is typically manufactured at or extremely proximate to PET imaging medical facilities because of its very short (110 minute) radiation half-life. I-124 has a four-day half-life that permits worldwide distribution of CLR 124 from one manufacturing location. Additionally, the longer half-life affords a longer imaging window of up to seven days following injection.

MRI is the current SOC for imaging brain cancer, due in part to FDG PET's limited utility in brain imaging. While MRI can differentiate tissue densities and demark structural changes in tissue, it is not cancer-selective. This imaging can result in a diagnostic dilemma for clinicians, particularly with respect to glioma; the most common form of primary brain cancer. After chemo-radiation - commonly employed in glioma management - MRI changes suggestive of tumor recurrence are seen in approximately 50% of high-grade glioma patients. However, in approximately 50% of these cases, the MRI changes actually represent treatment-related changes that do not truly represent disease progression. This is termed pseudo-progression. The dilemma facing clinicians is the decision whether to re-treat the patient (surgery, chemotherapy, biological therapy, re-irradiation) with associated risks to the patient (e.g. damage to normal brain tissue and consequent loss of function), or monitor with periodic re-imaging with the risk of the imaging changes actually representing tumor recurrence, and with the costs associated with re-imaging.

In Phase 1/2 investigator-sponsored trials at the UWCCC, preliminary results suggest that CLR 124 may provide a more accurate assessment of the post-treatment progression of glioma when compared to MRI. Specifically, CLR 124 appears to be capable of distinguishing malignant tumors from tissue changes associated with pseudo-progression.

### **CLR 1502**

CLR 1502 is a pre-clinical, broad-spectrum, cancer-targeting, non-radioactive optical imaging agent for intraoperative tumor margin illumination and non-invasive tumor imaging. The topic of providing cancer surgeons with better technology for intraoperative assessment of tumor margins designed to result in more complete tumor removal has gained considerable attention in recent years. While there are a number of technologies in various stages of development, some of the most common categories include the use of fluorescence agents: either alone, or attached to cancer delivery vehicles, nanoparticle technologies or electromagnetic technologies. At present, the only known FDA approved technology for tumor margin assessment is believed to be MarginProbe™, marketed by Dune Medical Devices, which received FDA approval in January, 2013, as an intraoperative tissue assessment tool for early-stage breast cancer surgery. MarginProbe™ claims to use electromagnetic "signatures" to identify healthy and cancerous tissue.

5-aminolevulinic acid (5-ALA), a technology approved in Europe for use with intraoperative tumor margin assessment, is a small molecule that is preferentially taken up by tumor cells leading to biosynthesis and accumulation of protoporphyrin IX, a natural fluorophore with red fluorescence emission. Investigator sponsored trials of 5-ALA are ongoing in the U.S., primarily in newly diagnosed and recurrent brain cancer indications.

Other technologies known to be in development include Blaze Biosciences' Tumor Paint™, a combination of a targeting peptide and a fluorescent beacon, under development for cancer surgery in multiple solid tumor types. Additionally, Avelas Biosciences, based in San Diego, CA, is developing a fluorescence peptide based compound named AVB-620 for fluorescence image-guided cancer surgery.

While a number of technologies are in development to provide intraoperative tumor margin guidance we are leveraging our cancer-targeting delivery platform to provide cancer selectivity and specificity for accurate tumor margin illumination. Further, CLR 1502 may be able to demonstrate application with a broad spectrum of cancer types based on data that includes our other product candidates utilizing the same cancer-targeting delivery platform in pre-clinical studies and human clinical trials (CLR 124 and CLR 131).

## Intellectual Property

We have established a broad U.S. and international intellectual property rights portfolio around our proprietary cancer-targeting PLE technology platform including our CLR CTX Program, CLR 131, CLR 1502, CLR 124, and CLR 125.

**CLR CTX Program:** In November 2015, we converted our previously filed provisional patent application for Phospholipid-Ether Analogs as Cancer Targeting Drug Vehicles to non-provisional US and International (PCT) patent applications. These patent applications further protect PDCs developed with Cellectar's proprietary phospholipid-ether delivery vehicle conjugated with any existing or future cytotoxic agents, including chemotherapeutics such as paclitaxel, for targeted delivery to cancer cells and cancer stem cells. Both composition of matter and methods of use are covered by these patent applications and provide intellectual property protection in the United States and up to 148 additional countries. This protection extends through at least November 2034 in the US and key international markets.

**CLR 131:** We have been granted orphan status designation for CLR 131 for the treatment of multiple myeloma. Orphan status designation provides for seven years of marketing exclusivity following US approval of CLR 131 for treatment of multiple myeloma. It is also covered by an additional series of our patents and applications aside from the Michigan patents (see below). The first is directed to a method of use for cancer therapy and has also been filed in Europe, Japan, and China, in addition to the U.S. We have two issued patents in the U.S., two in Europe and one in China, in addition to pending applications in the U.S. and Japan. These are expected to expire in 2025. Some of these resulting patents may be extendable on a country-by-country basis.

**CLR 1502** is covered by patents and patent applications directed to the compound, methods of use and method of manufacture that have been filed in U.S., Europe and Japan. A U.S. patent covering the composition and methods of use has already been issued and is expected to expire in 2030. Any additional patents resulting from these applications are also expected to expire in 2029. Some of these resulting patents may be extendable on a country-by-country basis.

**CLR 124:** We have been granted orphan status designation for CLR 124 as a diagnostic for the management of glioma by the US FDA. Orphan status designation provides for seven years of marketing exclusivity following US approval of CLR 124 as a diagnostic for the management of gliomas. It is also covered by the Michigan patents (see below) as well as four of our U.S. patents, two of which are generally directed to detecting cancers, one of which is directed to its use for virtual colonoscopy that expires in 2029 and one of which is directed to its use for *in vitro* diagnostics that expires in 2027. CLR 124 is also covered by an issued European patent, and pending U.S., Japanese and Hong Kong patent applications that expire in 2025. Any patents issued from these applications would be expected to expire in 2025.

Our proprietary rights also include patents and patent applications that are either owned by us or exclusively licensed to us by the University of Michigan (the "Michigan patents"). CLR 131, CLR 125 and CLR 124 are covered by the Michigan patents that provide compound (composition of matter) coverage in the U.S. and Canada and expire in 2016. Our patents and applications cover methods of use, composition and method of manufacture related to CLR 124, CLR 131, CLR 1502, CLR 125 and other PLEs. These patents and applications are filed in key commercial markets worldwide. These patents will generally expire between 2025 and 2030 unless extended, most likely under clinical development extensions.

Separate from any patent protection and following product approval by regulatory authorities, data exclusivity may be available for various compounds for up to 10 years on a country-by-country basis (e.g., up to 5 years in the U.S. and up to ten years in Europe).

In addition to the above noted patents/applications directed to CLR 131, CLR 125, CLR 124 and CLR 1502, we own other patents/applications directed to different forms of phospholipid ethers and methods of manufacturing of phospholipid ethers.

We also own all intellectual property rights in the U.S. related to our clinical-stage pipeline compound, NOV-002, and other pre-clinical compounds based on oxidized glutathione. Issued composition-of-matter patents cover proprietary formulations of oxidized glutathione that expire in 2019, and these patents include methods of manufacture for oxidized glutathione formulated with various metals.

## Licenses / Collaborations

On December 14, 2015 the Company initiated a collaboration with Institut de Recherche Pierre Fabre ("IRPF"). Under this collaboration, IRPF will provide a selection of its proprietary cytotoxics to the Company for use in an *in vivo* proof-of-concept study to evaluate the potential to create new drug conjugates ("NDCs") in combination with the Company's proprietary Phospholipid Drug Conjugate platform technology. The Company will own all intellectual property associated with the NDCs developed as part of the research collaboration. If the Company decides to further develop any of the NDCs for preclinical studies, the Company will enter into good faith discussions with IRPF to acquire an option to in-license the IRPF Materials. In the event that the Company proposes to enter into a business relationship with a third party for advancement of the NDCs, the Company will grant IRPF a right of first refusal to enter into the same business relationship, which will be exercisable by IRPF within 60 days. In the event that the Company does not choose to further develop the NDCs for preclinical studies and IRPF desires to do so within four years following expiration of this arrangement, the Company and IRPF will enter into good faith business discussions relating to IRPF's use of the results of the study and certain of the Company's proprietary technologies relating to the IRPF Materials. The Company has agreed to perform the study by December 14, 2017, and the Company's obligation to grant a right of first refusal will continue for four years following the date on which the Company provides the results of the study to IRPF.

In September 2003, Collectar, Inc. entered into a license agreement with the University of Michigan (the U. Mich. License), which granted Collectar, Inc. exclusive rights to the development, manufacture and marketing of products under several composition of matter patents in North America that expire in December 2016. The U. Mich. License expires upon the expiration of the last covered patent. We are responsible for an annual license fee of \$10,000 and are required to pay costs associated with the maintenance of the patents covered by the U. Mich. License. Additionally, we are required to make milestone payments of \$50,000 upon the filing of a NDA for a licensed product intended for use in a therapeutic or diagnostic application (such milestone fees may be deferred and paid within twelve months of the first commercial sale of such product) and make certain milestone payments within a year following the first commercial sale of any licensed products. The sales milestones range from \$100,000 to \$200,000, dependent upon whether the drug is for use in a diagnostic or therapeutic application. If sales in the first 12 months are less than the amount of the milestone, then we are required to pay 50% of all sales until the milestone is satisfied. The milestone payments may total up to \$400,000.

The U. Mich. License provides that we pay a royalty equal to 3% of net sales of any licensed products sold by us or our sub licensees for such licensed products unless the sublicense fee payable to us is between 4% and 5% of net sales, then the royalties payable to U. Mich. shall be equal to 50% of the sublicense fee. Furthermore, the U. Mich. License provides for a reduction in the royalties owed by up to 50% if we are required to pay royalties to any third parties related to the sale of the licensed products. If we receive any revenue in consideration of rights to the licensed technology that is not based on net sales, excluding any funded research and development, we are required to pay U. Mich. 10% of amounts received. During 2003, pursuant to the U. Mich. License, Collectar, Inc. paid approximately \$54,000 of back patent costs and issued 203,483 shares of common stock to U. Mich. as partial consideration for the rights described above. U. Mich. may terminate the license agreement if we cease operations, fail to make any required payment under the license agreement, or otherwise materially breach the license agreement, subject to applicable notice and cure periods. To date, we have made all payments as they have become due, there have been no defaults under the U. Mich. License, nor have we ever been notified of a default by U. Mich. We may terminate the U Mich. License agreement with six months' notice to U. Mich. and the return of licensed product and related data. The U. Mich. License contains milestones that required certain development activities to be completed by specified dates. All such development milestones have been either completed or removed by subsequent amendment to the agreement. U. Mich. has provided no warranties as to validity or otherwise with respect to the licensed technology. The early termination of the University of Michigan License agreement would result in the loss of our rights to use the covered patents.

## **Research and Development**

Our primary activity to date has been research and development. We conduct our research and development program at our manufacturing facility in Madison, Wisconsin. Our research and development expenses were approximately \$5,159,000 and \$5,964,000 for 2015 and 2014, respectively.

## **Regulation**

The production, distribution, and marketing of products employing our technology, and our development activities, are subject to extensive governmental regulation in the United States and in other countries. In the United States, we are subject to the Federal Food, Drug, and Cosmetic Act, as amended, and the regulations of the FDA, as well as to other federal, state, and local statutes and regulations, including the federal, state and local laws and regulations governing the storage, use and disposal of hazardous materials, including radioactive isotopes. These laws, and similar laws outside the United States, govern the clinical and pre-clinical testing, manufacture, safety, effectiveness, approval, labeling, distribution, sale, import, export, storage, record-keeping, reporting, advertising, and promotion of drugs. Product development and approval within this regulatory framework, if successful, will take many years and involve the expenditure of substantial resources. Violations of regulatory requirements at any stage may result in various adverse consequences, including the FDA's and other health authorities' delay in approving or refusal to approve a product. Violations of regulatory requirements also may result in enforcement actions.

The following paragraphs provide further information on certain legal and regulatory issues with a particular potential to affect our operations or future marketing of products employing our technology.

## **Research, Development, and Product Approval Process**

The research, development, and approval process in the United States and elsewhere is intensive and rigorous and generally takes many years to complete. The typical process required by the FDA before a therapeutic drug may be marketed in the United States includes:

- pre-clinical laboratory and animal tests performed under the FDA's Good Laboratory Practices regulations, referred to herein as GLP;

- submission to the FDA of an IND application, which must become effective before human clinical trials may commence;
- human clinical studies performed under the FDA's Good Clinical Practices regulations, to evaluate the drug's safety and effectiveness for its intended uses;
- FDA review of whether the facility in which the drug is manufactured, processed, packed, or held meets standards designed to assure the product's continued quality; and
- submission of a marketing application to the FDA, and approval of the application by the FDA.

During pre-clinical testing, studies are performed with respect to the chemical and physical properties of candidate formulations. These studies are subject to GLP requirements. Biological testing is typically done in animal models to demonstrate the activity of the compound against the targeted disease or condition and to assess the apparent effects of the new product candidate on various organ systems, as well as its relative therapeutic effectiveness and safety.

#### *Submission of IND*

An IND must be submitted to the FDA and become effective before studies in humans may commence. The IND must include a sufficient amount of data and other information concerning the safety and effectiveness of the compound from laboratory, animal, and human clinical testing, as well as data and information on manufacturing, product quality and stability, and proposed product labeling.

#### *Clinical Trials*

Clinical trial programs in humans generally follow a three-phase process. Typically, Phase 1 studies are conducted in small numbers of healthy volunteers or, on occasion, in patients afflicted with the target disease. Phase 1 studies are conducted to determine the metabolic and pharmacological action of the product candidate in humans and the side effects associated with increasing doses, and, if possible, to gain early evidence of effectiveness. In Phase 2, studies are generally conducted in larger groups of patients having the target disease or condition in order to validate clinical endpoints, and to obtain preliminary data on the effectiveness of the product candidate and optimal dosing. This phase also helps determine further the safety profile of the product candidate. In Phase 3, large-scale clinical trials are generally conducted in patients having the target disease or condition to provide sufficient data for the statistical proof of effectiveness and safety of the product candidate as required by United States regulatory agencies.

In the case of products for certain serious or life-threatening diseases, the initial human testing may be done in patients with the disease rather than in healthy volunteers. Because these patients are already afflicted with the target disease or condition, it is possible that such studies will also provide results traditionally obtained in Phase 2 studies. These studies are often referred to as "Phase 1/2" studies. However, even if patients participate in initial human testing and a Phase 1/2 study carried out, the sponsor is still responsible for obtaining all the data usually obtained in both Phase 1 and Phase 2 studies.

Before proceeding with a study, sponsors may seek a written agreement from the FDA regarding the design, size, and conduct of a clinical trial. This is known as a Special Protocol Assessment (SPA). Among other things, SPAs can cover clinical studies for pivotal trials whose data will form the primary basis to establish a product's efficacy. SPAs help establish upfront agreement with the FDA about the adequacy of a clinical trial design to support a regulatory approval, but the agreement is not binding if new circumstances arise. There is no guarantee that a study will ultimately be adequate to support an approval even if the study is subject to an SPA.

United States law requires that studies conducted to support approval for product marketing be "adequate and well controlled." In general, this means that either a placebo or a product already approved for the treatment of the disease or condition under study must be used as a reference control. Studies must also be conducted in compliance with good clinical practice requirements, and informed consent must be obtained from all study subjects. The clinical trial process for a new compound can take ten years or more to complete. The FDA may prevent clinical trials from beginning or may place clinical trials on hold at any point in this process if, among other reasons, it concludes that study subjects are being exposed to an unacceptable health risk. Trials may also be prevented from beginning or may be terminated by institutional review boards, which must review and approve all research involving human subjects. Side effects or adverse events that are reported during clinical trials can delay, impede, or prevent marketing authorization. Similarly, adverse events that are reported after marketing authorization can result in additional limitations being placed on a product's use and, potentially, withdrawal of the product from the market.

#### *Submission of NDA*

Following the completion of clinical trials, the data is analyzed to determine whether the trials successfully demonstrated safety and effectiveness and whether a product approval application may be submitted. In the United States, if the product is regulated as a drug, a NDA must be submitted and approved before commercial marketing may begin. The NDA must include a substantial amount of data and other information concerning the safety and effectiveness of the compound from laboratory, animal, and human clinical testing, as well as data and information on manufacturing, product quality and stability, and proposed product labeling.

Each domestic and foreign manufacturing establishment, including any contract manufacturers we may decide to use, must be listed in the NDA and must be registered with the FDA. The application generally will not be approved until the FDA conducts a manufacturing inspection, approves the applicable manufacturing process and determines that the facility is in compliance with cGMP requirements.

Under the Prescription Drug User Fee Act, as amended, the FDA receives fees for reviewing an NDA and supplements thereto, as well as annual fees for commercial manufacturing establishments and for approved products. These fees can be significant. For fiscal year 2015, the NDA review fee alone is \$2,335,200, although certain limited deferral, waivers, and reductions may be available.

Each NDA submitted for FDA approval is usually reviewed for administrative completeness and reviewability within 45 to 60 days following submission of the application. If deemed complete, the FDA will “file” the NDA, thereby triggering substantive review of the application. The FDA can refuse to file any NDA that it deems incomplete or not properly reviewable. The FDA has established performance goals for the review of NDAs— six months for priority applications and 10 months for standard applications. However, the FDA is not legally required to complete its review within these periods and these performance goals may change over time.

Moreover, the outcome of the review, even if generally favorable, typically is not an actual approval but an “action letter” that describes additional work that must be done before the application can be approved. The FDA’s review of an application may involve review and recommendations by an independent FDA advisory committee. Even if the FDA approves a product, it may limit the approved therapeutic uses for the product as described in the product labeling, require that warning statements be included in the product labeling, require that additional studies be conducted following approval as a condition of the approval, impose restrictions and conditions on product distribution, prescribing, or dispensing in the form of a risk management plan, or otherwise limit the scope of any approval.

#### *Post NDA Regulation*

Significant legal and regulatory requirements also apply after FDA approval to market under an NDA. These include, among other things, requirements related to adverse event and other reporting, product advertising and promotion and ongoing adherence to cGMPs, as well as the need to submit appropriate new or supplemental applications and obtain FDA approval for certain changes to the approved product labeling, or manufacturing process. The FDA also enforces the requirements of the Prescription Drug Marketing Act which, among other things, imposes various requirements in connection with the distribution of product samples to physicians.

The regulatory framework applicable to the production, distribution, marketing and/or sale of our product pipeline may change significantly from the current descriptions provided herein in the time that it may take for any of our products to reach a point at which an NDA is approved.

Overall research, development, and approval times depend on a number of factors, including the period of review at FDA, the number of questions posed by the FDA during review, how long it takes to respond to the FDA’s questions, the severity or life-threatening nature of the disease in question, the availability of alternative treatments, the availability of clinical investigators and eligible patients, the rate of enrollment of patients in clinical trials, and the risks and benefits demonstrated in the clinical trials.

#### **Other United States Regulatory Requirements**

In the United States, the research, manufacturing, distribution, sale, and promotion of drug and biological products are potentially subject to regulation by various federal, state, and local authorities in addition to the FDA, including the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration), other divisions of the United States Department of Health and Human Services (e.g., the Office of Inspector General), the United States Department of Justice and individual United States Attorney offices within the Department of Justice, and state and local governments. For example, sales, marketing, and scientific/educational grant programs must comply with the anti-fraud and abuse provisions of the Social Security Act, the False Claims Act, the privacy provision of the Health Insurance Portability and Accountability Act, and similar state laws, each as amended. Pricing and rebate programs must comply with the Medicaid rebate requirements of the Omnibus Budget Reconciliation Act of 1990 and the Veterans Health Care Act of 1992, each as amended. If products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply. All of these activities are also potentially subject to federal and state consumer protection, unfair competition, and other laws.

Our research and development, manufacturing and administration of our drugs involve the controlled use of hazardous materials, including chemicals and radioactive materials, such as radioactive isotopes. Therefore, we are subject to federal, state and local laws and regulations governing the storage, use and disposal of these materials and some waste products and are required to maintain both a manufacturer’s license and a radioactive materials license with State of Wisconsin agencies.

Moreover, we are now, and may become subject to, additional federal, state, and local laws, regulations, and policies relating to safe working conditions, laboratory practices, the experimental use of animals, and/or the use, storage, handling, transportation, and disposal of human tissue, waste, and hazardous substances, including radioactive and toxic materials and infectious disease agents used in conjunction with our research work.

### **Foreign Regulatory Requirements**

We, and any future collaborative partners, may be subject to widely varying foreign regulations that may be quite different from those of the FDA governing clinical trials, manufacture, product registration and approval, and pharmaceutical sales. Whether or not FDA approval has been obtained, we or any future collaboration partners must obtain a separate approval for a product by the comparable regulatory authorities of foreign countries prior to the commencement of product marketing in these countries. In certain countries, regulatory authorities also establish pricing and reimbursement criteria. The approval process varies from country to country, and the time may be longer or shorter than that required for FDA approval. In addition, under current United States law, there are restrictions on the export of products not approved by the FDA, depending on the country involved and the status of the product in that country.

### **Reimbursement and Pricing Controls**

In many of the markets where we or any future collaborative partners would commercialize a product following regulatory approval, the prices of pharmaceutical products are subject to direct price controls by law and to drug reimbursement programs with varying price control mechanisms. Public and private health care payers control costs and influence drug pricing through a variety of mechanisms, including through negotiating discounts with the manufacturers and through the use of tiered formularies and other mechanisms that provide preferential access to certain drugs over others within a therapeutic class. Payers also set other criteria to govern the uses of a drug that will be deemed medically appropriate and therefore reimbursed or otherwise covered. In particular, many public and private health care payers limit reimbursement and coverage to the uses of a drug that are either approved by the FDA or that are supported by other appropriate evidence (for example, published medical literature) and appear in a recognized drug compendium. Drug compendia are publications that summarize the available medical evidence for particular drug products and identify which uses of a drug are supported or not supported by the available evidence, whether or not such uses have been approved by the FDA. For example, in the case of Medicare coverage for physician-administered oncology drugs, the Omnibus Budget Reconciliation Act of 1993, with certain exceptions, prohibits Medicare carriers from refusing to cover unapproved uses of an FDA-approved drug if the unapproved use is supported by one or more citations in the American Hospital Formulary Service Drug Information, the American Medical Association Drug Evaluations, or the United States Pharmacopoeia Drug Information. Another commonly cited compendium, for example under Medicaid, is the DRUGDEX Information System.

### **Employees**

As of November 7, 2016, we had 17 full-time employees.

### **Corporate Information**

The Company, formerly known as Novelos Therapeutics, Inc., was incorporated in Delaware in June 1996. On April 8, 2011, the Company entered into a business combination with Collectar, Inc., a privately held Wisconsin corporation that designed and developed products to detect, treat and monitor a wide variety of human cancers. On February 11, 2014, the Company changed its name to Collectar Biosciences, Inc. Our common stock is listed on the NASDAQ® Capital Market under the symbol “CLRB.”

### **Legal Proceedings**

We are not a party to any pending legal proceedings.

## MANAGEMENT

Our executive officers and directors are as follows:

Name	Age	Position
James Caruso	57	President, Chief Executive Officer and Director
Chad J. Kolean	52	Vice President, Chief Financial Officer and Treasurer
Stephen A. Hill, B.M. B.Ch., M.A., F.R.C.S. (1)(2)(3)	58	Director
John Neis (1)(2)(3)	61	Director
Stefan D. Loren, Ph.D. (2)(3)	52	Director
Jarrold Longcor	43	Senior Vice President of Corporate Development and Operations

- (1) Member of the Compensation Committee.
- (2) Member of the Audit Committee.
- (3) Member of the Nominating and Corporate Governance Committee.

Our executive officers are appointed by, and serve at the discretion of, the Board.

**James Caruso.** Mr. Caruso was appointed our President and Chief Executive Officer and a director in June 2015. A life sciences executive with 27 years of success with multinational and specialty pharmaceutical companies, mid-tier biotechnology and medical device start-ups, Mr. Caruso has an established track record of enhancing value through a clear focus on strategic corporate value drivers and operational excellence; advancing product development and commercialization programs through internal execution or collaborations. He came to Collectar from Hip Innovation Technology, a medical device company where he was a founder and served as Executive Vice President and Chief Operating Officer. Prior to his time at Hip Innovation Technology, he was Executive Vice President and Chief Commercial Officer of Allos Therapeutics, Inc., an oncology company acquired by Spectrum Pharmaceuticals, and Senior Vice President, Sales and Marketing, at Bone Care International, Inc., a specialty pharmaceutical company that was acquired by Genzyme Corporation. In addition, Mr. Caruso has held key positions at several well-known pharmaceutical companies, including Novartis, where he was Vice President of Neuroscience Specialty Sales; BASF Pharmaceuticals-Knoll, where we was Vice President, Sales; and 12 years at Bristol-Myers Squibb in several senior roles. Mr. Caruso earned a Bachelor of Science degree in Finance from the University of Nevada. He currently serves on the Board of Directors for Hip Innovation Technology.

**Stephen A. Hill.** Dr. Hill has been a member of the Board of Directors since 2007, and served as its Chairman from 2007 until 2015. Dr. Hill was appointed Chief Executive Officer of Faraday Pharmaceuticals, Inc. in September 2015. Dr. Hill was the President and CEO of Targacept Inc. from December 2012 until the company merged with Catalyst Biosciences, Inc. in August 2015, and he remains a director of the new company. Dr. Hill was the President and CEO of 21CB, a nonprofit initiative of UPMC designed to provide the United States government with a domestic solution for its biodefense and infectious disease biologics portfolio, from March 2011 until December 2011. Dr. Hill served as the President and Chief Executive Officer of Solvay Pharmaceuticals, Inc. from April 2008 until its acquisition by Abbott Laboratories in 2010. Prior to joining Solvay, Dr. Hill had served as ArQule's President and Chief Executive Officer since April 1999. Prior to his tenure at ArQule, Dr. Hill was the Head of Global Drug Development at F. Hoffmann-La Roche Ltd. from 1997 to 1999. Dr. Hill joined Roche in 1989 as Medical Adviser to Roche Products in the United Kingdom. He held several senior positions at Roche, including Medical Director where he was responsible for clinical trials of compounds across a broad range of therapeutic areas, including CNS, HIV, cardiovascular, metabolic and oncology products. Subsequently, he served as Head of International Drug Regulatory Affairs at Roche headquarters in Basel, Switzerland, where he led the regulatory submissions for seven major new chemical entities. Dr. Hill also was a member of Roche's Portfolio Management, Research, Development and Pharmaceutical Division Executive Boards. Prior to Roche, Dr. Hill served seven years with the National Health Service in the United Kingdom in General and Orthopedic Surgery. Dr. Hill has served as the lead director of the board of directors of Lipocine Inc. since January 2014. Dr. Hill is a Fellow of the Royal College of Surgeons of England and holds his scientific and medical degrees from St. Catherine's College at Oxford University. Dr. Hill currently chairs the Compensation Committee. Dr. Hill's extensive experience in a broad range of senior management positions with companies in the life sciences sector make him a highly qualified member of our Board of Directors.

**John Neis.** Mr. Neis has served as a director of Collectar since February 2008. Mr. Neis has been Managing Director of Venture Investors LLC since 1986 and heads the firm's Healthcare practice. He has over 30 years' experience in the venture capital industry and has served on the Board of Directors of numerous companies from formation through initial public offering or sale. Mr. Neis currently serves on the Boards of Directors of Virent, Inc., Deltanoid Pharmaceuticals, Inc., and Inviragen, Inc. He is a former member of the Boards of Directors of several firms including TomoTherapy, Third Wave Technologies (acquired by Hologic) and NimbleGen Systems (acquired by Roche). Mr. Neis was appointed to the Board of the Wisconsin Technology Council and the Wisconsin Growth Capital Coalition. He also serves on the advisory boards for the Business School, the Weinert Applied Ventures Program and Tandem Press at the University of Wisconsin – Madison. Mr. Neis has a B.S. in Finance from the University of Utah, and a M.S. in Marketing and Finance from the University of Wisconsin – Madison. He is a Chartered Financial Analyst. Mr. Neis chairs the Audit Committee. Mr. Neis' extensive experience leading emerging companies makes him a highly qualified member of the Board.

**Stefan D. Loren.** Stefan D. Loren, Ph.D. began serving as director of Collectar in June 2015. Dr. Loren is a member of the Audit Committee and Chair of the Nominating and Corporate Governance Committee. Dr. Loren is the founder of Loren Capital Strategy (LCS), a strategic investment firm focused on life science companies. Most recently, he headed the life science practice of Westwicke Partners, a healthcare-focused consulting firm. Prior to joining Westwicke, he worked as an Analyst/Portfolio Manager with Perceptive Advisors, a health care hedge fund, and MTB Investment Advisors, a long-term oriented family of equity funds. His focus areas included biotechnology, specialty pharmaceuticals, life science tools, and health care service companies. Prior to moving to the buy side, Dr. Loren was Managing Director, Health Care Specialist/Desk Analyst for Legg Mason where he discovered, evaluated, and communicated investment opportunities in the health care area to select clients. In addition, he assisted both advising management teams on strategic options. He started his Wall Street career as a sell side analyst at Legg Mason covering biotechnology, specialty pharmaceuticals, life science tools, pharmaceuticals, and chemistry outsourcing companies. In his research career, Dr. Loren was an early member of Abbott Laboratories Advanced Technologies Division, analyzing and integrating new technological advances in Abbott's pharmaceutical research. Before industry, he was a researcher at The Scripps Research Institute, working with Nobel Laureate K. Barry Sharpless on novel synthetic routes to chiral drugs. Dr. Loren received a doctorate in Organic Chemistry from the University of California at Berkeley and an undergraduate degree in Chemistry from UCSD. His scientific work has been featured in *Scientific American*, *Time*, *Newsweek*, and *Discover*, as well as other periodicals and journals.

**Chad J. Kolean.** Mr. Kolean was appointed Vice President of Finance, Chief Financial Officer and Treasurer of the Company in May 2014, and has over 25 years of experience in finance management. He most recently served as CFO and Treasurer for Pioneer Surgical Technology, Inc., a global manufacturer and distributor of spinal, biological and orthopedic implants acquired by RTI Biologics in July 2013. From 2010 until its merger in 2011 with Accuray, Inc., Mr. Kolean served as Corporate Controller for TomoTherapy, Inc., a publicly traded global leader in developing and manufacturing innovative radiation oncology equipment. From 2001 through 2008, Mr. Kolean held multiple leadership positions of increasing responsibility at Metavante Corporation, a provider of banking and payments technologies and services to financial institutions, businesses and individual consumers worldwide. He brings additional financial and operational leadership experience from companies including Snap-On Inc., Herman Miller and Kaydon Corporation. Mr. Kolean began his career at Arthur Andersen LLP, where he practiced as a Certified Public Accountant. Mr. Kolean earned his B.A. Business Administration and Finance from Hope College.

**Jarrold Longcor.** Mr. Longcor was appointed Senior Vice President of Corporate Development and Operations of the Company in July 2016, and has more than 20 years of pharmaceutical and biotech experience. Prior to joining the Company, he served as chief business officer for Avillion LLP from July 2014 through July 2016, where he was responsible for executing the company's unique co-development partnership strategy. Since September 2013, Mr. Longcor has been the president of SBC Consulting, a corporate development consulting firm focused on developing strategic plans, raising capital, identifying, leading and closing partnership negotiations, market assessments, managing due diligence and managing operations in the biotech industry. From June 2007 through September 2013, he was Vice President of Corporate Development for Rib-X Pharmaceuticals, Inc. (now Melinta Therapeutics) where he was responsible for identifying and concluding several critical collaborations for that company. Prior thereto, Mr. Longcor held key positions in several small to midsized biotech companies where he was responsible for business development, strategic planning and operations. Mr. Longcor holds a B.S. from Dickinson College, an M.S. from Boston University School of Medicine and an M.B.A. from Saint Joseph's University's Haub School of Business.

## SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

At the close of business on November 7, 2016, there were 5,368,235 shares of our common stock outstanding. The following table provides information regarding beneficial ownership of our common stock as of November 7, 2016 including shares and warrants on that date:

- Each person known by us to be the beneficial owner of more than five percent of our common stock;
- Each of our directors;
- Each executive officer named in the summary compensation table; and
- All of our current directors and executive officers as a group.

The address of each executive officer and director is c/o Collectar Biosciences, Inc., 3301 Agriculture Drive, Madison, WI 53716. The persons named in this table have sole voting and investment power with respect to the shares listed, except as otherwise indicated. In these cases, the information with respect to voting and investment power has been provided to us by the security holder. The identification of natural persons having voting or investment power over securities held by a beneficial owner listed in the table below does not constitute an admission of beneficial ownership of any such natural person. Shares included in the “Right to Acquire” column consist of shares that may be purchased through the exercise of options or warrants that are exercisable within 60 days of November 7, 2016.

Name and Address of Beneficial Owner	Outstanding	Right to Acquire	Total	Percentage
Wisconsin Alumni Research Foundation <sup>(1)</sup> 614 Walnut Street, 14 <sup>th</sup> Floor Madison Wisconsin 53726	469,484	469,484	938,968	16.08%
Greenway Properties Inc. <sup>(2)</sup> 4954 N. Shore Drive Egg Harbor, Wisconsin 54209	362,599	164,199	526,798	9.52%
Venture Investors LLC <sup>(3)</sup> University Technology Park 505 S. Rosa Road; Suite 201 Madison, Wisconsin 53719	297,984	51,012	348,996	6.44%
Hertzberg Family Trust <sup>(4)</sup> 2637 Longboat Cove Del Mar, CA 92014	280,000	—	280,000	5.22%
James V. Caruso	47,548	89,656	137,204	2.51%
Chad Kolean	—	10,000	10,000	*
Stephen A. Hill	9,920	12,373	22,293	*
Stefan Loren	—	416	416	*
John Neis <sup>(4)</sup>	297,984	51,012	348,996	6.44%
Jarrold Longcor	—	6,250	6,250	*
All directors and officers as a group (6 persons)	355,452	169,707	525,159	9.48%

\* Less than 1%.

(1) Based on information contained in a report on Schedule 13D filed with the Securities and Exchange Commission on April 25, 2016.

(2) Based on information contained in a report on Schedule 13G filed with the Securities and Exchange Commission on July 25, 2016 and other information provided by the stockholder. Shares in the “Outstanding” column include shares held by Jeffrey Straubel. Mr. Straubel is the President and principal owner of Greenway Properties, Inc. and has sole dispositive and voting power over shares held by Greenway Properties, Inc. Shares in the “Right to Acquire” column consist of shares of common stock issuable upon the exercise of warrants at exercise prices ranging from \$2.13 to \$250.00 per share expiring between December 6, 2016 and October 20, 2021. Certain warrants held by the stockholder provide that the number of shares of common stock to be obtained by each of the holders upon exercise cannot exceed the number of shares that, when combined with all other shares of our common stock and securities beneficially owned by them, would result in them owning more than 4.99% of our outstanding common stock; provided, however that this limitation may be increased to 9.99% by the stockholder upon 61 days prior notice to us. Due to this limitation all such warrants to purchase shares of common stock have been omitted from the “Right to Acquire” column of this table.

- (3) Consists of shares of common stock held by Venture Investors Early Stage Fund IV Limited Partnership and Advantage Capital Wisconsin Partners I, Limited Partnership. VIESF IV GP LLC is the general partner of Venture Investors Early Stage Fund IV Limited Partnership and Venture Investors LLC is the submanager and special limited partner of Advantage Capital Wisconsin Partners I, Limited Partnership. The investment decisions of VIESF IV GP LLC and Venture Investors LLC are made collectively by seven managers, including Mr. Neis. Each such manager and Mr. Neis disclaim such beneficial ownership except to the extent of his pecuniary interest therein. The address of Mr. Neis is c/o Venture Investors LLC, 505 South Rosa Road, #201, Madison, Wisconsin 53719. Shares in the “Right to Acquire” column consist of 283,964 shares of common stock issuable upon the exercise of warrants held by Venture Investors Early Stage Fund IV Limited and Advantage Capital Wisconsin Partners I, Limited Partnership and common stock issuable upon options to purchase 1,624 shares of common stock issued to Mr. Neis in his capacity as director. Shares in the “Right to Acquire” column consist of shares of common stock issuable upon the exercise of warrants at exercise prices ranging from \$2.13 to \$250.00 per share expiring between December 6, 2016 and April 20, 2021. Certain warrants held by the stockholder provide that the number of shares of common stock to be obtained by each of the holders upon exercise cannot exceed the number of shares that, when combined with all other shares of our common stock and securities beneficially owned by them, would result in them owning more than 4.99% of our outstanding common stock; provided, however that this limitation may be increased to 9.99% by the stockholder upon 61 days prior notice to us. Due to this limitation all such warrants to purchase shares of common stock have been omitted from the “Right to Acquire” column of this table.
- (4) Based on information contained in a report on Schedule 13G/A, filed with the Securities and Exchange Commission on June 15, 2016 and a Form 4 filed with the Securities and Exchange Commission on November 1, 2016. Shares in the “Right to Acquire” column consist of shares common stock issuable upon the exercise of warrants at exercise prices ranging from \$3.04 to \$120.00 per share, expiring between December 6, 2016 and April 20, 2021. Richard H. Hertzberg is the trustee of Hertzberg Family Trust and has sole dispositive and voting power for the shares held. Certain warrants held by the stockholder provide that the number of shares of common stock to be obtained by each of the holders upon exercise cannot exceed the number of shares that, when combined with all other shares of our common stock and securities beneficially owned by them, would result in them owning more than 4.99% of our outstanding common stock; provided, however that this limitation may be increased to 9.99% by the stockholder upon 61 days prior notice to us. Due to this limitation all such warrants to purchase shares of common stock have been omitted from the “Right to Acquire” column of this table.

## **CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS**

We do not have a written policy for the review, approval or ratification of transactions with related parties or conflicted transactions. When such transactions arise, they are referred to the Audit Committee for consideration or referred to the Board of Directors for its consideration.

One of our directors, John Neis, is a managing director of Venture Investors LLC, which beneficially owns approximately 6.4% of our outstanding common stock.

The Company's former Chief Scientific Officer and principal founder of Collectar, who resigned after the end of the second quarter of 2016, continues to be a shareholder of the Company, and is a faculty member at our research partner the University of Wisconsin - Madison ("UW"). During the nine months ended September 30, 2016, the Company incurred approximately \$199,000 in expenses from UW for costs associated with clinical trial agreements. The Company had accrued liabilities to UW of approximately \$17,000 as of September 30, 2016.

## UNDERWRITING

We have entered into an underwriting agreement dated November , 2016, with Ladenburg Thalmann & Co. Inc., as the representative of the underwriters (the “representative”) named below and the sole book-running manager of this offering. Subject to the terms and conditions of the underwriting agreement, the underwriters have agreed to purchase the number of our securities set forth opposite its name below.

<b>Underwriter</b>	<b>SHARES OF COMMON STOCK</b>	<b>SHARES OF SERIES A PREFERRED STOCK</b>	<b>SERIES C WARRANTS</b>
Ladenburg Thalmann & Co. Inc.			
Total			

A copy of the underwriting agreement has been filed as an exhibit to the registration statement of which this prospectus is part.

We have been advised by the underwriters that they propose to offer the shares and warrants directly to the public at the public offering price set forth on the cover page of this prospectus. Any securities sold by the underwriters to securities dealers will be sold at the public offering price less a selling concession not in excess of of fixed combination of shares and warrants. The underwriters may allow, and these selected dealers may re-allow, a concession of not more than per fixed combination to other brokers and dealers.

The underwriting agreement provides that the underwriters’ obligation to purchase the securities we are offering is subject to conditions contained in the underwriting agreement.

No action has been taken by us or the underwriters that would permit a public offering of the shares and warrants to in any jurisdiction where action for that purpose is required. None of our securities included in this offering may be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sales of any of the securities offering hereby be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons who receive this prospectus are advised to inform themselves about and to observe any restrictions relating to this offering of securities and the distribution of this prospectus. This prospectus is neither an offer to sell nor a solicitation of any offer to buy the shares and warrants in any jurisdiction where that would not be permitted or legal.

The underwriters have advised us that they do not intend to confirm sales to any accounts over which they exercise discretionary authority.

### Underwriting Discount and Expenses

The following table summarizes the underwriting discount and commission to be paid to the underwriters by us.

	Per Share of Common Stock	Per Share of Series A Preferred Stock	Per Series C Warrant	Total
Public offering price	\$	\$	\$	\$
Underwriting discount to be paid to the underwriters by us (7.5%)	\$	\$	\$	\$
Proceeds to us (before expenses)	\$	\$	\$	\$

We estimate the total expenses payable by us for this offering to be approximately \$ , which amount includes (i) the underwriting discount of \$ (\$ if the underwriters’ over-allotment option is exercised in full), (ii) reimbursement of the accountable expenses of the representative equal to \$65,000, including the legal fees of the representative being paid by us, and (iii) other estimated company expenses of approximately \$ which includes legal, accounting, printing costs and various fees associated with the registration and listing of our shares. In no event will the aggregated expenses of the representative reimbursed exceed \$65,000.

The securities we are offering are being offered by the underwriters subject to certain conditions specified in the underwriting agreement.

## **Over-allotment Option**

We have granted to the underwriters an option, exercisable not later than 45 days after the date of this prospectus, to purchase up to a number of additional shares of common stock equal to 15% of the number of shares of common stock and shares of common stock underlying the Series A Preferred Stock sold in the primary offering and/or up to a number of additional warrants to purchase shares of common stock equal to 15% of the number of warrants sold in the primary offering. Any shares so purchased shall be sold at a price per share equal to the public offering price, less the underwriting discount. Any warrants so purchased shall be sold at a price per warrant of \$ , less the underwriting discount. The underwriters may exercise the option solely to cover over-allotments, if any, made in connection with this offering. If any additional shares of common stock and/or warrants are purchased pursuant to the over-allotment option, the underwriters will offer these shares of common stock and/or warrants on the same terms as those on which the other securities are being offered hereby. The over-allotment option may be used to purchase shares of common stock, or warrants, or any combination thereof, as determined by the representative.

## **Determination of Offering Price**

Our common stock is currently traded on the Nasdaq Capital Market under the symbol "CLRB." On November 11, 2016, the closing price of our common stock was \$1.91 per share.

The public offering price of the securities offered by this prospectus will be determined by negotiation between us and the underwriters. Among the factors considered in determining the public offering price of the shares were:

- our history and our prospects;
- the industry in which we operate;
- our past and present operating results
- the previous experience of our executive officers; and
- the general condition of the securities markets at the time of this offering

The offering price stated on the cover page of this prospectus should not be considered an indication of the actual value of the securities. That price is subject to change as a result of market conditions and other factors, and we cannot assure you that the securities can be resold at or above the public offering price.

## **Lock-up Agreements**

Our officers and directors have agreed with the representative to be subject to a lock-up period of 90 days following the date of this prospectus. This means that, during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, or exercisable or exchangeable for, shares of our common stock. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. We have also agreed, in the underwriting agreement, to similar lock-up restrictions on the issuance and sale of our securities for 90 days following the closing of this offering, although we will be permitted to issue stock options or stock awards to directors, officers and employees under our existing plans. The lock-up period is subject to an additional extension to accommodate for our reports of financial results or material news releases. The representative may, in its sole discretion and without notice, waive the terms of any of these lock-up agreements.

## **Other Relationships**

Upon completion of an offering that meets certain criteria, we have granted the representative a right of first refusal to act as lead or co-lead underwriter or placement agent in connection with any subsequent public or private offering of equity securities or other capital markets financing by us. This right of first refusal extends for twelve months from the effective date of this registration statement. The terms of any such engagement of the representative will be determined by separate agreement.

## **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company.

## **Stabilization, Short Positions and Penalty Bids**

The underwriters may engage in syndicate covering transactions, stabilizing transactions and penalty bids or purchases for the purpose of pegging, fixing or maintaining the price of our common stock:

- Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. Such a naked short position would be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.
- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specific maximum.
- Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These syndicate covering transactions, stabilizing transactions and penalty bids may have the effect of raising or maintaining the market prices of our securities or preventing or retarding a decline in the market prices of our securities. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on The Nasdaq Capital Market, in the over-the-counter market or on any other trading market and, if commenced, may be discontinued at any time.

In connection with this offering, the underwriters also may engage in passive market making transactions in our common stock in accordance with Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of the distribution. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specific purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the prices of our securities. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these transactions or that any transactions, once commenced, will not be discontinued without notice.

## **Indemnification**

We have agreed to indemnify the underwriters and selected dealers against certain liabilities, including certain liabilities arising under the Securities Act, or to contribute to payments that the underwriters or selected dealers may be required to make for these liabilities.

## DESCRIPTION OF SECURITIES

*The following summary description of our common stock is based on the provisions of our Second Amended and Restated Certificate of Incorporation, as amended, which we refer to as our certificate of incorporation or charter, our by-laws, and the applicable provisions of the Delaware General Corporation Law, which we refer to as the DGCL. This description may not contain all of the information that is important to you and is subject to, and is qualified in its entirety by reference to our certificate of incorporation, our by-laws and the applicable provisions of the DGCL. For information on how to obtain copies of our certificate of incorporation and by-laws, see "Where You Can Find More Information."*

### Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 40,000,000 shares of common stock, \$0.00001 par value per share and 7,000 shares of preferred stock, \$0.00001 par value per share. Our certificate of incorporation authorizes us to issue shares of our preferred stock from time to time in one or more series without stockholder approval, each such series to have rights and preferences, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences as our board of directors may determine. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of holders of any preferred stock that we may issue in the future. The issuance of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could have the effect of making it more difficult for others to acquire, or of discouraging others from attempting to acquire, a majority of our outstanding voting stock.

As of November 7, 2016, we had 5,368,235 shares of common stock outstanding and no shares of preferred stock outstanding. All outstanding shares of our common stock are duly authorized, validly issued, fully paid and non-assessable.

### Common Stock

*Voting.* Holders of our common stock are entitled to one vote per share held of record on all matters to be voted upon by our stockholders. Our common stock does not have cumulative voting rights. Persons who hold a majority of the outstanding common stock entitled to vote on the election of directors can elect all of the directors who are eligible for election.

*Dividends.* Subject to preferences that may be applicable to the holders of any outstanding shares of our preferred stock, the holders of our common stock are entitled to receive such lawful dividends as may be declared by our board of directors.

*Liquidation and Dissolution.* In the event of our liquidation, dissolution or winding up, and subject to the rights of the holders of any outstanding shares of our preferred stock, the holders of shares of our common stock will be entitled to receive pro rata all of our remaining assets available for distribution to our stockholders.

*Other Rights and Restrictions.* Our charter prohibits us from granting preemptive rights to any of our stockholders.

### Preferred Stock

Our board of directors has designated \_\_\_\_\_ shares of our preferred stock as Series A Convertible Preferred Stock ("Series A Preferred Stock"), none of which are currently issued and outstanding. The preferences and rights of the Series A Preferred Stock will be as set forth in a Certificate of Designation (the "Series A Certificate of Designation") filed as an exhibit to the registration statement of which this prospectus is a part.

Pursuant to a transfer agency agreement between us and American Stock Transfer & Trust Company, LLC, as transfer agent, the Series A Preferred Stock will be issued in book-entry form and shall initially be represented only by one or more global certificates deposited with The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

The following is a summary of the material terms of the Series A Preferred Stock.

*Voting.* Except as otherwise required by law, the Series A Preferred Stock will have no voting rights. However, as long as any shares of Series A Preferred Stock are outstanding, we may not, without the affirmative vote of the holders of a majority of the then outstanding shares of Series A Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series A Preferred Stock or alter or amend Certificate of Designation relating to the Series A Preferred Stock, (b) amend its certificate of incorporation or other charter documents in any manner that adversely affects any rights of the holders of Series A Preferred Stock, (c) increase the number of authorized shares of Preferred Stock, or (d) enter into any agreement with respect to any of the foregoing.

*Dividends.* Except for stock dividends or distributions for which adjustments are to be made to the conversion rate of the Series A Preferred Stock, holders of Series A Preferred Stock will be entitled to receive, and we will be required to pay, dividends on shares of Series A Preferred Stock equal (on an as-if-converted-to-common-stock basis without regard to conversion limitations) to and in the same form as dividends actually paid on shares of the common stock when, as and if such dividends are paid on shares of the common stock. No other dividends shall be paid on shares of Series A Preferred Stock.

*Liquidation.* Upon our liquidation, dissolution or winding-up, whether voluntary or involuntary, the holders of the Series A Preferred Stock shall be entitled to receive out of our assets, whether capital or surplus, the same amount that a holder of common stock would receive if the Series A Preferred Stock were fully converted (disregarding for such purposes any conversion limitations) to common stock which amounts shall be paid *pari passu* with all holders of common stock.

*Conversion.* Each share of Series A Preferred Stock shall be convertible, at any time and from time to time from at the option of the holder thereof, into that number of shares of common stock determined by dividing the stated value of such share of Series A Preferred Stock by Series A Conversion Price. The stated value of one share of Series A Preferred Stock is initially \$100,000.00 and the "Series A Conversion Price" will initially be \$ \_\_\_\_\_, subject to adjustment for stock splits, stock dividends, distributions, subdivisions and combinations.

*Conversion Limitation.* A holder will not have the right to convert any shares of Series A Preferred Stock if the holder (together with its affiliates) would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to the conversion, as such percentage ownership is determined in accordance with the terms of the Series A Preferred Stock Certificate of Designation. However, any holder may increase or decrease such percentage to any other percentage, but in no event above 9.99%, provided that any increase of such percentage will not be effective until 61 days after notice of such increase from the holder to us.

*Exchange Listing.* We do not plan on applying to list the Series A Preferred Stock on the Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

*Fundamental Transactions.* In the event of a fundamental transaction, as described in the Series A Preferred Stock Certificate of Designation and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the Series A Preferred Stock will be entitled to receive upon conversion of the Series A Preferred Stock the kind and amount of securities, cash or other property that the holders would have received had they converted the Series A Preferred Stock immediately prior to such fundamental transaction.

*Redemption.* Beginning on the third anniversary of the closing date of this offering, we will have the right to cause each holder of Series A Preferred Stock to convert all or part of such holder's Series A Preferred Stock upon 20 calendar days prior written notice to such holder (which notice may be given by the transfer agent), subject to the Preferred Stock Beneficial Ownership Limitation. Such notice may not be given prior to the third anniversary of the closing date of this offering and shall be given in accordance with any applicable procedures of the depository for the Series A Preferred Stock. Additionally, subject to certain exceptions, at any time prior to the three year anniversary of the issuance of the Series A Preferred Stock, subject to the Preferred Stock Beneficial Ownership Limitation, we will have the right to cause each holder of the Series A Preferred Stock to convert all or part of such holder's Series A Preferred Stock in the event that (i) the volume weighted average price of our common stock for 30 consecutive trading days (the "Measurement Period") exceeds \_\_\_\_\_% of the exercise price of the Series C Warrants (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and similar transactions), and (ii) the average daily trading volume for such Measurement Period exceeds \$ \_\_\_\_\_ per trading day. Our right to cause each holder of the Series A Preferred Stock to convert all or part of such holder's Series A Preferred Stock shall be exercised ratably among the holders of the then outstanding preferred stock.

### **Warrants to be Issued as Part of this Offering**

The warrants offered in this offering will be issued in the form of Series C Warrant filed as an exhibit to the registration statement of which this prospectus is a part. You should review a copy of the form of warrant for a complete description of the terms and conditions applicable to the warrants. The following is a brief summary of the Series C Warrant and is subject in all respects to the provisions contained in the form of warrant. Pursuant to a warrant agency agreement between us and American Stock Transfer and Trust Company, as warrant agent, the Series C Warrant will be issued in book-entry form and shall initially be represented by one or more global certificates deposited with The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. We do not plan on applying to list the Series C Warrants on the Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

No fractional shares of common stock will be issued in connection with the exercise of a Series C Warrant. Warrant amounts will be rounded either up or down to the next whole share. A Series C Warrant may be transferred by a holder, upon surrender of the warrant, properly endorsed (by the holder executing an assignment in the form attached to the warrant).

UNLESS OTHERWISE A HOLDER OF OUR COMMON STOCK, THE HOLDER OF A SERIES C WARRANT WILL NOT POSSESS ANY RIGHTS AS A STOCKHOLDER UNDER THAT WARRANT UNTIL THE HOLDER EXERCISES THE WARRANT. THE SERIES C WARRANTS MAY BE TRANSFERRED INDEPENDENT OF THE COMMON STOCK OR SERIES A PREFERRED STOCK WITH WHICH THEY WERE ISSUED, SUBJECT TO APPLICABLE LAWS.

Each Series C Warrant represents the right to purchase one share of common stock at an exercise price equal to \$ , subject to adjustment as described below. Each Series C Warrant may be exercised on or after the closing date of this offering through and including the close of business on the fifth anniversary of the date of issuance. Each Series C Warrant will have a cashless exercise right in the event that the shares of common stock underlying such warrants are not covered by an effective registration statement at the time of such exercise.

The Series C Warrants are callable by us in certain circumstances. Subject to certain exceptions, in the event that while the warrants are outstanding and following, (i) the volume weighted average price of our common stock for each of 30 consecutive trading days (the "Measurement Period") exceeds \_\_\_% of initial Exercise Price (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and similar transactions), (ii) the average daily trading volume for such Measurement Period exceeds \$\_\_\_\_\_ per trading day and (iii) the holder is not in possession of any information that constitutes or might constitute, material non-public information which was provided by the Company, then we may, within 1 trading day of the end of such Measurement Period, upon notice (a "Call Notice"), call for cancellation of all or any portion of the Series C Warrants for which a notice of exercise has not yet been delivered (a "Call") for consideration equal to \$0.001 per share. Any portion of a Series C Warrant subject to such Call Notice for which a notice of exercise shall not have been received by the Call Date (as hereinafter defined) will be canceled at 6:30 p.m. (New York City time) on the tenth trading day after the date the Call Notice is sent by the Company (such date and time, the "Call Date"). Our right to Call the Series C Warrants shall be exercised ratably among the holders based on each holder's initial purchase of warrants from us.

The exercise price and the number of shares underlying the Series C Warrants are subject to appropriate adjustment in the event of stock splits, stock dividends on our common stock, stock combinations or similar events affecting our common stock. In addition, in the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common shares are converted or exchange for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding common shares, then following such event, the holders of the warrants will be entitled to receive upon exercise of the warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the warrants. Further, as more fully described in the warrants, in the event of certain fundamental transactions where the exercise price of the warrant exceeds the value of the common stock, the holders of the warrants will be entitled to receive consideration in an amount equal to the Black-Scholes value of the warrants as of the date of such transaction, payable in the same kind and amount of consideration as that received by the holders of common stock.

The Series C Warrants are not exercisable by their holder to the extent (but only to the extent) that such holder or any of its affiliates would beneficially own in excess of 4.99% subject to increase to 9.99% of our common stock.

Amendments and waivers of the terms of the Series C Warrants require the written consent of the holder of such warrant and us.

#### **Anti-Takeover Effect of Certain Charter and By-Law Provisions**

Provisions of our charter and our by-laws could make it more difficult to acquire us by means of a merger, tender offer, proxy contest, open market purchases, removal of incumbent directors and otherwise. These provisions, which are summarized below, are expected to discourage types of coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of us to first negotiate with us. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging takeover or acquisition proposals because negotiation of these proposals could result in an improvement of their terms.

*Authorized but Unissued Stock.* We have shares of common stock and preferred stock available for future issuance, in some cases, without stockholder approval. We may issue these additional shares for a variety of corporate purposes, including public offerings to raise additional capital, corporate acquisitions, stock dividends on our capital stock or equity compensation plans. The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us, thereby protecting the continuity of our management. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

*Amendments to By-laws.* Our certificate of incorporation and by-laws authorize the Board to amend, repeal, alter or rescind the by-laws at any time without stockholder approval. Allowing the Board to amend our by-laws without stockholder approval enhances Board control over our by-laws.

*Classification of Board; Removal of Directors; Vacancies.* Our certificate of incorporation provide for the division of the Board into three classes as nearly equal in size as possible with staggered three-year terms; that directors may be removed only for cause by the affirmative vote of the holders of two-thirds of our shares of capital stock entitled to vote; and that any vacancy on the Board, however occurring, including a vacancy resulting from an enlargement of the board, may be filled only by the vote of a majority of the directors then in office. The limitations on the removal of directors and the filling of vacancies could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of us. Our certificate of incorporation requires the affirmative vote of the holders of at least 75% of our shares of capital stock issued and outstanding and entitled to vote to amend or repeal any of these provisions.

*Notice Periods for Stockholder Meetings.* Our by-laws provide that for business to be brought by a stockholder before an annual meeting of stockholders, the stockholder must give written notice to the corporation not less than 90 nor more than 120 days prior to the one year anniversary of the date of the annual meeting of stockholders of the previous year; provided, however, that in the event that the annual meeting of stockholders is called for a date that is not within 30 days before or after such anniversary date, notice by the stockholder must be received not later than the close of business on the tenth day following the day on which the corporation's notice of the date of the meeting is first given or made to the stockholders or disclosed to the general public, whichever occurs first.

*Stockholder Action; Special Meetings.* Our certificate of incorporation provides that stockholder action may not be taken by written action in lieu of a meeting and provides special meetings of the stockholders may only be called by our president or by our Board. These provisions could have the effect of delaying until the next stockholders' meeting stockholder actions that are favored by the holders of a majority of our outstanding voting securities. These provisions may also discourage another person or entity from making a tender offer for our common stock, because that person or entity, even if it acquired a majority of our outstanding voting securities, would be able to take action as a stockholder only at a duly called stockholders' meeting, and not by written consent. Our certificate of incorporation requires the affirmative vote of the holders of at least 75% of our shares of capital stock issued and outstanding and entitled to vote to amend or repeal the provisions relating to prohibition on action by written consent and the calling of a special meeting of stockholders.

*Nominations.* Our by-laws provide that nominations for election of directors may be made only by (i) the Board or a committee appointed by the Board; or (ii) a stockholder entitled to vote on director election, if the stockholder provides notice to the Secretary of the Corporation presented not less than 90 days nor more than 120 days prior to the anniversary of the last annual meeting (subject to the limited exceptions set forth in the bylaws). These provisions may deter takeovers by requiring that any stockholder wishing to conduct a proxy contest have its position solidified well in advance of the meeting at which directors are to be elected and by providing the incumbent Board with sufficient notice to allow them to put an election strategy in place.

## **Nasdaq Capital Market Listing**

Our common stock is listed for trading and quotation on the Nasdaq Capital Market under the trading symbol "CLRB." Certain warrants to purchase shares of our common stock expiring on August 20, 2019 are listed on the Nasdaq Capital Market under the trading symbol "CLRBW," and certain warrants to purchase shares of our common stock expiring on April 20, 2021 are listed on the Nasdaq Capital Market under the trading symbol "CLRBZ."

On August 14, 2015 we received a notice from Nasdaq of non-compliance with its continuing listing rules, namely that our stockholders' equity at June 30, 2015 of \$2,373,371, as reported in our Form 10-Q for the quarter then ended, was less than \$2,500,000 minimum. We did not satisfy the terms of a compliance plan approved by Nasdaq. On February 11, 2016, Nasdaq issued a second notice of noncompliance. The failure to meet continuing compliance standards subjects our common stock to delisting. At a hearing on March 31, 2016, the Company requested, and NASDAQ subsequently granted, an extension of time to effect transactions to allow us to regain compliance and to report the same. On April 20, 2016, we closed the 2016 Underwritten Offering, and on May 16, 2016, Nasdaq issued a determination that the Company had evidenced compliance with all requirements for continued listing on The Nasdaq Capital Market and, accordingly, the listing qualifications matter had been closed.

On January 21, 2016 we received a notice from Nasdaq of non-compliance with its listing rules regarding the requirement that the listed securities maintain a minimum bid price of \$1 per share. On March 4, 2016, the Company effected a reverse stock split at a ratio of 1-for-10, and on March 21, 2016, Nasdaq notified the Company that we had regained compliance with the minimum bid price requirement.

## **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company.

## **DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES**

Our charter contains provisions to indemnify our directors and officers to the maximum extent permitted by Delaware law. We believe that indemnification under our charter covers at least negligence on the part of an indemnified person. Our charter permits us to advance expenses incurred by an indemnified person in connection with the defense of any action or proceeding arising out of the person's status or service as our director, officer, employee or other agent upon an undertaking by the person to repay those advances if it is ultimately determined that the person is not entitled to indemnification.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable.

## **WHERE YOU CAN FIND MORE INFORMATION**

We are a reporting company and file annual, quarterly and special reports, and other information with the Securities and Exchange Commission. Copies of the reports and other information may be read and copied at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can request copies of such documents by writing to the SEC and paying a fee for the copying cost. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a web site at <http://www.sec.gov> that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC.

This prospectus is part of a registration statement on Form S-1 that we filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules and regulations of the SEC. We have also filed exhibits and schedules with the registration statement that are excluded from this prospectus. For further information you may:

- read a copy of the registration statement, including the exhibits and schedules, without charge at the SEC's Public Reference Room; or
- obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

## **LEGAL MATTERS**

The validity of the securities being offered by this prospectus has been passed upon for us by Foley Hoag LLP, Boston, Massachusetts. Ellenoff Grossman & Schole LLP, New York, New York, is acting as counsel to the representative in this offering.

## **EXPERTS**

The audited financial statements incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Baker Tilly Virchow Krause, LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

## **INCORPORATION OF DOCUMENTS BY REFERENCE**

The Securities and Exchange Commission allows us to "incorporate by reference" information into this prospectus. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus, except for any information that is superseded by other information that is included in this prospectus.

We incorporate by reference into this prospectus the following document, which we have previously filed with the SEC:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, filed with the SEC on March 11, 2016;
- our Annual Report on Form 10-K/A for the fiscal year ended December 31, 2015, filed with the SEC on July 1, 2016;
- our Annual Report on Form 10-K/A for the fiscal year ended December 31, 2015, filed with the SEC on October 20, 2016;
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, filed with the SEC on May 12, 2016;
- our Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, filed with the SEC on August 11, 2016;
- our Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, filed with the SEC on November 10, 2016;
- our Definitive Proxy Statement on Schedule 14A for a special meeting of stockholders, filed with the SEC on January 7, 2016;

- our Definitive Proxy Statement on Schedule 14A for our special meeting in lieu of our 2016 annual meeting of stockholders, filed with the SEC on June 1, 2016;
- our Current Report on Form 8-K dated January 21, 2016, filed with the SEC on January 26, 2016;
- our Current Report on Form 8-K dated February 8, 2016, filed with the SEC on February 11, 2016;
- our Current Report on Form 8-K dated February 11, 2016, filed with the SEC on February 17, 2016;
- our Current Report on Form 8-K dated March 4, 2016, filed with the SEC on March 4, 2016;
- our Current Report on Form 8-K dated March 11, 2016, filed with the SEC on March 17, 2016;
- our Current Report on Form 8-K dated April 14, 2016, filed with the SEC on April 14, 2016;
- our Current Report on Form 8-K dated April 15, 2016, filed with the SEC on April 21, 2016;
- our Current Report on Form 8-K dated May 2, 2016, filed with the SEC on May 3, 2016;
- our Current Report on Form 8-K dated May 16, 2016, filed with the SEC on May 19, 2016;
- our Current Report on Form 8-K dated May 12, 2016, filed with the SEC on May 20, 2016;
- our Current Report on Form 8-K dated June 29, 2016, filed with the SEC on June 30, 2016;
- our Current Report on Form 8-K dated July 8, 2016, filed with the SEC on July 14, 2016;
- our Current Report on Form 8-K dated July 14, 2016, filed with the SEC on July 14, 2016;
- our Current Report on Form 8-K dated July 15, 2016, filed with the SEC on July 20, 2016;
- our Current Report on Form 8-K dated July 25, 2016, filed with the SEC on July 27, 2016; and
- the description of our securities contained in our Registration Statement on Form 8-A filed on August 14, 2014, including any amendment or report filed for the purpose of updating such description.

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, prior to the termination of the offering shall be deemed to be incorporated by reference into this prospectus.

You should rely only on the information contained in this prospectus, as updated and supplemented by any prospectus supplement, or that information to which this prospectus or any prospectus supplement has referred you by reference. We have not authorized anyone to provide you with any additional information.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein 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.

You may request and obtain a copy of any of the filings incorporated herein by reference, at no cost, by writing or telephoning us at the following address or phone number:

Collectar Biosciences, Inc., 3301 Agriculture Drive, Madison, WI 53716, Attention: Chief Financial Officer (608) 441-8120.

## GLOSSARY OF CERTAIN SCIENTIFIC TERMS

**Cytotoxic** — Cytotoxicity is the quality of being toxic to cells (i.e. cell-killing). Many cancer chemotherapeutic drugs are cytotoxic to cancer cells (and, to some extent, normal cells) thus resulting in unwanted side-effects e.g. nausea/vomiting, hair loss, suppression of the immune system.

**Dosimetry** — Radiation dosimetry is the calculation of absorbed dose and optimization of dose delivery in radiation therapy.

**Lipid Rafts** — Specialized regions of the membrane phospholipid bilayer that contain high concentrations of cholesterol and sphingolipids and serve to organize cell surface and intracellular signaling molecules (e.g. growth factor and cytokine receptors, the phosphatidylinositol 3-kinase (P13K)/Akt survival pathway).

**Radiolabeled** — Refers to a molecule containing a radioisotope as a part of its structure.

**Radioisotope** — Also referred to as radioactive isotopes or radionuclides. These are variants of atoms of particular chemical elements (e.g. iodine) with an unstable nucleus that can undergo radioactive decay during which ionizing radiation (e.g. gamma rays, subatomic particles) is emitted.

**Uptake** — An act of taking in or absorbing, especially into a living organism, tissue or cell.

**Xenograft** — Tissue, organs or cells from an individual of one species transplanted into or grafted onto an individual of another species.

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**PROSPECTUS**

**Up to \$10,000,000 in Shares of Common Stock,  
Warrants to Purchase Shares of Common Stock and  
Shares of Series A Convertible Preferred Stock**



*Sole Bookrunner*

**LADENBURG THALMANN**

*Co-Manager*

**Aegis Capital Corp.**

Through and including \_\_\_\_\_, 2016 (the 25<sup>th</sup> day after the date of this offering), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

**PART II**

**INFORMATION NOT REQUIRED IN PROSPECTUS**

**Item 16. Exhibits.**

Exhibit No.	Description	Filed with this Form S-1	Incorporated by Reference		
			Form	Filing Date	Exhibit No.
1.1	Form of Underwriting Agreement	X			
2.1	Agreement and Plan of Merger by and among Novelos Therapeutics, Inc., Cell Acquisition Corp. and Collectar, Inc. dated April 8, 2011		8-K	April 11, 2011	2.1
3.1	Second Amended and Restated Certificate of Incorporation		8-K	April 11, 2011	3.1
3.2	Certificate of Ownership and Merger of Collectar Biosciences, Inc. with and into Novelos Therapeutics, Inc.		8-K	February 11, 2014	3.1
3.3	Certificate of Amendment to Second Amended and Restated Certificate of Incorporation		8-K	June 13, 2014	3.1
3.4	Certificate of Amendment to Second Amended and Restated Certificate of Incorporation		8-K	June 19, 2015	3.2
3.5	Certificate of Amendment to Second Amended and Restated Certificate of Incorporation		8-K	March 4, 2016	3.1
3.6	Amended and Restated By-laws		8-K	June 1, 2011	3.1
3.7	Form of Certificate of Designation of Series A Preferred Stock	X			
4.1	Form of common stock certificate		S-1/A	November 9, 2011	4.1
4.2	Form of Series A Preferred Stock certificate	X			
4.3	Form of Series C Warrant	X			
4.4	Form of Warrant Agency Agreement	X			
5.1	Legal Opinion of Foley Hoag LLP		S-1	October 28, 2016	5.1
10.1	Form of non-plan non-qualified stock option used from February to May 2005		SB-2	November 16, 2005	10.4
10.2	Form of non-plan non-qualified stock option used after May 2005		SB-2	November 16, 2005	10.5
10.3	2006 Stock Incentive Plan, as amended		8-K	December 18, 2013	10.1
10.4	Form of Incentive Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.1
10.5	Form of Non-Statutory Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.2
10.6	Common Stock Purchase Warrant dated February 11, 2009		8-K	February 18, 2009	4.2
10.7	Form of Common Stock Purchase Warrant issued pursuant to the Consent and Waiver of Holders of Series C Convertible Preferred Stock and Series E Convertible Preferred Stock dated July 6, 2010		S-1A	July 7, 2010	10.53
10.8	Form of Common Stock Purchase Warrant dated April 8, 2011		8-K	April 11, 2011	4.3
10.9	Securities Purchase Agreement dated April 8, 2011		8-K	April 11, 2011	10.1
10.10	License Agreement between Collectar, LLC and the Regents of the University of Michigan dated September 14, 2003, as amended through June 2010		S-1	July 1, 2011	10.31
10.11	Lease Agreement between Collectar, LLC and McAllen Properties LLC, as amended and extended		S-1	July 1, 2011	10.32
10.12	Loan Agreement between the Wisconsin Department of Commerce and Collectar, Inc. dated September 15, 2010		S-1	July 1, 2011	10.33
10.13	General Business Security Agreement dated September 15, 2010		S-1	July 1, 2011	10.34

10.14	Form of Warrant dated December 6, 2011	S-1/A	November 9, 2011	4.2
10.15	Placement Agent Agreement dated April 9, 2012 between the Company and Rodman and Renshaw, LLC	S-1	April 9, 2012	10.31
10.16	Securities Purchase Agreement dated June 7, 2012	8-K	June 11, 2012	10.1
10.17	Amendment Agreement dated May 11, 2012 between the Company and Rodman and Renshaw, LLC	S-1/A	May 14, 2012	10.33
10.18	Form of Common Stock Purchase Warrant dated June 13, 2012	8-K	June 11, 2012	4.1
10.19	Securities Purchase Agreement between the Company and Renova Industries Ltd.	10-Q	November 6, 2012	10.2
10.20	Form of Securities Purchase Agreement	8-K	February 14, 2013	10.1
10.21	Form of Common Stock Purchase Warrant	8-K	February 14, 2013	4.1
10.22	Amendment and restated Placement Agent Agreement dated January 8, 2013 between the Company and Burrill LLC	S-1/A	January 31, 2013	10.37
10.23	Retention Agreement between the Company and Christopher Pazoles dated July 26, 2013	10-Q	November 13, 2013	10.2
10.24	Retention Agreement between the Company and Joanne M. Protano dated July 26, 2013	10-Q	November 13, 2013	10.3
10.25	Consulting Agreement between the Company and Simon Pedder dated October 4, 2013	10-Q	November 13, 2013	10.4
10.26	Employment Agreement between the Company and Simon Pedder dated October 4, 2013	10-Q	November 13, 2013	10.5
10.27	Waiver Agreement between the Company and Renova Assets Ltd. dated October 9, 2013	8-K	October 10, 2013	10.1
10.28	Securities Purchase Agreement dated February 5, 2014	8-K	February 10, 2014	10.1
10.29	Form of Convertible Debenture	8-K	February 10, 2014	4.1
10.30	Form of Common Stock Purchase Warrant	8-K	February 10, 2014	4.2
10.31	Form of Warrant Agreement between Collectar Biosciences, Inc. and American Stock Transfer and Trust Company	S-1/A	July 7, 2014	10.31
10.32	Form of Underwriting Agreement	S-1/A	July 7, 2014	1.1
10.33	Form of Note Purchase and Security Agreement	10-Q	August 4, 2014	10.1
10.34	Form of 8% Secured Promissory Note	10-Q	August 4, 2014	10.2
10.35	Form of Consent Agreement with Debenture Holders	10-Q	August 4, 2014	10.3
10.36	2015 Stock Incentive Plan	10-Q	August 12, 2015	10.1
10.37	Employment Agreement between the Company and James Caruso, dated June 15, 2015	10-Q	August 12, 2015	10.2
10.38	Placement Agency Agreement dated September 28, 2015 between the Company and Ladenburg Thalmann & Co. Inc.	8-K	September 30, 2015	1.1
10.39	Form of Series B Pre-Funded Warrant	8-K	September 30, 2015	4.1
10.40	Form of Series A Warrant	8-K	September 30, 2015	4.2
10.41	Securities Purchase Agreement dated September 28, 2015	8-K	September 30, 2015	10.1
10.42	Registration Rights Agreement dated September 28, 2015	8-K	September 30, 2015	10.2
10.43	Amendment and Exchange Agreement dated April 13, 2016	S-1/A	April 14, 2016	10.43
10.44	Form of Underwriting Agreement	S-1/A	April 14, 2016	1.1
10.45	Form of Series A Warrant	S-1/A	April 14, 2016	4.2
10.46	Form of Series B Pre-Funded Warrant	S-1/A	April 14, 2016	4.3
10.47	Form of Warrant Agency Agreement	S-1/A	April 14, 2016	4.4
21.1	List of Subsidiaries	10-K	March 11, 2016	21.1
23.1	Consent of Foley Hoag LLP (included in Exhibit 5.1)	S-1	October 28, 2016	23.1
23.2	Consent of Baker Tilly Virchow Krause, LLP	S-1/A	November 14, 2016	23.2
24.1	Powers of Attorney (included on signature page)	S-1	October 28, 2016	24.1

## Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

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

- (i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;
- (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

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

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

4. That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to the offering 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.

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

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 Act and will be governed by the final adjudication of such issue.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-1 and has duly caused this amendment to the registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Madison, State of Wisconsin, on November 18, 2016.

**CELLECTAR BIOSCIENCES, INC.**

By: /s/ James Caruso  
James Caruso  
President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this amendment to the registration statement has been signed by the following persons in the indicated capacities as of November 18, 2016.

<b>Signature</b>	<b>Title</b>	<b>Date</b>
<u>/s/ James Caruso</u> James Caruso	Chief Executive Officer and Director ( <i>principal executive officer</i> )	November 18, 2016
<u>/s/ Chad J. Kolean</u> Chad J. Kolean	Chief Financial Officer ( <i>principal financial officer and principal accounting officer</i> )	November 18, 2016
* <u>Stephen A. Hill</u>	Director	November 18, 2016
* <u>Stefan Loren</u>	Director	November 18, 2016
* <u>John Neis</u>	Director	November 18, 2016

\* /s/ James Caruso as attorney-in-fact.

**EXHIBIT INDEX**

<b>Exhibit No.</b>	<b>Description</b>	<b>Filed with this Form S-1</b>	<b>Incorporated by Reference</b>		
			<b>Form</b>	<b>Filing Date</b>	<b>Exhibit No.</b>
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3.6	Amended and Restated By-laws		8-K	June 1, 2011	3.1
3.7	Form of Certificate of Designation of Series A Preferred Stock	X			
4.1	Form of common stock certificate		S-1/A	November 9, 2011	4.1
4.2	Form of Series A Preferred Stock certificate	X			
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10.44	Form of Underwriting Agreement	S-1/A	April 14, 2016	1.1
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10.46	Form of Series B Pre-Funded Warrant	S-1/A	April 14, 2016	4.3
10.47	Form of Warrant Agency Agreement	S-1/A	April 14, 2016	4.4
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24.1	Powers of Attorney (included on signature page)	S-1	October 28, 2016	24.1

\_\_\_\_\_  
SHARES OF COMMON STOCK  
\_\_\_\_\_  
SHARES OF SERIES A CONVERTIBLE PREFERRED STOCK  
(CONVERTIBLE INTO \_\_\_\_\_ SHARES OF COMMON STOCK) AND  
\_\_\_\_\_  
SERIES C WARRANTS (EXERCISABLE FOR \_\_\_\_\_ SHARES)

CELLECTAR BIOSCIENCES, INC.

UNDERWRITING AGREEMENT

\_\_\_\_\_, 2016

Ladenburg Thalmann & Co. Inc.  
As the Representative of the  
Several underwriters, if any, named in Schedule I hereto  
4400 Biscayne Blvd., 12<sup>th</sup> Floor  
Miami, Florida 33137

Ladies and Gentlemen:

The undersigned, CELLECTAR BIOSCIENCES, INC., a Delaware corporation (collectively with its subsidiaries and affiliates, including, without limitation, all entities disclosed or described in the Registration Statement as being subsidiaries or affiliates of Cellectar Biosciences, Inc., the "Company"), hereby confirms its agreement (this "Agreement") with the several underwriters (such underwriters, including the Representative (as defined below), the "Underwriters" and each an "Underwriter") named in Schedule I hereto for which LADENBURG THALMANN & CO. INC. is acting as representative to the several Underwriters (the "Representative" and if there are no Underwriters other than the Representative, references to multiple Underwriters shall be disregarded and the term Representative as used herein shall have the same meaning as Underwriter) on the terms and conditions set forth herein.

It is understood that the several Underwriters are to make a public offering of the Public Securities as soon as the Representative deems it advisable to do so. The Public Securities are to be initially offered to the public at the initial public offering price set forth in the Prospectus. The Representative may from time to time thereafter change the public offering price and other selling terms.

It is further understood that you will act as the Representative for the Underwriters in the offering and sale of the Closing Securities and, if any, the Option Securities in accordance with this Agreement.

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**ARTICLE I.  
DEFINITIONS**

1 . 1     Definitions. In addition to the terms defined elsewhere in this Agreement (a) capitalized terms that are not otherwise defined herein have the meanings given to such terms in the Certificate of Designation (as defined herein) and (b) the following terms have the meanings set forth in this Section 1.1:

“Action” shall have the meaning ascribed to such term in Section 3.1(k).

“Affiliate” means with respect to any Person, any other Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with such Person as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Certificate of Designation” means the Certificate of Designation to be filed prior to the Closing by the Company with the Secretary of State of Delaware in the form of Exhibit F attached hereto.

“Closing” means the closing of the purchase and sale of the Closing Securities pursuant to Section 2.1.

“Closing Date” means the hour and the date on the Trading Day on which all conditions precedent to (i) the Underwriters’ obligations to pay the Closing Purchase Price and (ii) the Company’s obligations to deliver the Closing Securities, in each case, have been satisfied or waived, but in no event later than 10:00 a.m. (New York City time) on the third Trading Day following the date hereof or at such earlier time as shall be agreed upon by the Representative and the Company.

“Closing Preferred Shares” shall have the meaning ascribed to such term in Section 2.1(a)(ii).

“Closing Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b), which aggregate purchase price shall be net of the underwriting discounts and commissions.

“Closing Securities” shall have the meaning ascribed to such term in Section 2.1(a)(iii).

“Closing Shares” shall have the meaning ascribed to such term in Section 2.1(a)(i).

“Closing Warrants” shall have the meaning ascribed to such term in Section 2.1(a)(iii).

“Combined Preferred Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Combined Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.00001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Company Auditor” means Baker Tilly Virchow Krause, LLP, with offices located at 10 Terrace Court, Madison, WI 53718.

“Company Counsel” means Foley Hoag LLP, with offices located at 155 Seaport Boulevard, Seaport West, Boston, Massachusetts 02210.

“Conversion Price” shall have the meaning ascribed to such term in the Certificate of Designation.

“Conversion Shares” shall have the meaning ascribed to such term in the Certificate of Designation.

“Effective Date” shall have the meaning ascribed to such term in Section 3.1(f).

“EGS” means Ellenoff Grossman & Schole LLP, with offices located at 1345 Avenue of the Americas, New York, New York 10105.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Execution Date” shall mean the date on which the parties execute and enter into this Agreement.

“Exempt Issuance” means the issuance of (a) shares of Common Stock or options to employees, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose, by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose, (b) shares of Common Stock or options to consultants or advisors to the Company, not to exceed 100,000 shares of Common Stock individually or in the aggregate, provided that any such issuance is approved by a majority of the members of the Board of Directors, (c) securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities, and (d) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities (unless such entity is a securityholder of such synergistic business).

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“FINRA” means the Financial Industry Regulatory Authority.

“GAAP” shall have the meaning ascribed to such term in Section 3.1(i).

“Indebtedness” means (a) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (b) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company’s consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (c) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP.

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Lock-Up Agreements” means the lock-up agreements, in the form of Exhibit E attached hereto, delivered on the date hereof by each of the Company’s officers and directors.

“Material Adverse Effect” means (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole or (iii) a material adverse effect on the Company’s ability to perform in any material respect on a timely basis its obligations under any Transaction Document.

“Offering” shall have the meaning ascribed to such term in Section 2.1(c).

“Option Closing Date” shall have the meaning ascribed to such term in Section 2.2(c).

“Option Closing Purchase Price” shall have the meaning ascribed to such term in Section 2.2(b), which aggregate purchase price shall be net of the underwriting discounts and commissions.

“Option Securities” shall have the meaning ascribed to such term in Section 2.2(a).

“Option Shares” shall have the meaning ascribed to such term in Section 2.2(a).

“Option Warrants” shall have the meaning ascribed to such term in Section 2.2(a).

“Over-Allotment Option” shall have the meaning ascribed to such term in Section 2.2.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Preferred Stock” means up to \_\_\_\_\_ shares of the Company’s Series A Convertible Preferred Stock issued or issuable pursuant to Section 2.1(a)(i) and having the rights, preferences and privileges set forth in the Certificate of Designation, in the form of Exhibit F attached hereto.

“Preliminary Prospectus” means, if any, any preliminary prospectus relating to the Securities included in the Registration Statement or filed with the Commission pursuant to Rule 424(b).

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the final prospectus filed for the Registration Statement.

“Prospectus Supplement” means, if any, any supplement to the Prospectus complying with Rule 424(b) of the Securities Act that is filed with the Commission.

“Public Securities” means, collectively, the Closing Securities and, if any, the Option Securities.

“Registration Statement” means, collectively, the various parts of the registration statement prepared by the Company on Form S-1 (File No. 333-214310) with respect to the Securities, each as amended as of the date hereof, including the Prospectus and Prospectus Supplement, if any, the Preliminary Prospectus, if any, all Exchange Act reports incorporated by reference into such registration statement and all exhibits filed with or incorporated by reference into such registration statement.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(i).

“Securities” means the Closing Securities, the Option Securities and the Underlying Shares.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Shares” means, collectively, the shares of Common Stock delivered to the Underwriters in accordance with Section 2.1(a) (i) and Section 2.2(a).

“Subsidiary” means any subsidiary of the Company and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE MKT, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Certificate of Designation, the Warrants, the Warrant Agency Agreements, and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means American Stock Transfer and Trust Company, with offices located at 6201 15th Avenue, Brooklyn, NY 11219 and a facsimile number of 718-236-2641, and any successor transfer agent of the Company.

“Underlying Shares” means the Conversion Shares and the Warrant Shares.

“Warrant Agency Agreement” means each warrant agency agreement dated on or about the date hereof, among the Company and American Stock Transfer and Trust Company in the form of Exhibit D attached hereto.

“Warrant Shares” means the shares of Common Stock issuable upon exercise of the Warrants.

“Warrants” means the Series C-2016 Common Stock purchase warrants delivered to the Underwriters in accordance with Section 2.1(a) and Section 2.2(a).

**ARTICLE II.  
PURCHASE AND SALE**

2.1 Closing.

(a) Upon the terms and subject to the conditions set forth herein, the Company agrees to sell in the aggregate \_\_\_\_\_ shares of Common Stock, (ii) \_\_\_\_\_ shares of Preferred Stock, and (iii) Warrants exercisable for an aggregate of \_\_\_\_\_ shares of Common Stock, and each Underwriter agrees to purchase, severally and not jointly, at the Closing, the following securities of the Company:

(i) the number of shares of Common Stock (the “Closing Shares”) set forth opposite the name of such Underwriter on Schedule I hereof;

(ii) the number of shares of Preferred Stock on Schedule I hereof (the “Closing Preferred Shares”);

(iii) Warrants to purchase up to the number of shares of Common Stock set forth opposite the name of such Underwriter on Schedule I hereof, which shall have an exercise price equal to \$ \_\_\_\_\_ (subject to adjustment therein), and shall be exercisable immediately following their issuance and have a term of exercise of five years, which warrants shall be in the form of Exhibit D hereto (the “Closing Warrants” and, collectively with the Closing Shares and Closing Preferred Shares, the “Closing Securities”); and

(iv) the Warrant Agency Agreements duly executed by the Company and the Warrant Agent.

(b) The aggregate purchase price for the Closing Securities shall equal the amount set forth opposite the name of such Underwriter on Schedule I hereto (the “Closing Purchase Price”). The combined purchase price for (i) one Share and (ii) a Warrant to purchase one Warrant Share shall be \$ \_\_\_\_\_ (which shall be allocated \$ \_\_\_\_\_ to each Share (the “Share Purchase Price”) and \$ \_\_\_\_\_ to the Warrant (the “Warrant Purchase Price”), each such combination of one Share and a Warrant to purchase one Warrant Share, a “Class A Unit”). The combined purchase price for (i) one Closing Preferred Share and (ii) a Warrant to purchase \_\_\_\_\_ Warrant Shares shall be \$ \_\_\_\_\_ (the “Combined Preferred Purchase Price”) which shall be allocated as \$ \_\_\_\_\_ per Preferred Share and \$ \_\_\_\_\_ per Warrant (each such combination of a Preferred Share and a Warrant to purchase \_\_\_\_\_ Warrant Shares, a “Class B Unit”); and

(c) On the Closing Date, each Underwriter shall deliver or cause to be delivered to the Company, via wire transfer, immediately available funds equal to such Underwriter's Closing Purchase Price and the Company shall deliver to, or as directed by, such Underwriter its respective Closing Securities and the Company shall deliver the other items required pursuant to Section 2.3 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.3 and 2.4, the Closing shall occur at the offices of EGS or such other location as the Company and Representative shall mutually agree. The Public Securities are to be offered initially to the public at the offering price set forth on the cover page of the Prospectus (the "Offering").

## 2.2 Over-Allotment Option.

(a) For the purposes of covering any over-allotments in connection with the distribution and sale of the Closing Securities, the Representative is hereby granted an option (the "Over-Allotment Option") to purchase, in the aggregate, up to \_\_\_\_\_ shares of Common Stock (the "Option Shares") and Warrants to purchase up to \_\_\_\_\_ shares of Common Stock (the "Option Warrants") and, collectively with the Option Shares, the "Option Securities") which may be purchased in any combination of Option Shares and/or Option Warrants at the Share Purchase Price and/or Warrant Purchase Price, respectively.

(b) In connection with an exercise of the Over-Allotment Option, (a) the purchase price to be paid for the Option Shares is equal to the product of the Share Purchase Price multiplied by the number of Option Shares to be purchased and (b) the purchase price to be paid for the Option Warrants is equal to the product of the Warrant Purchase Price multiplied by the number of Option Warrants (the aggregate purchase price to be paid on an Option Closing Date, the "Option Closing Purchase Price").

(c) The Over-Allotment Option granted pursuant to this Section 2.2 may be exercised by the Representative as to all (at any time) or any part (from time to time) of the Option Securities within 45 days after the Execution Date. An Underwriter will not be under any obligation to purchase any Option Securities prior to the exercise of the Over-Allotment Option by the Representative. The Over-Allotment Option granted hereby may be exercised by the giving of oral notice to the Company from the Representative, which must be confirmed in writing by overnight mail or facsimile or other electronic transmission setting forth the number of Option Shares and/or Option Warrants to be purchased and the date and time for delivery of and payment for the Option Securities (each, an "Option Closing Date"), which will not be later than three (3) full Business Days after the date of the notice or such other time as shall be agreed upon by the Company and the Representative, at the offices of EGS or at such other place (including remotely by facsimile or other electronic transmission) as shall be agreed upon by the Company and the Representative. If such delivery and payment for the Option Securities does not occur on the Closing Date, each Option Closing Date will be as set forth in the notice. Upon exercise of the Over-Allotment Option, the Company will become obligated to convey to the Underwriters, and, subject to the terms and conditions set forth herein, the Underwriters will become obligated to purchase, the number of Option Shares and/or Option Warrants specified in such notice. The Representative may cancel the Over-Allotment Option at any time prior to the expiration of the Over-Allotment Option by written notice to the Company.

2.3 Deliveries. The Company shall deliver or cause to be delivered to each Underwriter (if applicable) the following:

(i) At the Closing Date, the Closing Shares and, as to each Option Closing Date, if any, the applicable Option Shares, which shares shall be delivered via The Depository Trust Company Deposit or Withdrawal at Custodian system for the accounts of the several Underwriters;

(ii) At the Closing Date, the Closing Warrants and, as to each Option Closing Date, if any, the applicable Option Warrants via The Depository Trust Company Deposit or Withdrawal at Custodian system for the accounts of the several Underwriters;

(iii) At the Closing Date, the Closing Preferred Shares shall be delivered via The Depository Trust Company Deposit or Withdrawal at Custodian system for the accounts of the several Underwriters;

(iv) At the Closing Date, evidence of the filing and acceptance of the Certificate of Designation from the Secretary of State of Delaware;

(v) At the Closing Date, a legal opinion of Company Counsel addressed to the Underwriters, including, without limitation, a negative assurance letter, substantially in the form of Exhibit A attached hereto and as to each Option Closing Date, if any, a bring-down opinion from Company Counsel in form and substance reasonably satisfactory to the Representative;

(vi) Contemporaneously herewith, a cold comfort letter, addressed to the Underwriters and in form and substance satisfactory in all respects to the Representative from the Company Auditor dated, respectively, as of the date of this Agreement and a bring-down letter dated as of the Closing Date and each Option Closing Date, if any;

(vii) On the Closing Date and on each Option Closing Date, the duly executed and delivered Officer's Certificate, substantially in the form required by Exhibit B attached hereto;

(viii) On the Closing Date and on each Option Closing Date, the duly executed and delivered Secretary's Certificate, substantially in the form required by Exhibit C attached hereto; and

(ix) Contemporaneously herewith, the duly executed and delivered Lock-Up Agreements.

2.4 Closing Conditions. The respective obligations of each Underwriter hereunder in connection with the Closing and each Option Closing Date are subject to the following conditions being met:

(i) the accuracy in all material respects when made and on the date in question (other than representations and warranties of the Company already qualified by materiality, which shall be true and correct in all respects) of the representations and warranties of the Company contained herein (unless as of a specific date therein);

(ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the date in question shall have been performed;

(iii) the delivery by the Company of the items set forth in Section 2.3 of this Agreement;

(iv) the Registration Statement shall be effective on the date of this Agreement and at each of the Closing Date and each Option Closing Date, if any, no stop order suspending the effectiveness of the Registration Statement shall have been issued and no proceedings for that purpose shall have been instituted or shall be pending or contemplated by the Commission and any request on the part of the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representative;

(v) by the Execution Date, if required by FINRA, the Underwriters shall have received clearance from FINRA as to the amount of compensation allowable or payable to the Underwriters as described in the Registration Statement;

(vi) the Closing Shares, the Option Shares and the Underlying Shares have been approved for listing on the Trading Market; and

(vii) prior to and on each of the Closing Date and each Option Closing Date, if any: (i) there shall have been no material adverse change or development involving a prospective material adverse change in the condition or prospects or the business activities, financial or otherwise, of the Company from the latest dates as of which such condition is set forth in the Registration Statement and Prospectus; (ii) no action suit or proceeding, at law or in equity, shall have been pending or threatened against the Company or any Affiliate of the Company before or by any court or federal or state commission, board or other administrative agency wherein an unfavorable decision, ruling or finding may materially adversely affect the business, operations, prospects or financial condition or income of the Company, except as set forth in the Registration Statement and Prospectus; (iii) no stop order shall have been issued under the Securities Act and no proceedings therefor shall have been initiated or threatened by the Commission; and (iv) the Registration Statement and the Prospectus and any amendments or supplements thereto shall contain all material statements which are required to be stated therein in accordance with the Securities Act and the rules and regulations thereunder and shall conform in all material respects to the requirements of the Securities Act and the rules and regulations thereunder, and neither the Registration Statement nor the Prospectus nor any amendment or supplement thereto shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

**ARTICLE III.  
REPRESENTATIONS AND WARRANTIES**

3 . 1     Representations and Warranties of the Company. The Company represents and warrants to the Underwriters as of the Execution Date, as of the Closing Date and as of each Option Closing Date, if any, as follows:

(a)     Subsidiaries. All of the direct and indirect Subsidiaries of the Company are set forth in the Registration Statement, the Prospectus and the Prospectus Supplement. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. If the Company has no Subsidiaries, all other references to the Subsidiaries or any of them in the Transaction Documents shall be disregarded.

( b )     Organization and Qualification. The Company and each of the Subsidiaries is an entity validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in a Material Adverse Effect and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

( c )     Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents to which it is a party and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

( d ) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

( e ) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filing with the Commission of the Prospectus Supplement and (iii) such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

( f ) Registration Statement. The Company has filed with the Commission the Registration Statement, including any related Prospectus or Prospectuses, for the registration of the Securities under the Securities Act, which Registration Statement has been prepared by the Company in all material respects in conformity with the requirements of the Securities Act and the rules and regulations of the Commission under the Securities Act. The Registration Statement has been declared effective by the Commission on \_\_\_\_\_, 2016 (the "Effective Date").

(g) Issuance of Securities. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company, other than restrictions on transfer provided for in the Transaction Documents. The Underlying Shares, when issued in accordance with the terms of the Transaction Documents, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company, other than restrictions on transfer provided for in the Transaction Documents. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to the Transaction Documents. The holder of the Securities will not be subject to personal liability by reason of being such holders. The Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. All corporate action required to be taken for the authorization, issuance and sale of the Securities has been duly and validly taken. The Securities conform in all material respects to all statements with respect thereto contained in the Registration Statement.

(h) Capitalization. The capitalization of the Company is as set forth in the Registration Statement, the Prospectus and the Prospectus Supplement. Subsequent to the respective dates as of which information is given in the Registration Statement, the Prospectus and the Prospectus Supplement, and except as may otherwise be indicated or contemplated herein or disclosed in the Registration Statement, the Prospectus and the Prospectus Supplement, the Company has not issued any capital stock, other than pursuant to the exercise of employee stock options under the Company's stock option plans, the issuance of shares of Common Stock to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of outstanding Common Stock Equivalents. Except as set forth in, or contemplated by, the Registration Statement, the Prospectus and the Prospectus Supplement, on the Execution Date and on the Closing Date and any Option Closing Date, there will be no stock options, warrants or other rights to purchase or otherwise acquire any authorized, but unissued shares of Common Stock of the Company or any security convertible or exercisable into shares of Common Stock of the Company, or any contracts or commitments to issue or sell shares of Common Stock or any such options, warrants, rights or convertible securities. The authorized shares of Common Stock conform in all material respects to all statements relating thereto contained in the Registration Statement and the Prospectus. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Securities.

(i) SEC Reports; Financial Statements. The Company has filed all reports and documents required to be filed under Sections 13 or 15(d) of the Exchange Act for the two years preceding the date hereof (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, the “SEC Reports”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports (if amended, as of the date of amendment) complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the Registration Statement, the Prospectus, the Prospectus Supplement and the SEC Reports have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved (“GAAP”), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments. The agreements and documents described in the Registration Statement, the Prospectus, the Prospectus Supplement and the SEC Reports conform to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act and the rules and regulations thereunder to be described in the Registration Statement, the Prospectus, the Prospectus Supplement or the SEC Reports or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company is a party or by which it is or may be bound and (i) that is referred to in the Registration Statement, the Prospectus, the Prospectus Supplement or the SEC Reports, or (ii) is material to the Company’s business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company and, to the Company’s knowledge, the other parties thereto, in accordance with its terms, except (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefore may be brought. Except as disclosed in the Registration Statement, the Prospectus or the Prospectus Supplement, none of such agreements or instruments has been assigned by the Company, and neither the Company nor, to the best of the Company’s knowledge, any other party is in default thereunder and, to the best of the Company’s knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. To the best of the Company’s knowledge, performance by the Company of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of its assets or businesses, including, without limitation, those relating to environmental laws and regulations.

(j) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the Registration Statement, the Prospectus and the Prospectus Supplement, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock, (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans and (vi) no officer or director of the Company has resigned from any position with the Company. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one Trading Day prior to the date that this representation is made.

(k) Litigation. Except as disclosed in the Registration Statement, the Prospectus or the Prospectus, there is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an "Action") which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(l) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all applicable U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(m) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the Registration Statement, the Prospectus and the Prospectus Supplement, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect (each, a "Material Permit"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit. The disclosures in the Registration Statement concerning the effects of federal, state, local and all foreign regulation on the Company's business as currently contemplated are correct in all material respects.

(o) Title to Assets. Except as disclosed in the Registration Statement, the Prospectus or the Prospectus, the Company and the Subsidiaries have good and marketable title in fee simple to, or have valid and marketable rights to lease or otherwise use, all real property and all personal property that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made in accordance with GAAP, and the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance in all material respects.

( p ) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the Registration Statement, the Prospectus and the Prospectus Supplement and which the failure to so have could reasonably be expected to have a Material Adverse Effect (collectively, the “Intellectual Property Rights”). None of the Company or any Subsidiary has received written, or to the knowledge of the Company other, notice that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the Registration Statement, the Prospectus and the Prospectus Supplement, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

( q ) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage. Neither the Company nor any Subsidiary has any any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

( r ) Transactions With Affiliates and Employees. Except as set forth in the Registration Statement, the Prospectus and the Prospectus Supplement, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from, any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$100,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(s) Sarbanes-Oxley: Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-, Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. Except as disclosed in the Registration Statement, the Prospectus or the Prospectus, the Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to provide reasonable assurance that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms. The Company's certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(t) Certain Fees. Except as set forth in the Prospectus Supplement, no brokerage or finder's fees or commissions are or will be payable by the Company, any Subsidiary or Affiliate of the Company to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. To the Company's knowledge, there are no other arrangements, agreements or understandings of the Company or, to the Company's knowledge, any of its stockholders that may affect the Underwriters' compensation, as determined by FINRA. The Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder's fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the twelve months prior to the Execution Date. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein.

(u) Investment Company. The Company is not, and, to its knowledge, is not an Affiliate of, and immediately after receipt of payment for the Securities will not be, or, to its knowledge, be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

( v ) Registration Rights. Except as set forth in the Registration Statement, the Prospectus and the Prospectus Supplement, no Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

( w ) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act, and, except as disclosed in the Registration Statement, the Prospectus or the Prospectus Supplement, the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. Except as set forth in the Registration Statement, the Prospectus, the Prospectus Supplement and the SEC Reports, the Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

( x ) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable as a result of the Underwriters and the Company fulfilling their obligations or exercising their rights under the Transaction Documents.

( y ) Disclosure: 10b-5. The Registration Statement (and any further documents to be filed with the Commission) contains all exhibits and schedules as required by the Securities Act. Each of the Registration Statement and any post-effective amendment thereto, if any, at the time it became effective, complied in all material respects with the Securities Act and the applicable rules and regulations under the Securities Act and did not and, as amended or supplemented, if applicable, will not, contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus and the Prospectus Supplement, each as of its respective date, comply in all material respects with the Securities Act and the applicable rules and regulations. Each of the Prospectus and the Prospectus Supplement, as amended or supplemented, did not and will not contain as of the date thereof any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The SEC Reports, when they were filed with the Commission, conformed in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, and none of such documents, when they were filed with the Commission, contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein (with respect to the SEC Reports incorporated by reference in the Prospectus or Prospectus Supplement), in light of the circumstances under which they were made not misleading; and any further documents so filed and incorporated by reference in the Prospectus or Prospectus Supplement, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, as applicable, and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made not misleading. No post-effective amendment to the Registration Statement reflecting any facts or events arising after the date thereof which represent, individually or in the aggregate, a fundamental change in the information set forth therein is required to be filed with the Commission. There are no documents required to be filed with the Commission in connection with the transaction contemplated hereby that (x) have not been filed as required pursuant to the Securities Act or (y) will not be filed within the requisite time period. There are no contracts or other documents required to be described in the Prospectus or Prospectus Supplement, or to be filed as exhibits or schedules to the Registration Statement, which have not been described or filed as required.

(z) No Integrated Offering. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

( a a ) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Registration Statement, the Prospectus, the Prospectus Supplement and the SEC Reports set forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments.

(bb) Tax Status. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed, or secured extensions for the filing of, all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim. The provisions for taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. The term “taxes” mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term “returns” means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

(c c) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA. The Company has taken reasonable steps to ensure that its accounting controls and procedures are sufficient to cause the Company to comply in all material respects with the FCPA.

( d d ) Accountants. To the knowledge of the Company, the Company Auditor, whose report is filed with the Commission as part of the Registration Statement, is an independent registered public accounting firm as required by the Securities Act and the rules and regulations thereunder. The Company Auditor has not, during the periods covered by the financial statements included in the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

(ee) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration (“FDA”) under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder (“FDCA”) that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a “Pharmaceutical Product”), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company’s knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(ff) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company’s knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department.

(g g) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon the Representative’s request.

(hh) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the “BHCA”) and to regulation by the Board of Governors of the Federal Reserve System (the “Federal Reserve”). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent (25%) or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(ii) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the “Money Laundering Laws”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

(jj) D&O Questionnaires. To the Company’s knowledge, all information contained in the questionnaires completed by each of the Company’s directors and officers immediately prior to the Offering as well as in the Lock-Up Agreement provided to the Underwriters is true and correct in all respects and the Company has not become aware of any information which would cause the information disclosed in such questionnaires become inaccurate and incorrect.

(kk) FINRA Affiliation. No officer, director or, to the Company’s knowledge, any beneficial owner of 5% or more of the Company’s unregistered securities has any direct or indirect affiliation or association with any FINRA member (as determined in accordance with the rules and regulations of FINRA). The Company will advise the Representative and EGS if it learns that any officer, director or owner of 5% or more of the Company’s outstanding shares of Common Stock or Common Stock Equivalents is or becomes an affiliate or associated person of a FINRA member firm.

(ll) Officers’ Certificate. Any certificate signed by any duly authorized officer of the Company and delivered to the Representative or EGS shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

(mm) Board of Directors. The Board of Directors is comprised of the persons set forth under the heading of the Prospectus captioned “Management.” The qualifications of the persons serving as board members and the overall composition of the Board of Directors comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder applicable to the Company and the rules of the Trading Market. At least one member of the Board of Directors qualifies as a “financial expert” as such term is defined under the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder and the rules of the Trading Market. In addition, at least a majority of the persons serving on the Board of Directors qualify as “independent” as defined under the rules of the Trading Market.

**ARTICLE IV.**  
**OTHER AGREEMENTS OF THE PARTIES**

4.1 Amendments to Registration Statement. The Company has delivered, or will as promptly as practicable deliver, to the Underwriters complete conformed copies of the Registration Statement and of each consent and certificate of experts, as applicable, filed as a part thereof, and conformed copies of the Registration Statement (without exhibits), the Prospectus and the Prospectus Supplement, as amended or supplemented, in such quantities and at such places as an Underwriter reasonably requests. Neither the Company nor any of its directors and officers has distributed and none of them will distribute, prior to the Closing Date, any offering material in connection with the offering and sale of the Securities other than the Prospectus, the Prospectus Supplement, the Registration Statement, and copies of the documents incorporated by reference therein. The Company shall not file any such amendment or supplement to which the Representative shall reasonably object in writing.

4.2 Federal Securities Laws.

(a) Compliance. During the time when a Prospectus is required to be delivered under the Securities Act, the Company will use its best efforts to comply with all requirements imposed upon it by the Securities Act and the rules and regulations thereunder and the Exchange Act and the rules and regulations thereunder, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Securities in accordance with the provisions hereof and the Prospectus. If at any time when a Prospectus relating to the Securities is required to be delivered under the Securities Act, any event shall have occurred as a result of which, in the opinion of counsel for the Company or counsel for the Underwriters, the Prospectus, as then amended or supplemented, includes an untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, or if it is necessary at any time to amend the Prospectus to comply with the Securities Act, the Company will notify the Underwriters promptly and prepare and file with the Commission, subject to Section 4.1 hereof, an appropriate amendment or supplement in accordance with Section 10 of the Securities Act.

(b) Filing of Final Prospectus Supplement. The Company will file the Prospectus Supplement (in form and substance satisfactory to the Representative) with the Commission pursuant to the requirements of Rule 424.

(c) Reserved.

(d) Free Writing Prospectuses. The Company represents and agrees that it has not made and will not make any offer relating to the Securities that would constitute an issuer free writing prospectus, as defined in Rule 433 of the rules and regulations under the Securities Act, without the prior written consent of the Representative. Any such free writing prospectus consented to by the Representative is hereinafter referred to as a "Permitted Free Writing Prospectus." The Company represents that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus" as defined in rule and regulations under the Securities Act, and has complied and will comply with the applicable requirements of Rule 433 of the Securities Act, including timely Commission filing where required, legending and record keeping.

4.3 Delivery to the Underwriters of Prospectuses. The Company will deliver to the Underwriters, without charge, from time to time during the period when the Prospectus is required to be delivered under the Securities Act such number of copies of each Prospectus as the Underwriters may reasonably request and, as soon as the Registration Statement or any amendment or supplement thereto becomes effective, deliver to you two original executed Registration Statements, including exhibits, and all post-effective amendments thereto and copies of all exhibits filed therewith or incorporated therein by reference and all original executed consents of certified experts.

4 . 4 Effectiveness and Events Requiring Notice to the Underwriters. The Company will use its reasonable best efforts to cause the Registration Statement to remain effective with a current prospectus until the later of nine (9) months from the Execution Date and the date on which the Warrants are no longer outstanding, and will notify the Underwriters promptly and confirm the notice in writing: (i) of the effectiveness of the Registration Statement and any amendment thereto; (ii) of the issuance by the Commission of any stop order or of the initiation, or the threatening, of any proceeding for that purpose; (iii) of the issuance by any state securities commission of any proceedings for the suspension of the qualification of the Securities for offering or sale in any jurisdiction or of the initiation, or the threatening, of any proceeding for that purpose; (iv) of the filing of any amendment or supplement to the Registration Statement or Prospectus; and (v) of the receipt of any comments or request for any additional information from the Commission; and, until nine (9) months from the Execution Date, (vi) of the happening of any event during the period described in this Section 4.4 that, in the judgment of the Company, makes any statement of a material fact made in the Registration Statement or the Prospectus untrue or that requires the making of any changes in the Registration Statement or the Prospectus in order to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Commission or any state securities commission shall enter a stop order or suspend such qualification at any time, the Company will use its reasonable best efforts to obtain promptly the lifting of such order.

#### 4.5 Expenses Related to the Offering.

(a) General Expenses Related to the Offering. The Company hereby agrees to pay on each of the Closing Date and each Option Closing Date, if any, to the extent not paid at the Closing Date, all expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to: (a) all filing fees and communication expenses relating to the registration of the Securities to be sold in the Offering (including the Option Securities) with the Commission; (b) all FINRA Public Offering Filing System fees associated with the review of the Offering by FINRA; all fees and expenses relating to the listing of such Closing Shares, Option Shares, Conversion Shares and Warrant Shares on the Trading Market and such other stock exchanges as the Company and the Representative together determine; (c) all fees, expenses and disbursements relating to the registration or qualification of such Securities under the “blue sky” securities laws of such states and other foreign jurisdictions as the Representative may reasonably designate; (d) the costs of all mailing and printing of the underwriting documents (including, without limitation, this Agreement, any Blue Sky Surveys and, if appropriate, any Agreement Among Underwriters, Selected Dealers’ Agreement, Underwriters’ Questionnaire and Power of Attorney), Registration Statements, Prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representative may reasonably deem necessary; (e) the costs and expenses of the public relations firm; (f) the costs of preparing, printing and delivering the Securities; (g) fees and expenses of the Transfer Agent for the Securities (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company), including, without limitation, fees and expenses pursuant to the Warrant Agency Agreement; (h) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Underwriters; (i) the fees and expenses of the Company’s accountants; (j) the fees and expenses of the Company’s legal counsel and other agents and representatives; and (k) the Underwriters’ costs of mailing prospectuses to prospective investors. The Underwriters may deduct from the net proceeds of the Offering payable to the Company on the Closing Date, or each Option Closing Date, if any, the expenses set forth herein to be paid by the Company to the Underwriters.

(b) Expenses of the Representative. The Company further agrees that, in addition to the expenses payable pursuant to Section 4.6(a), on the Closing Date, the Company will reimburse the Representative for its out-of-pocket expenses related to the Offering up to an aggregate of \$65,000 by deduction from the proceeds of the Offering contemplated herein.

4.6 Application of Net Proceeds. The Company will apply the net proceeds from the Offering received by it in a manner consistent with the application described under the caption “Use Of Proceeds” in the Prospectus.

4.7 Delivery of Earnings Statements to Security Holders. The Company will make generally available to its security holders as soon as practicable, but not later than the first day of the fifteenth full calendar month following the Execution Date, an earnings statement (which need not be certified by independent public or independent certified public accountants unless required by the Securities Act or the Rules and Regulations under the Securities Act, but which shall satisfy the provisions of Rule 158(a) under Section 11(a) of the Securities Act) covering a period of at least twelve consecutive months beginning after the Execution Date.

4.8 Stabilization. Neither the Company, nor, to its knowledge, any of its employees, directors or shareholders (without the consent of the Representative) has taken or will take, directly or indirectly, any action designed to or that has constituted or that might reasonably be expected to cause or result in, under the Exchange Act, or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities.

4.9 Internal Controls. The Company will maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary in order to permit preparation of financial statements in accordance with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

4.10 Accountants. The Company shall continue to retain an independent certified public accounting firm registered with the Public Company Accounting Oversight Board for a period of at least three years after the Execution Date.

4.11 Reserved.

4.12 No Fiduciary Duties. The Company acknowledges and agrees that the Underwriters' responsibility to the Company is solely contractual and commercial in nature, based on arms-length negotiations and that neither the Underwriters nor their affiliates or any selected dealer shall be deemed to be acting in a fiduciary capacity, or otherwise owes any fiduciary duty to the Company or any of its affiliates in connection with the Offering and the other transactions contemplated by this Agreement. Notwithstanding anything in this Agreement to the contrary, the Company acknowledges that the Underwriters may have financial interests in the success of the Offering that are not limited to the difference between the price to the public and the purchase price paid to the Company by the Underwriters for the shares and the Underwriters have no obligation to disclose, or account to the Company for, any of such additional financial interests. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against the Underwriters with respect to any breach or alleged breach of fiduciary duty.

4.13 Underlying Shares. The shares of Common Stock underlying the Preferred Stock shall be issued free of legends. If all or any portion of a Warrant is exercised at a time when there is an effective registration statement to cover the issuance of the Warrant Shares or if the Warrant is exercised via cashless exercise at a time when such Warrant Shares would be eligible for resale under Rule 144 by a non-affiliate of the Company, the Warrant Shares issued pursuant to any such exercise shall be issued free of all restrictive legends. If at any time following the date hereof the Registration Statement (or any subsequent registration statement registering the sale or resale of the Warrant Shares) is not effective or is not otherwise available for the sale of the Warrant Shares, the Company shall immediately notify the holders of the Warrants in writing that such registration statement is not then effective and thereafter shall promptly notify such holders when the registration statement is effective again and available for the sale of the Warrant Shares (it being understood and agreed that the foregoing shall not limit the ability of the Company to issue, or any holder thereof to sell, any of the Warrant Shares in compliance with applicable federal and state securities laws).

4.14 Securities Laws Disclosure: Publicity. At the request of the Representative, by 9:00 a.m. (New York City time) on the date hereof, the Company shall issue a press release disclosing the material terms of the Offering. The Company and the Representative shall consult with each other in issuing any other press releases with respect to the Offering, and neither the Company nor any Underwriter shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of such Underwriter, or without the prior consent of such Underwriter, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. The Company will not issue press releases or engage in any other publicity, without the Representative's prior written consent, for a period ending at 5:00 p.m. (New York City time) on the first business day following the 40th day following the Closing Date, other than normal and customary releases issued in the ordinary course of the Company's business.

4.15 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Underwriter of the Securities is an "Acquiring Person" under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Underwriter of Securities could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities.

4.16 Reservation of Common Stock. As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue Option Shares pursuant to the Over-Allotment Option, the Conversion Shares pursuant to any conversion of the Preferred Stock, and Warrant Shares pursuant to any exercise of the Warrants.

4.17 Listing of Common Stock. The Company hereby agrees to use reasonable best efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Closing Shares, Option Shares, Conversion Shares and Warrant Shares on such Trading Market and promptly secure the listing of all of the Closing Shares, Option Shares, Conversion Shares and Warrant Shares on such Trading Market. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Closing Shares, Option Shares, Conversion Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Closing Shares, Option Shares, Conversion Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on a Trading Market and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of the Trading Market.

4.18 Subsequent Equity Sales.

(a) From the date hereof until 90 days following the Closing Date, neither the Company nor any Subsidiary shall issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents.

(b) From the date hereof until one year following the Closing Date, the Company shall be prohibited from effecting or entering into an agreement to effect any issuance by the Company or any of its Subsidiaries of Common Stock or Common Stock Equivalents (or a combination of units thereof) involving a Variable Rate Transaction. “Variable Rate Transaction” means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into any agreement, including, but not limited to, an equity line of credit, whereby the Company may issue securities at a future determined price. Any Underwriter shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(c) Notwithstanding the foregoing, this Section 4.18 shall not apply in respect of an Exempt Issuance, except that no Variable Rate Transaction shall be an Exempt Issuance.

4.19 Research Independence. The Company acknowledges that each Underwriter’s research analysts and research departments, if any, are required to be independent from their respective investment banking divisions and are subject to certain regulations and internal policies, and that such Underwriter’s research analysts may hold and make statements or investment recommendations and/or publish research reports with respect to the Company and/or the offering that differ from the views of its investment bankers. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against such Underwriter with respect to any conflict of interest that may arise from the fact that the views expressed by their independent research analysts and research departments may be different from or inconsistent with the views or advice communicated to the Company by such Underwriter’s investment banking divisions. The Company acknowledges that the Representative is a full service securities firm and as such from time to time, subject to applicable securities laws, may effect transactions for its own account or the account of its customers and hold long or short position in debt or equity securities of the Company.

4.20 Right of First Refusal. Following the Closing, if at any time from twelve (12) months following the Effective Date, should the Company, in its sole discretion, propose to effect a further equity or equity-linked financing, the Company shall offer to the Representative the opportunity to participate as a sole bookrunner or exclusive placement agent (with the percentage of such participation in the syndicate by the Representative to be determined pursuant to a definitive agreement or engagement agreement to be negotiated between the Company and the Representative) in respect of such financing on terms and conditions mutually acceptable to the Company and the Representative. The Representative may decline such participation interest in its sole and absolute discretion and will notify the Company as to its decision as to whether to participate no later than the fifth Trading Day following notification of such proposed financing. The terms of such engagements shall be set forth in separate agreements and may be subject to, among other things, satisfactory completion of due diligence by the Representative, market conditions, the absence of adverse change to the Company's business or financial condition, approval of the Representative's internal committee and any other conditions that the Representative may reasonably deem appropriate for transactions of such nature. The Company will notify the Representative in writing of its intention to pursue such further financing, and the Representative will advise the Company promptly of the Representative's election to participate in such financing (but in no event no later than five (5) Trading Days following the Company's notice to the Representative). If such proposed financing is not accepted by the Representative, but later materially modified as to the scope and nature of the proposed financing, the Company will re-submit such then proposed financing in writing to the Representative and the Representative will be subject to the same five (5) Trading Day notice provision to advise of its election to participate in the proposed financing. The Representative's election not to participate with respect to a particular proposed financing will not adversely affect its rights hereunder with respect to any other proposed equity financing of the Company during the period referred to above.

#### **ARTICLE V. DEFAULT BY UNDERWRITERS**

If on the Closing Date or any Option Closing Date, if any, any Underwriter shall fail to purchase and pay for the portion of the Closing Securities or Option Securities, as the case may be, which such Underwriter has agreed to purchase and pay for on such date (otherwise than by reason of any default on the part of the Company), the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, shall use their reasonable efforts to procure within 36 hours thereafter one or more of the other Underwriters, or any others, to purchase from the Company such amounts as may be agreed upon and upon the terms set forth herein, the Closing Securities or Option Securities, as the case may be, which the defaulting Underwriter or Underwriters failed to purchase. If during such 36 hours the Representative shall not have procured such other Underwriters, or any others, to purchase the Closing Securities or Option Securities, as the case may be, agreed to be purchased by the defaulting Underwriter or Underwriters, then (a) if the aggregate number of Closing Securities or Option Securities, as the case may be, with respect to which such default shall occur does not exceed 10% of the Closing Securities or Option Securities, as the case may be, covered hereby, the other Underwriters shall be obligated, severally, in proportion to the respective numbers of Closing Securities or Option Securities, as the case may be, which they are obligated to purchase hereunder, to purchase the Closing Securities or Option Securities, as the case may be, which such defaulting Underwriter or Underwriters failed to purchase, or (b) if the aggregate number of Closing Securities or Option Securities, as the case may be, with respect to which such default shall occur exceeds 10% of the Closing Securities or Option Securities, as the case may be, covered hereby, the Company or the Representative will have the right to terminate this Agreement without liability on the part of the non-defaulting Underwriters or of the Company except to the extent provided in Article VI hereof. In the event of a default by any Underwriter or Underwriters, as set forth in this Article V, the applicable Closing Date may be postponed for such period, not exceeding seven days, as the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, may determine in order that the required changes in the Prospectus or in any other documents or arrangements may be effected. The term "Underwriter" includes any person substituted for a defaulting Underwriter. Any action taken under this Section shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

**ARTICLE VI.  
INDEMNIFICATION**

6 . 1 Indemnification of the Underwriters. Subject to the conditions set forth below, the Company agrees to indemnify and hold harmless each Underwriter, and each dealer selected by each Underwriter that participates in the offer and sale of the Securities (each a “Selected Dealer”) and each of their respective directors, officers and employees and each Person, if any, who controls such Underwriter or any Selected Dealer (“Controlling Person”) within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, against any and all loss, liability, claim, damage and expense whatsoever (including but not limited to any and all legal or other expenses reasonably incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, whether arising out of any action between such Underwriter and the Company or between such Underwriter and any third party or otherwise) to which they or any of them may become subject under the Securities Act, the Exchange Act or any other statute or at common law or otherwise or under the laws of foreign countries, arising out of or based upon any untrue statement or alleged untrue statement of a material fact contained in (i) any Preliminary Prospectus, the Registration Statement or the Prospectus (as from time to time each may be amended and supplemented); (ii) any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Securities, including any “road show” or investor presentations made to investors by the Company (whether in person or electronically); or (iii) any application or other document or written communication (in this Article VI, collectively called “application”) executed by the Company or based upon written information furnished by the Company in any jurisdiction in order to qualify the Securities under the securities laws thereof or filed with the Commission, any state securities commission or agency, Trading Market or any securities exchange; or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, unless such statement or omission was made in reliance upon and in conformity with written information furnished to the Company with respect to the applicable Underwriter by or on behalf of such Underwriter expressly for use in any Preliminary Prospectus, if any, the Registration Statement or Prospectus, or any amendment or supplement thereto, or in any application, as the case may be. With respect to any untrue statement or omission or alleged untrue statement or omission made in the Preliminary Prospectus, if any, the indemnity agreement contained in this Section 6.1 shall not inure to the benefit of an Underwriter to the extent that any loss, liability, claim, damage or expense of such Underwriter results from the fact that a copy of the Prospectus was not given or sent to the Person asserting any such loss, liability, claim or damage at or prior to the written confirmation of sale of the Securities to such Person as required by the Securities Act and the rules and regulations thereunder, and if the untrue statement or omission has been corrected in the Prospectus, unless such failure to deliver the Prospectus was a result of non-compliance by the Company with its obligations under this Agreement. The Company agrees promptly to notify each Underwriter of the commencement of any litigation or proceedings against the Company or any of its officers, directors or Controlling Persons in connection with the issue and sale of the Public Securities or in connection with the Registration Statement or Prospectus.

6.2 Procedure. If any action is brought against an Underwriter, a Selected Dealer or a Controlling Person in respect of which indemnity may be sought against the Company pursuant to Section 6.1, such Underwriter, such Selected Dealer or Controlling Person, as the case may be, shall promptly notify the Company in writing of the institution of such action and the Company shall assume the defense of such action, including the employment and fees of counsel (subject to the reasonable approval of such Underwriter or such Selected Dealer, as the case may be) and payment of actual expenses. Such Underwriter, such Selected Dealer or Controlling Person shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such Underwriter, such Selected Dealer or Controlling Person unless (i) the employment of such counsel at the expense of the Company shall have been authorized in writing by the Company in connection with the defense of such action, or (ii) the Company shall not have employed counsel to have charge of the defense of such action, or (iii) such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to those available to the Company (in which case the Company shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), in any of which events the reasonable fees and expenses of not more than one additional firm of attorneys selected by such Underwriter (in addition to local counsel), Selected Dealer and/or Controlling Person shall be borne by the Company. Notwithstanding anything to the contrary contained herein, if any Underwriter, Selected Dealer or Controlling Person shall assume the defense of such action as provided above, the Company shall have the right to approve the terms of any settlement of such action which approval shall not be unreasonably withheld.

6.3 Indemnification of the Company. Each Underwriter severally and not jointly agrees to indemnify and hold harmless the Company, its directors, officers and employees and agents who control the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the foregoing indemnity from the Company to such Underwriter, as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions made in any Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or in any application, in reliance upon, and in strict conformity with, written information furnished to the Company with respect to such Underwriter by or on behalf of such Underwriter expressly for use in such Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or in any such application. In case any action shall be brought against the Company or any other Person so indemnified based on any Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or any application, and in respect of which indemnity may be sought against such Underwriter, such Underwriter shall have the rights and duties given to the Company, and the Company and each other Person so indemnified shall have the rights and duties given to such Underwriter by the provisions of this Article VI. Notwithstanding the provisions of this Section 6.3, no Underwriter shall be required to indemnify the Company for any amount in excess of the underwriting discounts and commissions applicable to the Securities purchased by such Underwriter. The Underwriters' obligations in this Section 6.3 to indemnify the Company are several in proportion to their respective underwriting obligations and not joint.

6.4 Contribution.

(a) Contribution Rights. In order to provide for just and equitable contribution under the Securities Act in any case in which (i) any Person entitled to indemnification under this Article VI makes a claim for indemnification pursuant hereto but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Article VI provides for indemnification in such case, or (ii) contribution under the Securities Act, the Exchange Act or otherwise may be required on the part of any such Person in circumstances for which indemnification is provided under this Article VI, then, and in each such case, the Company and each Underwriter, severally and not jointly, shall contribute to the aggregate losses, liabilities, claims, damages and expenses of the nature contemplated by said indemnity agreement incurred by the Company and such Underwriter, as incurred, in such proportions that such Underwriter is responsible for that portion represented by the percentage that the underwriting discount appearing on the cover page of the Prospectus bears to the initial offering price appearing thereon and the Company is responsible for the balance; provided, that, no Person guilty of a fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation. For purposes of this Section, each director, officer and employee of such Underwriter or the Company, as applicable, and each Person, if any, who controls such Underwriter or the Company, as applicable, within the meaning of Section 15 of the Securities Act shall have the same rights to contribution as such Underwriter or the Company, as applicable. Notwithstanding the provisions of this Section 6.4, no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions applicable to the Securities purchased by such Underwriter. The Underwriters' obligations in this Section 6.4 to contribute are several in proportion to their respective underwriting obligations and not joint.

(b) Contribution Procedure. Within fifteen days after receipt by any party to this Agreement (or its representative) of notice of the commencement of any action, suit or proceeding, such party will, if a claim for contribution in respect thereof is to be made against another party ("contributing party"), notify the contributing party of the commencement thereof, but the failure to so notify the contributing party will not relieve it from any liability which it may have to any other party other than for contribution hereunder. In case any such action, suit or proceeding is brought against any party, and such party notifies a contributing party or its representative of the commencement thereof within the aforesaid fifteen days, the contributing party will be entitled to participate therein with the notifying party and any other contributing party similarly notified. Any such contributing party shall not be liable to any party seeking contribution on account of any settlement of any claim, action or proceeding affected by such party seeking contribution without the written consent of such contributing party. The contribution provisions contained in this Section 6.4 are intended to supersede, to the extent permitted by law, any right to contribution under the Securities Act, the Exchange Act or otherwise available.

**ARTICLE VII.  
MISCELLANEOUS**

7.1 Termination.

(a) Termination Right. The Representative shall have the right to terminate this Agreement at any time prior to any Closing Date, (i) if any domestic or international event or act or occurrence has materially disrupted, or in its opinion will in the immediate future materially disrupt, general securities markets in the United States; or (ii) if trading on any Trading Market shall have been suspended or materially limited, or minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required by FINRA or by order of the Commission or any other government authority having jurisdiction, or (iii) if the United States shall have become involved in a new war or an increase in major hostilities, or (iv) if a banking moratorium has been declared by a New York State or federal authority, or (v) if a moratorium on foreign exchange trading has been declared which materially adversely impacts the United States securities markets, or (vi) if the Company shall have sustained a material loss by fire, flood, accident, hurricane, earthquake, theft, sabotage or other calamity or malicious act which, whether or not such loss shall have been insured, will, in the Representative's opinion, make it inadvisable to proceed with the delivery of the Securities, or (vii) if the Company is in material breach of any of its representations, warranties or covenants hereunder, or (viii) if the Representative shall have become aware after the date hereof of such a material adverse change in the conditions or prospects of the Company, or such adverse material change in general market conditions as in the Representative's judgment would make it impracticable to proceed with the offering, sale and/or delivery of the Securities or to enforce contracts made by the Underwriters for the sale of the Securities.

(b) Expenses. In the event this Agreement shall be terminated pursuant to Section 7.1(a), within the time specified herein or any extensions thereof pursuant to the terms herein, the Company shall be obligated to pay to the Representative its actual and accountable out of pocket expenses related to the transactions contemplated herein then due and payable, including the fees and disbursements of EGS up to \$25,000 (provided, however, that such expense cap in no way limits or impairs the indemnification and contribution provisions of this Agreement).

(c) Indemnification. Notwithstanding any contrary provision contained in this Agreement, any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Article VI shall not be in any way effected by such election or termination or failure to carry out the terms of this Agreement or any part hereof.

7.2 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, the Prospectus and the Prospectus Supplement, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules. Notwithstanding anything herein to the contrary, the Investment Banking Agreement, dated October 25, 2016, by and between the Company and the Representative (the "Investment Banking Agreement") shall continue to be effective during its Term (as defined in the Investment Banking Agreement) pursuant to its terms, which shall continue to survive any termination of the Investment Banking Agreement and be enforceable by the Representative in accordance with its terms (other than the right of first refusal in Section 5 of the Investment Banking Agreement and fee obligation under Section 4(a) of the Investment Banking Agreement as to the financing contemplated hereby, which are of no further force and effect under such Investment Banking Agreement, rather the Representative's right of first refusal and payment obligation shall be governed by this Agreement). In the event of a conflict between the Investment Banking Agreement and this Agreement, this Agreement shall prevail, except that, in the event of any such conflict, Section 4(b) of the Investment Banking Agreement shall prevail.

7.3 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number or e-mail address set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the date of transmission, if such notice or communication is delivered via facsimile or e-mail at the facsimile number or e-mail address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2<sup>nd</sup>) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto.

7.4 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and the Representative. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right.

7.5 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

7.6 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns.

7.7 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any action, suit or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action or proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Article VI, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

7.8 Survival. The representations and warranties contained herein shall survive the Closing and the Option Closing, if any, and the delivery of the Securities.

7.9 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.

7.10 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

7.11 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, the Underwriters and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any action for specific performance of any such obligation the defense that a remedy at law would be adequate.

7.12 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

7.13 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

**7.14 WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVE FOREVER ANY RIGHT TO TRIAL BY JURY.**

*(Signature page follows)*

If the foregoing correctly sets forth the understanding between the Underwriters and the Company, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement among the Company and the several Underwriters in accordance with its terms.

Very truly yours,

**CELLECTAR BIOSCIENCES, INC.**

By: \_\_\_\_\_  
Name:  
Title:

Address for Notice:

3301 Agriculture Drive  
Madison, WI 53716

Copy to:

Foley Hoag LLP  
Seaport West  
155 Seaport Boulevard  
Boston, MA 02210  
Attn: Paul Bork

Accepted on the date first above written.  
**LADENBURG THALMANN & CO. INC.**  
As the Representative of the several  
Underwriters listed on Schedule I

By: \_\_\_\_\_  
Name:  
Title:

Address for Notice:

4400 Biscayne Blvd., 14<sup>th</sup> Floor  
Miami, Florida 33137  
Attention: General Counsel  
Facsimile: \_\_\_\_\_  
E-mail: \_\_\_\_\_

Copy to:

Ellenoff Grossman & Schole LLP  
1345 Avenue of the Americas  
New York, New York 10105  
Attention: Joseph A. Smith  
Facsimile: (212) 401-4741  
E-mail: jsmith@egsllp.com

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**SCHEDULE I**

Schedule of Underwriters

<u>Underwriters</u>	<u>Closing Shares</u>	<u>Closing Warrants</u>	<u>Closing Preferred Shares</u>	<u>Closing Purchase Price</u>
Ladenburg Thalmann & Co Inc.				\$

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**CELLECTAR BIOSCIENCES, INC.**  
**CERTIFICATE OF DESIGNATION OF PREFERENCES,**  
**RIGHTS AND LIMITATIONS**  
**OF**  
**SERIES A CONVERTIBLE PREFERRED STOCK**

PURSUANT TO SECTION 151 OF THE  
DELAWARE GENERAL CORPORATION LAW

The undersigned, James Caruso, does hereby certify that:

1. He is the President of Collectar Biosciences, Inc., a Delaware corporation (the "Corporation").
2. The Corporation is authorized to issue 7,000 shares of preferred stock, none of which have been issued.
3. The following resolutions were duly adopted by the board of directors of the Corporation (the "Board of Directors"):

WHEREAS, the certificate of incorporation of the Corporation provides for a class of its authorized stock known as preferred stock, consisting of 7,000 shares, \$0.00001 par value per share, issuable from time to time in one or more series;

WHEREAS, the Board of Directors is authorized to fix the dividend rights, dividend rate, voting rights, conversion rights, rights and terms of redemption and liquidation preferences of any wholly unissued series of preferred stock and the number of shares constituting any series and the designation thereof, of any of them; and

WHEREAS, it is the desire of the Board of Directors, pursuant to its authority as aforesaid, to fix the rights, preferences, restrictions and other matters relating to a series of the preferred stock, which shall consist of, except as otherwise set forth in the Underwriting Agreement, up to \_\_\_\_\_ shares of the preferred stock which the Corporation has the authority to issue, as follows:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors does hereby provide for the issuance of a series of preferred stock for cash or exchange of other securities, rights or property and does hereby fix and determine the rights, preferences, restrictions and other matters relating to such series of preferred stock as follows:

## TERMS OF PREFERRED STOCK

Section 1. Definitions. For the purposes hereof, the following terms shall have the following meanings:

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 of the Securities Act.

“Alternate Consideration” shall have the meaning set forth in Section 7(e).

“Beneficial Ownership Limitation” shall have the meaning set forth in Section 6(d).

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Buy-In” shall have the meaning set forth in Section 6(c)(iv).

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the Corporation’s common stock, par value \$0.00001 per share, and stock of any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Corporation or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, rights, options, warrants or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Conversion Amount” means the sum of the Stated Value at issue.

“Conversion Date” shall have the meaning set forth in Section 6(a).

“Conversion Price” shall have the meaning set forth in Section 6(b).

“Conversion Shares” means, collectively, the shares of Common Stock issuable upon conversion of the shares of Preferred Stock in accordance with the terms hereof.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Fundamental Transaction” shall have the meaning set forth in Section 7(e).

“GAAP” means United States generally accepted accounting principles.

“Holder” shall have the meaning set forth in Section 2.

“Liquidation” shall have the meaning set forth in Section 5.

“New York Courts” shall have the meaning set forth in Section 9(d).

“Notice of Conversion” shall have the meaning set forth in Section 6(a).

“Original Issue Date” means the date of the first issuance of any shares of the Preferred Stock regardless of the number of transfers of any particular shares of Preferred Stock and regardless of the number of certificates which may be issued to evidence such Preferred Stock.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Preferred Stock” shall have the meaning set forth in Section 2.

“Representative” means Ladenburg Thalmann & Co. Inc.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Delivery Date” shall have the meaning set forth in Section 6(c).

“Stated Value” shall have the meaning set forth in Section 2, as the same may be increased pursuant to Section 3.

“Subsidiary” means any subsidiary of the Corporation and shall, where applicable, also include any direct or indirect subsidiary of the Corporation formed or acquired after the date hereof.

“Successor Entity” shall have the meaning set forth in Section 7(e).

“Trading Day” means a day on which the principal Trading Market is open for business.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE MKT, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, or the New York Stock Exchange (or any successors to any of the foregoing).

“Transfer Agent” means American Stock Transfer & Trust Company, LLC, the current transfer agent of the Corporation, with a mailing address of 6201 15<sup>th</sup> Avenue, Brooklyn, NY 11219 and a facsimile number of 718-236-2641, and any successor transfer agent of the Corporation.

“Underwriting Agreement” means the underwriting agreement, dated as of \_\_\_\_\_, 2016, among the Corporation and the Representative as representative of the underwriters named therein, as amended, modified or supplemented from time to time in accordance with its terms.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported in the “Pink Sheets” published by OTC Markets, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Preferred Stock then outstanding and reasonably acceptable to the Corporation, the fees and expenses of which shall be paid by the Corporation.

Section 2. Designation, Amount and Par Value. The series of preferred stock shall be designated as its Series A Convertible Preferred Stock (the “Preferred Stock”) and the number of shares so designated shall be up to \_\_\_ (which shall not be subject to increase without the written consent of a majority of the holders of the Preferred Stock (each, a “Holder” and collectively, the “Holders”)). Each share of Preferred Stock shall have a par value of \$0.00001 per share and a stated value equal to \$100,000 (the “Stated Value”).

Section 3. Dividends. Except for stock dividends or distributions for which adjustments are to be made pursuant to Section 7, Holders shall be entitled to receive, and the Corporation shall pay, dividends on shares of Preferred Stock equal (on an as-if-converted-to-Common-Stock basis, without regard to conversion limitations herein) to and in the same form as dividends actually paid on shares of the Common Stock when, as and if such dividends are paid on shares of the Common Stock. No other dividends shall be paid on shares of Preferred Stock.

Section 4. Voting Rights. Except as otherwise provided herein or as otherwise required by law, the Preferred Stock shall have no voting rights. However, as long as any shares of Preferred Stock are outstanding, the Corporation shall not, without the affirmative vote of the Holders of a majority of the then outstanding shares of the Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Preferred Stock or alter or amend this Certificate of Designation, (b) amend its certificate of incorporation or other charter documents in any manner that adversely affects any rights of the Holders, (c) increase the number of authorized shares of Preferred Stock, or (d) enter into any agreement with respect to any of the foregoing.

Section 5. Liquidation. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary (a "Liquidation"), the Holders shall be entitled to receive out of the assets, whether capital or surplus, of the Corporation the same amount that a holder of Common Stock would receive if the Preferred Stock were fully converted (disregarding for such purposes any conversion limitations hereunder) to Common Stock which amounts shall be paid pari passu with all holders of Common Stock. The Corporation shall mail written notice of any such Liquidation, not less than 45 days prior to the payment date stated therein, to each Holder.

Section 6. Conversion.

a) Conversions at Option of Holder. Each share of Preferred Stock shall be convertible, at any time and from time to time from and after the Original Issue Date at the option of the Holder thereof, into that number of shares of Common Stock (subject to the limitations set forth in Section 6(d)) determined by dividing the Stated Value of such share of Preferred Stock by the Conversion Price. Holders shall effect conversions by providing the Corporation with the form of conversion notice attached hereto as Annex A (a "Notice of Conversion"). Each Notice of Conversion shall specify the number of shares of Preferred Stock to be converted, the number of shares of Preferred Stock owned prior to the conversion at issue, the number of shares of Preferred Stock owned subsequent to the conversion at issue and the date on which such conversion is to be effected, which date may not be prior to the date the applicable Holder delivers by facsimile such Notice of Conversion to the Corporation (such date, the "Conversion Date"). If no Conversion Date is specified in a Notice of Conversion, the Conversion Date shall be the date that such Notice of Conversion to the Corporation is deemed delivered hereunder. No ink-original Notice of Conversion shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Conversion form be required. The calculations and entries set forth in the Notice of Conversion shall control in the absence of manifest or mathematical error. To effect conversions of shares of Preferred Stock, a Holder shall not be required to surrender the certificate(s) representing the shares of Preferred Stock to the Corporation unless all of the shares of Preferred Stock represented thereby are so converted, in which case such Holder shall deliver the certificate representing such shares of Preferred Stock promptly following the Conversion Date at issue. Shares of Preferred Stock converted into Common Stock or redeemed in accordance with the terms hereof shall be canceled and shall not be reissued.

b ) Conversion Price. The conversion price for the Preferred Stock shall equal \$\_\_\_\_\_, subject to adjustment herein (the "Conversion Price").

c) Mechanics of Conversion

i . Delivery of Conversion Shares Upon Conversion. Not later than the earlier of (i) three (3) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined below) after each Conversion Date (the "Share Delivery Date"), the Corporation shall deliver, or cause to be delivered, to the converting Holder (A) the number of Conversion Shares being acquired upon the conversion of the Preferred Stock, which Conversion Shares shall be free of restrictive legends and trading restrictions and (B) a bank check in the amount of accrued and unpaid dividends, if any. The Corporation shall use its best efforts to deliver the Conversion Shares required to be delivered by the Corporation under this Section 6 electronically through the Depository Trust Company ("DTC") or another established clearing corporation performing similar functions. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Corporation's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Conversion. Notwithstanding the foregoing, with respect to any Notice(s) of Conversion delivered by 12:00 pm (NY time) on the Original Issue Date, the Corporation agrees to deliver the Conversion Shares subject to such notice(s) by 4:00 pm (NY time) on the Original Issue Date.

ii. Failure to Deliver Conversion Shares. If, in the case of any Notice of Conversion, such Conversion Shares are not delivered to or as directed by the applicable Holder by the Share Delivery Date, the Holder shall be entitled to elect by written notice to the Corporation at any time on or before its receipt of such Conversion Shares, to rescind such Conversion, in which event the Corporation shall promptly return to the Holder any original Preferred Stock certificate delivered to the Corporation and the Holder shall promptly return to the Corporation the Conversion Shares issued to such Holder pursuant to the rescinded Notice of Conversion.

iii . Partial Liquidated Damages. If the Corporation fails to deliver to a Holder such Conversion Shares pursuant to Section 6(c)(i) by the Share Delivery Date applicable to such conversion, the Corporation shall pay to such Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Stated Value of Preferred Stock being converted, \$10 per Trading Day for each Trading Day after the Share Delivery Date until such Conversion Shares are delivered or Holder rescinds such conversion. Nothing herein shall limit a Holder's right to pursue actual damages for the Corporation's failure to deliver Conversion Shares within the period specified herein and such Holder shall have the right to pursue all remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief. The exercise of any such rights shall not prohibit a Holder from seeking to enforce damages pursuant to any other Section hereof or under applicable law.

iv. Compensation for Buy-In on Failure to Timely Deliver Conversion Shares Upon Conversion. In addition to any other rights available to the Holder, if the Corporation fails for any reason to deliver to a Holder the applicable Conversion Shares by the Share Delivery Date pursuant to Section 6(c)(i), and if after such Share Delivery Date such Holder is required by its brokerage firm to purchase (in an open market transaction or otherwise), or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by such Holder of the Conversion Shares which such Holder was entitled to receive upon the conversion relating to such Share Delivery Date (a "Buy-In"), then the Corporation shall (A) pay in cash to such Holder (in addition to any other remedies available to or elected by such Holder) the amount, if any, by which (x) such Holder's total purchase price (including any brokerage commissions) for the Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that such Holder was entitled to receive from the conversion at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions) and (B) at the option of such Holder, either reissue (if surrendered) the shares of Preferred Stock equal to the number of shares of Preferred Stock submitted for conversion (in which case, such conversion shall be deemed rescinded) or deliver to such Holder the number of shares of Common Stock that would have been issued if the Corporation had timely complied with its delivery requirements under Section 6(c)(i). For example, if a Holder purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted conversion of shares of Preferred Stock with respect to which the actual sale price of the Conversion Shares (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000 under clause (A) of the immediately preceding sentence, the Corporation shall be required to pay such Holder \$1,000. The Holder shall provide the Corporation written notice indicating the amounts payable to such Holder in respect of the Buy-In and, upon request of the Corporation, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Corporation's failure to timely deliver Conversion Shares upon conversion of the shares of Preferred Stock as required pursuant to the terms hereof.

v. Reservation of Shares Issuable Upon Conversion. The Corporation covenants that it will at all times reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of the Preferred Stock as herein provided, free from preemptive rights or any other actual contingent purchase rights of Persons other than the Holder (and the other holders of the Preferred Stock), not less than such aggregate number of shares of the Common Stock as shall be issuable (taking into account the adjustments and restrictions of Section 7) upon the conversion of the then outstanding shares of Preferred Stock. The Corporation covenants that all shares of Common Stock that shall be so issuable shall, upon issue, be duly authorized, validly issued, fully paid and nonassessable.

v i . Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the conversion of the Preferred Stock. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such conversion, the Corporation shall at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Conversion Price or round up to the next whole share.

vii. Transfer Taxes and Expenses. The issuance of Conversion Shares on conversion of this Preferred Stock shall be made without charge to any Holder for any documentary stamp or similar taxes that may be payable in respect of the issue or delivery of such Conversion Shares, provided that the Corporation shall not be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of any such Conversion Shares upon conversion in a name other than that of the Holders of such shares of Preferred Stock and the Corporation shall not be required to issue or deliver such Conversion Shares unless or until the Person or Persons requesting the issuance thereof shall have paid to the Corporation the amount of such tax or shall have established to the satisfaction of the Corporation that such tax has been paid. The Corporation shall pay all Transfer Agent fees required for same-day processing of any Notice of Conversion and all fees to the DTC (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Conversion Shares.

d) Beneficial Ownership Limitation. Notwithstanding anything to the contrary herein, the Corporation shall not effect any conversion of the Preferred Stock, and a Holder shall not have the right to convert any portion of the Preferred Stock, to the extent that, after giving effect to the conversion set forth on the applicable Notice of Conversion, such Holder (together with such Holder's Affiliates, and any Persons acting as a group together with such Holder or any of such Holder's Affiliates (such Persons, "Attribution Parties")) would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by such Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon conversion of the Preferred Stock with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon (i) conversion of the remaining, unconverted Stated Value of Preferred Stock beneficially owned by such Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or unconverted portion of any other securities of the Corporation subject to a limitation on conversion or exercise analogous to the limitation contained herein (including, without limitation, the Preferred Stock) beneficially owned by such Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 6(d), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. To the extent that the limitation contained in this Section 6(d) applies, the determination of whether the Preferred Stock is convertible (in relation to other securities owned by such Holder together with any Affiliates and Attribution Parties) and of how many shares of Preferred Stock are convertible shall be in the sole discretion of such Holder, and the submission of a Notice of Conversion shall be deemed to be such Holder's determination of whether the shares of Preferred Stock may be converted (in relation to other securities owned by such Holder together with any Affiliates and Attribution Parties) and how many shares of the Preferred Stock are convertible, in each case subject to the Beneficial Ownership Limitation. To ensure compliance with this restriction, each Holder will be deemed to represent to the Corporation each time it delivers a Notice of Conversion that such conversion will not violate the restrictions set forth in this paragraph and the Corporation shall have no obligation to verify or confirm the accuracy of such representation. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 6(d), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (i) the Corporation's most recent periodic or annual report filed with the Commission, as the case may be, (ii) a more recent public announcement by the Corporation or (iii) a more recent written notice by the Corporation or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request (which may be via email) of a Holder, the Corporation shall within two Trading Days confirm orally and in writing to such Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Corporation, including the Preferred Stock, by such Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon conversion of Preferred Stock held by the applicable Holder. A Holder, upon notice to the Corporation, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 6(d) applicable to its Preferred Stock provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon conversion of this Preferred Stock held by the Holder and the provisions of this Section 6(d) shall continue to apply. Any such increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Corporation and shall only apply to such Holder and no other Holder. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 6(d) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation contained herein or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of Preferred Stock.

Section 7. Certain Adjustments.

a) Stock Dividends and Stock Splits. If the Corporation, at any time while this Preferred Stock is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock on shares of Common Stock or any other Common Stock Equivalents (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Corporation upon conversion of, or payment of a dividend on, this Preferred Stock), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues, in the event of a reclassification of shares of the Common Stock, any shares of capital stock of the Corporation, then the Conversion Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of the Corporation) outstanding immediately before such event, and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to this Section 7(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) RESERVED.

c ) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 7(a) above, if at any time the Corporation grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete conversion of such Holder's Preferred Stock (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d ) Pro Rata Distributions. During such time as this Preferred Stock is outstanding, if the Corporation declares or makes any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Preferred Stock, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete conversion of this Preferred Stock (without regard to any limitations on conversion hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

e) Fundamental Transaction. If, at any time while this Preferred Stock is outstanding, (i) the Corporation, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Corporation with or into another Person, (ii) the Corporation, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Corporation or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) the Corporation, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Corporation, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent conversion of this Preferred Stock, the Holder shall have the right to receive, for each Conversion Share that would have been issuable upon such conversion immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 6(d) on the conversion of this Preferred Stock), the number of shares of Common Stock of the successor or acquiring corporation or of the Corporation, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Preferred Stock is convertible immediately prior to such Fundamental Transaction (without regard to any limitation in Section 6(d) on the conversion of this Preferred Stock). For purposes of any such conversion, the determination of the Conversion Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Corporation shall apportion the Conversion Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any conversion of this Preferred Stock following such Fundamental Transaction. The amount of any consideration to be received by a Holder in connection with a Fundamental Transaction shall be payable in the same type or form of consideration (and in the same proportion) that is being offered and paid to the holders of Common Stock of the Corporation in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction. To the extent necessary to effectuate the foregoing provisions, any successor to the Corporation or surviving entity in such Fundamental Transaction shall file a new Certificate of Designation with the same terms and conditions and issue to the Holders new preferred stock consistent with the foregoing provisions and evidencing the Holders' right to convert such preferred stock into Alternate Consideration. The Corporation shall cause any successor entity in a Fundamental Transaction in which the Corporation is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Corporation under this Certificate of Designation in accordance with the provisions of this Section 7(e) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the holder of this Preferred Stock, deliver to the Holder in exchange for this Preferred Stock a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Preferred Stock which is convertible for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon conversion of this Preferred Stock (without regard to any limitations on the conversion of this Preferred Stock) prior to such Fundamental Transaction, and with a conversion price which applies the conversion price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such conversion price being for the purpose of protecting the economic value of this Preferred Stock immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Certificate of Designation referring to the "Corporation" shall refer instead to the Successor Entity), and may exercise every right and power of the Corporation and shall assume all of the obligations of the Corporation under this Certificate of Designation with the same effect as if such Successor Entity had been named as the Corporation herein. For the avoidance of doubt, if, at any time while this Preferred Stock is outstanding, a Fundamental Transaction occurs, pursuant to the terms of this Section 7(e), the Holder shall not be entitled to receive more than one of (i) the consideration receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Preferred Stock is convertible immediately prior to such Fundamental Transaction or (ii) the assumption by the Successor Entity of all of the obligations of the Corporation under this Certificate of Designation and the option to receive a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Certificate of Designation.

f ) Calculations. All calculations under this Section 7 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 7, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of the Corporation) issued and outstanding.

g) Notice to the Holders.

i. Adjustment to Conversion Price. Whenever the Conversion Price is adjusted pursuant to any provision of this Section 7, the Corporation shall promptly deliver to each Holder a notice setting forth the Conversion Price after such adjustment and setting forth a brief statement of the facts requiring such adjustment.

i i . Notice to Allow Conversion by Holder. If (A) the Corporation shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Corporation shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Corporation shall authorize the granting to all holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Corporation shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Corporation is a party, any sale or transfer of all or substantially all of the assets of the Corporation, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property or (E) the Corporation shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Corporation, then, in each case, the Corporation shall cause to be filed at each office or agency maintained for the purpose of conversion of this Preferred Stock, and shall cause to be delivered to each Holder at its last address as it shall appear upon the stock books of the Corporation, at least twenty (20) calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange, provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Corporation or any of the Subsidiaries, the Corporation shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to convert the Conversion Amount of this Preferred Stock (or any part hereof) during the 20-day period commencing on the date of such notice through the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 8. Forced Conversion. Beginning on the three year anniversary of the Original Issue Date, subject to compliance with the limitations set forth in Section 6(d), the Corporation shall have the right to cause each Holder of Preferred Stock to convert all or part of such Holder's Preferred Stock, plus all accrued but unpaid dividends thereon and all liquidated damages and other amounts due in respect of the Preferred Stock pursuant to Section 6, upon 20 calendar days' prior written notice to such Holder (which notice may be given by the Transfer Agent), it being agreed that the "Conversion Date" for purposes of Section 6 shall be deemed to occur on the 20<sup>th</sup> calendar day following the delivery of such notice. Such notice may be given prior to the three year anniversary of the Original Issue Date and shall be given in accordance with any applicable procedures of the depository for the Preferred Stock. Any forced conversion pursuant to this paragraph shall be applied ratably to all of the shares of the then outstanding Preferred Stock, provided that any voluntary conversions by a Holder of such shares of Preferred Stock subject to a forced conversion shall be applied against such Holder's pro rata allocation, thereby decreasing the aggregate amount forcibly converted hereunder if less than all shares of the Preferred Stock are forcibly converted. For purposes of clarification, such forced conversion as described in this paragraph shall be subject to all of the provisions of Section 6, including, without limitation, the provisions requiring payment of liquidated damages and limitations on conversions.

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In addition, at any time prior to the three year anniversary of the Original Issue Date, if (i) the VWAP for each of 30 consecutive Trading Days (the "Measurement Period," which 30 consecutive Trading Day period shall not have commenced until after the Original Issue Date) exceeds \$[ ]<sup>1</sup> (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the Original Issue Date), (ii) the average daily volume for such Measurement Period exceeds \$300,000 per Trading Day (iii) the Holder is not in possession of any information that constitutes, or might constitute, material non-public information which was provided by the Corporation, and (iv)(a) there is an effective registration statement pursuant to which either (A) the Corporation may issue Conversion Shares or (B) the Holders are permitted to utilize the prospectus thereunder to resell all of their Conversion Shares (and the Corporation believes, in good faith, that such effectiveness will continue uninterrupted for the foreseeable future) or (b) all of the Conversion Shares may be resold pursuant to Rule 144 without volume or manner-of-sale restrictions or current public information requirements as determined by the counsel to the Corporation as set forth in a written opinion letter to such effect, addressed and acceptable to the Transfer Agent and the affected Holders or (c) all of the Conversion Shares may be issued to the Holder pursuant to Section 3(a)(9) of the Securities Act and immediately resold without restriction, then the Corporation may, within 1 Trading Day after the end of any such Measurement Period, deliver a written notice to all Holders (a "Forced Conversion Notice" and the date such notice is delivered to all Holders, the "Forced Conversion Notice Date") to cause each Holder to convert all or part of such Holder's Preferred Stock (as specified in such Forced Conversion Notice) plus all accrued but unpaid dividends thereon and all liquidated damages and other amounts due in respect of the Preferred Stock pursuant to Section 6, it being agreed that the "Conversion Date" for purposes of Section 6 shall be deemed to occur on the third Trading Day following the Forced Conversion Notice Date (such third Trading Day, the "Forced Conversion Date"). The Corporation may not deliver a Forced Conversion Notice, and any Forced Conversion Notice delivered by the Corporation shall not be effective, unless all of the following conditions have been met on each Trading Day during the applicable Measurement Period through and including the later of the Forced Conversion Date and the Trading Day after the date that the Conversion Shares issuable pursuant to such conversion are actually delivered to the Holders pursuant to the Forced Conversion Notice: (1) the Corporation shall have duly honored all conversions scheduled to occur or occurring by virtue of one or more Notices of Conversion of the applicable Holder on or prior to the dates so requested or required, if any; (2) the Common Stock is trading on a Trading Market; and (3) the issuance of the Conversion Shares in question to the applicable Holder would not violate the limitations set forth in Section 6(d) herein. Any Forced Conversion Notices shall be applied ratably to all of the shares of the then outstanding Preferred Stock, provided that any voluntary conversions by a Holder of such shares of Preferred Stock subject to a Forced Conversion Notice shall be applied against such Holder's pro rata allocation, thereby decreasing the aggregate amount forcibly converted hereunder if less than all shares of the Preferred Stock are forcibly converted. For purposes of clarification, a Forced Conversion shall be subject to all of the provisions of Section 6, including, without limitation, the provisions requiring payment of liquidated damages and limitations on conversions.

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<sup>1</sup> [250]% of the initial Conversion Price.

Section 9. Miscellaneous.

a ) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Conversion, shall be in writing and delivered personally, by facsimile, or sent by a nationally recognized overnight courier service, addressed to the Corporation at:

Collectar Biosciences, Inc.  
3301 Agriculture Drive  
Madison, WI 53716  
Facsimile: (608) 441-8121  
Attention: James Caruso

with a copy (for informational purposes only) to:

Foley Hoag LLP  
Seaport West  
155 Seaport Boulevard  
Boston, MA 02210  
Facsimile: (617) 832-7000  
Attention: Paul Bork, Esq.

or such other facsimile number or address as the Corporation may specify for such purposes by notice to the Holders delivered in accordance with this Section 9. Any and all notices or other communications or deliveries to be provided by the Corporation hereunder shall be in writing and delivered personally, by facsimile, or sent by a nationally recognized overnight courier service addressed to each Holder at the facsimile number or address of such Holder appearing on the books of the Corporation, or if no such facsimile number or address appears on the books of the Corporation, at the principal place of business of such Holder. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number set forth in this Section prior to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number set forth in this Section on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the Person to whom such notice is required to be given. Notwithstanding any other provision of this Certificate of Designation, where this Certificate of Designation provides for notice of any event to a Holder, if the Preferred Stock is held in global form by DTC (or any successor depository), such notice may be delivered via DTC (or such successor depository) pursuant to the procedures of DTC (or such successor depository).

b ) Absolute Obligation. Except as expressly provided herein, no provision of this Certificate of Designation shall alter or impair the obligation of the Corporation, which is absolute and unconditional, to pay liquidated damages and accrued dividends, as applicable, on the shares of Preferred Stock at the time, place, and rate, and in the coin or currency, herein prescribed.

c ) Lost or Mutilated Preferred Stock Certificate. If a Holder's Preferred Stock certificate shall be mutilated, lost, stolen or destroyed, the Corporation shall execute and deliver, in exchange and substitution for and upon cancellation of a mutilated certificate, or in lieu of or in substitution for a lost, stolen or destroyed certificate, a new certificate for the shares of Preferred Stock so mutilated, lost, stolen or destroyed, but only upon receipt of evidence of such loss, theft or destruction of such certificate, and of the ownership hereof reasonably satisfactory to the Corporation.

d ) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Certificate of Designation shall be governed by and construed and enforced in accordance with the internal laws of the State of Delaware, without regard to the principles of conflict of laws thereof. Each of the Corporation and each Holder agrees that all legal proceedings concerning the interpretation, enforcement and defense of the transactions contemplated by this Certificate of Designation (whether brought against the Corporation, a Holder or any of their respective Affiliates, directors, officers, shareholders, employees or agents) shall be commenced in the state and federal courts sitting in the City of New York, Borough of Manhattan (the "New York Courts"). Each of the Corporation and each Holder hereby irrevocably submits to the exclusive jurisdiction of the New York Courts for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such New York Courts, or such New York Courts are improper or inconvenient venue for such proceeding. Each of the Corporation and each Holder hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such Person at the address in effect for notices to it under this Certificate of Designation and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by applicable law. Each of the Corporation and each Holder hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Certificate of Designation or the transactions contemplated hereby. If the Corporation or any Holder shall commence an action or proceeding to enforce any provisions of this Certificate of Designation, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorneys' fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding.

e) Waiver. Any waiver by the Corporation or a Holder of a breach of any provision of this Certificate of Designation shall not operate as or be construed to be a waiver of any other breach of such provision or of any breach of any other provision of this Certificate of Designation or a waiver by any other Holders. The failure of the Corporation or a Holder to insist upon strict adherence to any term of this Certificate of Designation on one or more occasions shall not be considered a waiver or deprive that Person (or any other Holder) of the right thereafter to insist upon strict adherence to that term or any other term of this Certificate of Designation on any other occasion. Any waiver by the Corporation or a Holder must be in writing.

f) Severability. If any provision of this Certificate of Designation is invalid, illegal or unenforceable, the balance of this Certificate of Designation shall remain in effect, and if any provision is inapplicable to any Person or circumstance, it shall nevertheless remain applicable to all other Persons and circumstances. If it shall be found that any interest or other amount deemed interest due hereunder violates the applicable law governing usury, the applicable rate of interest due hereunder shall automatically be lowered to equal the maximum rate of interest permitted under applicable law.

g ) Next Business Day. Whenever any payment or other obligation hereunder shall be due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day.

h ) Headings. The headings contained herein are for convenience only, do not constitute a part of this Certificate of Designation and shall not be deemed to limit or affect any of the provisions hereof.

i ) Status of Converted or Redeemed Preferred Stock. If any shares of Preferred Stock shall be converted, redeemed or reacquired by the Corporation, such shares shall resume the status of authorized but unissued shares of preferred stock and shall no longer be designated as Series A Convertible Preferred Stock.

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RESOLVED, FURTHER, that the Chairman, the president or any vice-president, and the secretary or any assistant secretary, of the Corporation be and they hereby are authorized and directed to prepare and file this Certificate of Designation of Preferences, Rights and Limitations in accordance with the foregoing resolution and the provisions of Delaware law.

IN WITNESS WHEREOF, the undersigned have executed this Certificate this \_\_\_ day of \_\_\_\_ 2016.

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Name: James Caruso  
Title: President

ANNEX A

NOTICE OF CONVERSION

(TO BE EXECUTED BY THE REGISTERED HOLDER IN ORDER TO CONVERT SHARES OF PREFERRED STOCK)

The undersigned hereby elects to convert the number of shares of Series \_\_\_ Convertible Preferred Stock indicated below into shares of common stock, par value \$0.00001 per share (the "Common Stock"), of Collectar Biosciences, Inc., a Delaware corporation (the "Corporation"), according to the conditions hereof, as of the date written below. If shares of Common Stock are to be issued in the name of a Person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto. No fee will be charged to the Holders for any conversion, except for any such transfer taxes.

Conversion calculations:

Date to Effect Conversion: \_\_\_\_\_

Number of shares of Preferred Stock owned prior to Conversion: \_\_\_\_\_

Number of shares of Preferred Stock to be Converted: \_\_\_\_\_

Stated Value of shares of Preferred Stock to be Converted: \_\_\_\_\_

Number of shares of Common Stock to be Issued: \_\_\_\_\_

Applicable Conversion Price: \_\_\_\_\_

Number of shares of Preferred Stock subsequent to Conversion: \_\_\_\_\_

Address for Delivery: \_\_\_\_\_

or

DWAC Instructions:

Broker no: \_\_\_\_\_

Account no: \_\_\_\_\_

[HOLDER]

By: \_\_\_\_\_

Name:

Title:

UNLESS THIS CERTIFICATE IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY, A NEW YORK CORPORATION ("DTC"), TO THE CORPORATION OR THE TRANSFER AGENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF [ ] OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO [ ], OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, [ ] HAS AN INTEREST HEREIN. TRANSFERS OF THIS GLOBAL SECURITY SHALL BE LIMITED TO TRANSFERS IN WHOLE, BUT NOT IN PART, TO NOMINEES OF DTC OR TO A SUCCESSOR THEREOF OR SUCH SUCCESSOR'S NOMINEE.

THE CORPORATION IS AUTHORIZED TO ISSUE MORE THAN ONE CLASS OF STOCK AND MORE THAN ONE SERIES OF ITS CLASS OF PREFERRED STOCK. THE CORPORATION WILL FURNISH WITHOUT CHARGE TO EACH STOCKHOLDER WHO SO REQUESTS THE POWERS, DESIGNATIONS, PREFERENCES AND RELATIVE PARTICIPATING, OPTIONAL OR OTHER SPECIAL RIGHTS OF EACH CLASS OF STOCK OR SERIES THEREOF AND THE QUALIFICATIONS, LIMITATIONS OR RESTRICTIONS OF SUCH PREFERENCES AND/OR RIGHTS.

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Incorporated under the laws of the State of Delaware, June 24, 1996

Certificate Number: [ ]

Initial Number of Shares of Series A Convertible Preferred Stock: [ ]

CUSIP [ ]  
ISIN [ ]

**CELLECTAR BIOSCIENCES, INC.**

Cellectar Biosciences, Inc. (the “**Corporation**”) hereby certifies that [ ] (the “**Holder**”) is the registered owner of [ ] fully paid and non-assessable shares of the Corporation’s designated Series A Convertible Preferred Stock, par value \$0.00001 per share (the “**Series A Preferred Stock**”), transferable on the books and records of the Transfer Agent, in person or by a duly authorized attorney, upon surrender of this certificate duly endorsed or assigned and in proper form for transfer.

This Certificate and the shares represented hereby are issued and shall be held subject to all the provisions of the Second Amended and Restated Certificate of Incorporation and the Amended and Restated Bylaws of the Corporation and any amendments thereto, including the provisions of the Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Preferred Stock, dated \_\_\_\_\_, 2016, as the same may be amended from time to time (the “**Certificate of Designation**”). Capitalized terms used herein but not defined shall have the meaning given them in the Certificate of Designation.

The shares of the Series A Preferred Stock shall be convertible in the manner and accordance with the terms set forth in the Certificate of Designation.

Reference is hereby made to the provisions of the Series A Preferred Stock set forth in the Certificate of Designation, which provisions shall for all purposes have the same effect as if set forth at this place.

Upon receipt of this executed certificate, the Holder is bound by the Certificate of Designation and is entitled to the benefits thereunder.

Unless the Transfer Agent has properly countersigned, these shares of the Series A Preferred Stock shall not be entitled to any benefit under the Certificate of Designation or be valid or obligatory for any purpose.

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IN WITNESS WHEREOF the said Corporation has caused this Certificate to be signed by its duly authorized officer as of \_\_\_\_\_, 2016.

By: \_\_\_\_\_  
Name:  
Title:

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**COUNTERSIGNATURE**

These are shares of the Series A Convertible Preferred Stock referred to in the within-mentioned Certificate of Designation.

Dated: \_\_\_\_\_, 2016

American Stock Transfer & Trust Company, LLC, as Transfer Agent

By: \_\_\_\_\_  
Name:  
Title:

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NOTICE OF CONVERSION

(TO BE EXECUTED BY THE REGISTERED HOLDER IN ORDER TO CONVERT SHARES OF PREFERRED STOCK)

The undersigned hereby elects to convert the number of shares of Series A Convertible Preferred Stock indicated below into shares of common stock, par value \$0.00001 per share (the "Common Stock"), of Collectar Biosciences, Inc., a Delaware corporation (the "Corporation"), according to the conditions hereof, as of the date written below. If shares of Common Stock are to be issued in the name of a Person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto. No fee will be charged to the Holders for any conversion, except for any such transfer taxes.

Conversion calculations:

Date to Effect Conversion: \_\_\_\_\_

Number of shares of Preferred Stock owned prior to Conversion: \_\_\_\_\_

Number of shares of Preferred Stock to be Converted: \_\_\_\_\_

Stated Value of shares of Preferred Stock to be Converted: \_\_\_\_\_

Number of shares of Common Stock to be Issued: \_\_\_\_\_

Applicable Conversion Price: \_\_\_\_\_

Number of shares of Preferred Stock subsequent to Conversion: \_\_\_\_\_

Address for Delivery: \_\_\_\_\_

Or

DWAC Instructions:

Broker no: \_\_\_\_\_

Account no: \_\_\_\_\_

[HOLDER]

By: \_\_\_\_\_

Name:

Title:

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## SERIES C-2016 COMMON STOCK PURCHASE WARRANT

## CELLECTAR BIOSCIENCES, INC.

Warrant Shares: \_\_\_\_\_

Initial Exercise Date: \_\_\_\_\_, 2016

Cusip #: \_\_\_\_\_

THIS SERIES C-2016 COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, \_\_\_\_\_ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after \_\_\_\_, 2016 (the "Initial Exercise Date") and on or prior to the close of business on the five year anniversary of the Initial Exercise Date (the "Termination Date") but not thereafter, to subscribe for and purchase from Cellectar Biosciences, Inc., a Delaware corporation (the "Company"), up to \_\_\_\_\_ shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. In addition to the terms defined elsewhere in this Agreement, the following terms have the meanings indicated in this Section 1:

"Affiliate" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

"Business Day" means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

"Commission" means the United States Securities and Exchange Commission.

"Common Stock Equivalents" means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

"Exchange Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

"Person" means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Trading Day” means a day on which the Common Stock is traded on a Trading Market.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE AMEX, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange or the OTCQB (or any successors to any of the foregoing).

“Transfer Agent” means American Stock Transfer & Trust Company LLC, the current transfer agent of the Company, with a mailing address of 6201 15th Avenue, Brooklyn, NY 11219 and a facsimile number of 718-236-2641, and any successor transfer agent of the Company.

“Warrant Agency Agreement” means that certain warrant agency agreement, dated as of the Initial Exercise Date, between the Company and the Transfer Agent.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the OTC Bulletin Board is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the OTC Bulletin Board, (c) if the Common Stock is not then listed or quoted for trading on the OTC Bulletin Board and if prices for the Common Stock are then reported in the “Pink Sheets” published by Pink OTC Markets, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holder and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

Section 2.      Exercise.

a )      Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company (or such other office or agency of the Company as it may designate by notice in writing to the registered Holder at the address of the Holder appearing on the books of the Company) of a duly executed facsimile copy (or e-mail attachment) of the Notice of Exercise in the form annexed hereto and within three (3) Trading Days of the date said Notice of Exercise is delivered to the Company, the Company shall have received payment of the aggregate Exercise Price of the shares of Common Stock thereby purchased by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b)      Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$\_\_\_\_\_, subject to adjustment hereunder (the "Exercise Price").

c )      Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the Warrant Shares to the Holder, then this Warrant may only be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

- (A) = the last VWAP immediately preceding the time of delivery of the Notice of Exercise giving rise to the applicable "cashless exercise", as set forth in the applicable Notice of Exercise (to clarify, the "last VWAP" will be the last VWAP as calculated over an entire Trading Day such that, in the event that this Warrant is exercised at a time that the Trading Market is open, the prior Trading Day's VWAP shall be used in this calculation);
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and
- (X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

Notwithstanding anything herein to the contrary, on the Termination Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(c). Other than cash payments pursuant to Section 2(d)(i) and 2(d)(iv), under no circumstances shall the Company be obligated to provide the Holder with a net cash settlement payment.

d) Mechanics of Exercise.

i . Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) three (3) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) three Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. Subject to Section 2(e), in addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v . No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, such amount will be rounded either up or down to the next whole share.

vi . Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e ) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

(f) Call Provision. Subject to the provisions of Section 2(e) and this Section 2(f), if, after the Initial Exercise Date, (i) the VWAP for each of 30 consecutive Trading Days (the "Measurement Period," which 30 consecutive Trading Day period shall not have commenced until after the Initial Exercise Date) exceeds \$\_\_\_\_ (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the Initial Exercise Date), (ii) the average daily volume for such Measurement Period exceeds \$\_\_\_\_\_ per Trading Day and (iii) the Holder is not in possession of any information that constitutes, or might constitute, material non-public information which was provided by the Company, then the Company may, within 1 Trading Day of the end of such Measurement Period, call for cancellation of all or any portion of this Warrant for which a Notice of Exercise has not yet been delivered (such right, a "Call") for consideration equal to \$.001 per Warrant Share. To exercise this right, the Company must deliver to the Holder an irrevocable written notice (a "Call Notice"), indicating therein the portion of unexercised portion of this Warrant to which such notice applies. If the conditions set forth below for such Call are satisfied from the period from the date of the Call Notice through and including the Call Date (as defined below), then any portion of this Warrant subject to such Call Notice for which a Notice of Exercise shall not have been received by the Call Date will be cancelled at 6:30 p.m. (New York City time) on the tenth Trading Day after the date the Call Notice is received by the Holder (such date and time, the "Call Date"). Any unexercised portion of this Warrant to which the Call Notice does not pertain will be unaffected by such Call Notice. In furtherance thereof, the Company covenants and agrees that it will honor all Notices of Exercise with respect to Warrant Shares subject to a Call Notice that are tendered through 6:30 p.m. (New York City time) on the Call Date. The parties agree that any Notice of Exercise delivered following a Call Notice which calls less than all the Warrants shall first reduce to zero the number of Warrant Shares subject to such Call Notice prior to reducing the remaining Warrant Shares available for purchase under this Warrant. For example, if (A) this Warrant then permits the Holder to acquire 100 Warrant Shares, (B) a Call Notice pertains to 75 Warrant Shares, and (C) prior to 6:30 p.m. (New York City time) on the Call Date the Holder tenders a Notice of Exercise in respect of 50 Warrant Shares, then (x) on the Call Date the right under this Warrant to acquire 25 Warrant Shares will be automatically cancelled, (y) the Company, in the time and manner required under this Warrant, will have issued and delivered to the Holder 50 Warrant Shares in respect of the exercises following receipt of the Call Notice, and (z) the Holder may, until the Termination Date, exercise this Warrant for 25 Warrant Shares (subject to adjustment as herein provided and subject to subsequent Call Notices). Subject again to the provisions of this Section 2(f), the Company may deliver subsequent Call Notices for any portion of this Warrant for which the Holder shall not have delivered a Notice of Exercise. Notwithstanding anything to the contrary set forth in this Warrant, the Company may not deliver a Call Notice or require the cancellation of this Warrant (and any such Call Notice shall be void), unless, from the beginning of the Measurement Period through the Call Date, (1) the Company shall have honored in accordance with the terms of this Warrant all Notices of Exercise delivered by 6:30 p.m. (New York City time) on the Call Date, and (2) the Company's registration statement (file #333-208638) shall be effective as to all Warrant Shares and the prospectus thereunder available for the issuance to the Holder of all such Warrant Shares, and (3) the Common Stock shall be listed or quoted for trading on a Trading Market, and (4) there is a sufficient number of authorized shares of Common Stock for issuance of all Warrant Shares, and (5) the issuance of the shares shall not cause a breach of any provision of Section 2(e) herein. The Company's right to call the Warrants under this Section 2(f) shall be exercised ratably among the Holders based on each Holder's initial purchase of Warrants.

Section 3.        Certain Adjustments.

a )        Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b)        [Reserved].

c ) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d ) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

e ) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a “Fundamental Transaction”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the “Alternate Consideration”) receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction other than one in which a Successor Entity (as defined below) that is a publicly traded corporation whose stock is quoted or listed on a Trading Market assumes this Warrant such that the Warrant shall be exercisable for the publicly traded common stock of such Successor Entity and only if such Fundamental Transaction is within the Company's control, the Company or any Successor Entity shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction, purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall have the option to require the Company or any Successor Entity to purchase its Warrant for the Black Scholes Value of the unexercised portion of this Warrant as of the date of consummation of such Fundamental Transaction using the same type or form of consideration (and in the same proportion) that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction. Any cash payment will be made by wire transfer of immediately available funds within five Business Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction). “Black Scholes Value” means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the “OV” function on Bloomberg, L.P. (“Bloomberg”) determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(e) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein. For the avoidance of doubt, if, at any time while this Warrant is outstanding, a Fundamental Transaction occurs, pursuant to the terms of this Section 5(e), the Holder shall not be entitled to receive more than one of (i) the consideration receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common

Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction, (ii) an amount of cash equal to the Black Scholes Value of the remaining unconverted portion of this Warrant on the date of the consummation of such Fundamental Transaction, or (iii) the assumption by the Successor Entity of all of the obligations of the Company under this Warrant and the other Transaction Documents and the option to receive a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant.

f ) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 4. Transfer of Warrant.

a ) Transferability. This Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company or its designated agent shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company or its designated agent unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company or its designated agent within three (3) Trading Days of the date the Holder delivers an assignment form to the Company or its designated agent assigning this Warrant full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b ) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company or its designated agent, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company or its designated agent shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Initial Exercise Date and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company or its designated agent shall register this Warrant, upon records to be maintained by the Company or its designated agent for that purpose (the “Warrant Register”), in the name of the record Holder hereof from time to time. The Company and its designated agent may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3.

b ) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c ) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e ) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Warrant (whether brought against a party hereto or their respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies, notwithstanding the fact that all rights hereunder terminate on the Termination Date. If the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notices, consents, waivers or other document or communications required or permitted to be given or delivered under the terms of this Warrant must be in writing and will be deemed to have been delivered: (i) upon receipt, if delivered personally; (ii) when sent, if sent by facsimile (provided confirmation of transmission is mechanically or electronically generated and kept on file by the sending party); (iii) when sent, if sent by e-mail (provided that such sent e-mail is kept on file (whether electronically or otherwise) by the sending party and the sending party does not receive an automatically generated message from the recipient's e-mail server that such e-mail could not be delivered to such recipient) and (iv) if sent by overnight courier service, one (1) Trading Day after deposit with an overnight courier service with next day delivery specified, in each case, properly addressed to the party to receive the same. If notice is given by facsimile or email, a copy of such notice shall be dispatched no later than the next business day by first class mail, postage prepaid. The addresses, facsimile numbers and e-mail addresses for such communications shall be:

If to the Company:

Cellectar Biosciences, Inc.  
3301 Agriculture Drive  
Madison, WI 53716  
Facsimile: (608) 441-8121  
Attention: James Caruso

With a copy (for informational purposes only) to:

Foley Hoag LLP  
Seaport West  
155 Seaport Boulevard  
Boston, MA 02210  
Facsimile: (617) 832-7000  
Attention: Paul Bork, Esq.

If to a Holder, to its address, facsimile number or e-mail address set forth herein or on the books and records of the Company.

Or, in each of the above instances, to such other address, facsimile number or e-mail address and/or to the attention of such other Person as the recipient party has specified by written notice given to each other party at least five (5) days prior to the effectiveness of such change. Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, (B) mechanically or electronically generated by the sender's facsimile machine containing the time, date and recipient facsimile number or (C) provided by an overnight courier service shall be rebuttable evidence of personal service, receipt by facsimile or receipt from an overnight courier service in accordance with clause (i), (ii) or (iv) above, respectively. A copy of the e-mail transmission containing the time, date and recipient e-mail address shall be rebuttable evidence of receipt by e-mail in accordance with clause (iii) above.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j ) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Warrant Agency Agreement. If this Warrant is held in global form through DTC (or any successor depositary), this Warrant is issued subject to the Warrant Agency Agreement. To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agency Agreement, the provisions of this Warrant shall govern and be controlling.

l ) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

m ) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

n ) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

o ) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

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*(Signature Page Follows)*

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**CELLECTAR BIOSCIENCES, INC.**

By: \_\_\_\_\_  
Name:  
Title:

**NOTICE OF EXERCISE**

TO: CELLECTAR BIOSCIENCES, INC.

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

[if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

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ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
(Please Print)

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_

\_\_\_\_\_

Collectar Biosciences, Inc.

and

American Stock Transfer & Trust Company, LLC, as  
Warrant Agent

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Warrant Agency Agreement

Dated as of November \_\_, 2016

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## WARRANT AGENCY AGREEMENT

WARRANT AGENCY AGREEMENT, dated as of November \_\_, 2016 (“Agreement”), between Collectar Biosciences, Inc., a Delaware corporation (the “Company”), and American Stock Transfer & Trust Company, LLC, a New York limited liability trust company (the “Warrant Agent”).

### WITNESSETH

WHEREAS, pursuant to a registered offering by the Company of shares of common stock, par value \$0.00001 per share (the “Common Stock”), the Series C-2016 warrants to purchase shares of Common Stock (the “Warrants”) and Series A Convertible Preferred Stock (the “Series A Preferred Stock”), pursuant to an effective registration statement on Form S-1 (File No. 333-214310) (the “Registration Statement”), the Company wishes to issue the Warrants in book entry form entitling the respective holders of the Warrants (the “Holders”, which term shall include a Holder’s transferees, successors and assigns and “Holder” shall include, if the Warrants are held in “street name,” a Participant (as defined below) or a designee appointed by such Participant) to purchase an aggregate of up to \_\_\_\_\_ shares of Common Stock upon the terms and subject to the conditions hereinafter set forth (the “Offering”);

WHEREAS, the shares of Common Stock, the Series A Preferred Stock and Warrants to be issued in connection with the Offering shall be immediately separable and will be issued separately, but will be purchased together in the Offering; and

WHEREAS, the Company wishes the Warrant Agent to act on behalf of the Company, and the Warrant Agent is willing so to act, in connection with the issuance, registration, transfer, exchange, exercise and replacement of the Warrants and, in the Warrant Agent’s capacity as the Company’s transfer agent, the delivery of the Warrant Shares (as defined below).

NOW, THEREFORE, in consideration of the premises and the mutual agreements herein set forth, the parties hereby agree as follows:

Section 1. Certain Definitions. For purposes of this Agreement, the following terms have the meanings indicated:

(a) “Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which the New York Stock Exchange is authorized or required by law or other governmental action to close.

(b) “Close of Business” on any given date means 5:00 p.m., New York City time, on such date; provided, however, that if such date is not a Business Day it means 5:00 p.m., New York City time, on the next succeeding Business Day.

(c) “Person” means an individual, corporation, association, partnership, limited liability company, joint venture, trust, unincorporated organization, government or political subdivision thereof or governmental agency or other entity.

(d) “Warrant Certificate” means a certificate in substantially the form attached as Exhibit 1 hereto, representing such number of Warrant Shares as is indicated therein, provided that any reference to the delivery of a Warrant Certificate in this Agreement shall include delivery of notice from the Depository or a Participant (each as defined below) of the transfer or exercise of Warrant in the form of a Global Warrant (as defined below).

(e) “Warrant Shares” means the shares of Common Stock underlying the Warrants and issuable upon exercise of the Warrants.

All other capitalized terms used but not otherwise defined herein shall have the meaning ascribed to such terms in the Warrant Certificate.

Section 2. Appointment of Warrant Agent. The Company hereby appoints the Warrant Agent to act as agent for the Company in accordance with the terms and conditions hereof, and the Warrant Agent hereby accepts such appointment. The Company may from time to time appoint a Co-Warrant Agent as it may, in its sole discretion, deem necessary or desirable. The Warrant Agent shall have no duty to supervise, and will in no event be liable for the acts or omissions of, any co-Warrant Agent.

### Section 3. Global Warrants.

(a) The Warrants shall be issuable in book entry form (the “Global Warrants”). All of the Warrants shall initially be represented by one or more Global Warrants deposited with the Warrant Agent and registered in the name of Cede & Co., a nominee of The Depository Trust Company (the “Depository”), or as otherwise directed by the Depository. Ownership of beneficial interests in the Warrants shall be shown on, and the transfer of such ownership shall be effected through, records maintained by (i) the Depository or its nominee for each Global Warrant or (ii) institutions that have accounts with the Depository (such institution, with respect to a Warrant in its account, a “Participant”).

(b) If the Depository subsequently ceases to make its book-entry settlement system available for the Warrants, the Company may instruct the Warrant Agent regarding other arrangements for book-entry settlement. In the event that the Warrants are not eligible for, or it is no longer necessary to have the Warrants available in, book-entry form, the Warrant Agent shall provide written instructions to the Depository to deliver to the Warrant Agent for cancellation each Global Warrant, and the Company shall instruct the Warrant Agent to deliver to each Holder a Warrant Certificate.

(c) A Holder has the right to elect at any time or from time to time a Warrant Exchange (as defined below) pursuant to a Warrant Certificate Request Notice (as defined below). Upon written notice by a Holder to the Warrant Agent for the exchange of some or all of such Holder’s Global Warrants for a Warrant Certificate evidencing the same number of Warrants, which request shall be in the form attached hereto as Annex A (a “Warrant Certificate Request Notice” and the date of delivery of such Warrant Certificate Request Notice by the Holder, the “Warrant Certificate Request Notice Date” and the deemed surrender upon delivery by the Holder of a number of Global Warrants for the same number of Warrants evidenced by a Warrant Certificate, a “Warrant Exchange”), the Warrant Agent shall promptly effect the Warrant Exchange and shall promptly issue and deliver to the Holder a Warrant Certificate for such number of Warrants in the name set forth in the Warrant Certificate Request Notice. Such Warrant Certificate shall be dated the original issue date of the Warrants, shall be manually executed by an authorized signatory of the Company, shall be in the form attached hereto as Exhibit 1, and shall be reasonably acceptable in all respects to such Holder. In connection with a Warrant Exchange, the Company agrees to deliver, or to direct the Warrant Agent to deliver, the Warrant Certificate to the Holder within three (3) Business Days of the Warrant Certificate Request Notice pursuant to the delivery instructions in the Warrant Certificate Request Notice (“Warrant Certificate Delivery Date”). If the Company fails for any reason to deliver to the Holder the Warrant Certificate subject to the Warrant Certificate Request Notice by the Warrant Certificate Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares evidenced by such Warrant Certificate (based on the VWAP (as defined in the Warrants) of the Common Stock on the Warrant Certificate Request Notice Date), \$10 per Business Day for each Business Day after such Warrant Certificate Delivery Date until such Warrant Certificate is delivered or, prior to delivery of such Warrant Certificate, the Holder rescinds such Warrant Exchange. The Company covenants and agrees that, upon the date of delivery of the Warrant Certificate Request Notice, the Holder shall be deemed to be the holder of the Warrant Certificate and, notwithstanding anything to the contrary set forth herein, the Warrant Certificate shall be deemed for all purposes to contain all of the terms and conditions of the Warrants evidenced by such Warrant Certificate and the terms of this Agreement, other than Sections 3(c) and 9 herein, shall not apply to the Warrants evidenced by the Warrant Certificate.

Section 4. Form of Warrant Certificates. The Warrant Certificate, together with the form of election to purchase Common Stock (the “Exercise Notice”) and the form of assignment to be printed on the reverse thereof, shall be substantially in the form of Exhibit 1 hereto.

Section 5. Countersignature and Registration. The Warrant Certificates shall be executed on behalf of the Company by its Chief Executive Officer, Chief Financial Officer or Vice President, either manually or by facsimile signature, and have affixed thereto the Company’s seal or a facsimile thereof which shall be attested by the Secretary or an Assistant Secretary of the Company, either manually or by facsimile signature. The Warrant Certificates shall be countersigned by the Warrant Agent either manually or by facsimile signature and shall not be valid for any purpose unless so countersigned. In case any officer of the Company who shall have signed any of the Warrant Certificates shall cease to be such officer of the Company before countersignature by the Warrant Agent and issuance and delivery by the Company, such Warrant Certificates, nevertheless, may be countersigned by the Warrant Agent, issued and delivered with the same force and effect as though the person who signed such Warrant Certificate had not ceased to be such officer of the Company; and any Warrant Certificate may be signed on behalf of the Company by any person who, at the actual date of the execution of such Warrant Certificate, shall be a proper officer of the Company to sign such Warrant Certificate, although at the date of the execution of this Warrant Agreement any such person was not such an officer.

The Warrant Agent will keep or cause to be kept, at one of its offices, or at the office of one of its agents, books for registration and transfer of the Warrant Certificates issued hereunder. Such books shall show the names and addresses of the respective Holders of the Warrant Certificates, the number of warrants evidenced on the face of each of such Warrant Certificate and the date of each of such Warrant Certificate. The Warrant Agent will create a special account for the issuance of Warrant Certificates.

Section 6. Transfer, Split Up, Combination and Exchange of Warrant Certificates; Mutilated, Destroyed, Lost or Stolen Warrant Certificates. Subject to the provisions of the Warrant Certificate and the last sentence of this first paragraph of Section 6 and subject to applicable law, rules or regulations, or any “stop transfer” instructions the Company may give to the Warrant Agent, at any time after the closing date of the Offering, and at or prior to the Close of Business on the Termination Date (as such term is defined in the Warrant Certificate), any Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants may be transferred, split up, combined or exchanged for another Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants, entitling the Holder to purchase a like number of shares of Common Stock as the Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants surrendered then entitled such Holder to purchase. Any Holder desiring to transfer, split up, combine or exchange any Warrant Certificate or Global Warrant shall make such request in writing delivered to the Warrant Agent, and shall surrender the Warrant Certificate or Warrant Certificates to be transferred, split up, combined or exchanged at the principal office of the Warrant Agent, provided that no such surrender is applicable to the Holder of a Global Warrant. Any requested transfer of Warrants, whether in book-entry form or certificate form, shall be accompanied by reasonable evidence of authority of the party making such request that may be required by the Warrant Agent. Thereupon the Warrant Agent shall, subject to the last sentence of this first paragraph of Section 6, countersign and deliver to the Person entitled thereto a Warrant Certificate or Warrant Certificates, as the case may be, as so requested. The Company may require payment from the Holder of a sum sufficient to cover any tax or governmental charge that may be imposed in connection with any transfer, split up, combination or exchange of Warrant Certificates. The Company shall compensate the Warrant Agent per the fee schedule mutually agreed upon by the parties hereto and provided separately on the date hereof.

Upon receipt by the Warrant Agent of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of a Warrant Certificate, which evidence shall include an affidavit of loss, or in the case of mutilated certificates, the certificate or portion thereof remaining, and, in case of loss, theft or destruction, of indemnity in customary form and amount, and satisfaction of any other reasonable requirements established by Section 8-405 of the Uniform Commercial Code as in effect in the State of Delaware, and reimbursement to the Company and the Warrant Agent of all reasonable expenses incidental thereto, and upon surrender to the Warrant Agent and cancellation of the Warrant Certificate if mutilated, the Company will make and deliver a new Warrant Certificate of like tenor to the Warrant Agent for delivery to the Holder in lieu of the Warrant Certificate so lost, stolen, destroyed or mutilated.

Section 7. Exercise of Warrants; Exercise Price; Termination Date.

(a) The Warrants shall be exercisable commencing on the Initial Exercise Date. The Warrants shall cease to be exercisable and shall terminate and become void, and all rights thereunder and under this Agreement shall cease, at or prior to the Close of Business on the Termination Date. Subject to the foregoing and to Section 7(b) below, the Holder of a Warrant may exercise the Warrant in whole or in part upon surrender of the Warrant Certificate, if required, with the executed Exercise Notice and payment of the Exercise Price pursuant to Section 2(a) of the Warrant Certificate, to the Warrant Agent at the principal office of the Warrant Agent or to the office of one of its agents as may be designated by the Warrant Agent from time to time. In the case of the Holder of a Global Warrant, the Holder shall deliver the executed Exercise Notice and payment of the Exercise Price pursuant to Section 2(a) of the Warrant Certificate. Notwithstanding any other provision in this Agreement, a holder whose interest in a Global Warrant is a beneficial interest in a Global Warrant held in book-entry form through the Depository (or another established clearing corporation performing similar functions), shall effect exercises by delivering to the Depository (or such other clearing corporation, as applicable) the appropriate instruction form for exercise, complying with the procedures to effect exercise that are required by the Depository (or such other clearing corporation, as applicable). The Company acknowledges that the bank accounts maintained by the Warrant Agent in connection with the services provided under this Agreement will be in its name and that the Warrant Agent may receive investment earnings in connection with the investment at Warrant Agent risk and for its benefit of funds held in those accounts from time to time. Neither the Company nor the Holders will receive interest on any deposits or Exercise Price.

(b) Upon receipt of an Exercise Notice for a Cashless Exercise, the Company will promptly calculate and transmit to the Warrant Agent the number of Warrant Shares issuable in connection with such Cashless Exercise and deliver a copy of the Exercise Notice to the Warrant Agent, which shall issue such number of Warrant Shares in connection with such Cashless Exercise.

(c) Upon the Warrant Agent's receipt of a Warrant Certificate at or prior to the Close of Business on the Termination Date set forth in such Warrant Certificate, with the executed Exercise Notice and accompanied by payment of the Exercise Price pursuant to Section 2(a) of the Warrant Certificate, the shares to be purchased (other than in the case of a Cashless Exercise) and an amount equal to any applicable tax, governmental charge or expense reimbursement referred to in Section 6 in cash, or by certified check or bank draft payable to the order of the Company (or, in the case of the Holder of a Global Warrant, the delivery of the executed Exercise Notice and the payment of the Exercise Price pursuant to Section 2(a) of the Warrant Certificate (other than in the case of a Cashless Exercise) and any other applicable amounts as set forth herein), the Warrant Agent shall cause the Warrant Shares underlying such Warrant Certificate or Global Warrant to be delivered to or upon the order of the Holder of such Warrant Certificate or Global Warrant, registered in such name or names as may be designated by such Holder, no later than the Warrant Share Delivery Date. If the Company is then a participant in the DWAC system of the Depository and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) the Warrant is being exercised via Cashless Exercise, then the certificates for Warrant Shares shall be transmitted by the Warrant Agent to the Holder by crediting the account of the Holder's broker with the Depository through its DWAC system. For the avoidance of doubt, if the Company becomes obligated to pay any amounts to any Holders pursuant to Section 2(d)(i) or 2(d)(iv) of the Warrant Certificate, such obligation shall be solely that of the Company and not that of the Warrant Agent. Notwithstanding anything else to the contrary in this Agreement, except in the case of a Cashless Exercise, if any Holder fails to duly deliver payment to the Warrant Agent of an amount equal to the aggregate Exercise Price of the Warrant Shares to be purchased upon exercise of such Holder's Warrant as set forth in Section 7(a) hereof, the Warrant Agent will not be obligated to deliver certificates representing any such Warrant Shares (via DWAC or otherwise) until following receipt of such payment, and the applicable Warrant Share Delivery Date shall be deemed extended by one day for each day (or part thereof) until such payment is delivered to the Warrant Agent.

(d) The Warrant Agent shall deposit all funds received by it in payment of the Exercise Price for all Warrants in the account of the Company maintained with the Warrant Agent for such purpose (or to such other account as directed by the Company in writing) and shall advise the Company via telephone at the end of each day on which funds for the exercise of any Warrant are received of the amount so deposited to its account. The Warrant Agent shall promptly confirm such telephonic advice to the Company in writing.

(e) In case the Holder of any Warrant Certificate shall exercise fewer than all Warrants evidenced thereby, a new Warrant Certificate evidencing the number of Warrants equivalent to the number of Warrants remaining unexercised may be issued by the Warrant Agent to the Holder of such Warrant Certificate or to his duly authorized assigns in accordance with Section 2(d)(ii) of the Warrant Certificate, subject to the provisions of Section 6 hereof.

Section 8. Cancellation and Destruction of Warrant Certificates. All Warrant Certificates surrendered for the purpose of exercise, transfer, split up, combination or exchange shall, if surrendered to the Company or to any of its agents, be delivered to the Warrant Agent for cancellation or in canceled form, or, if surrendered to the Warrant Agent, shall be canceled by it, and no Warrant Certificates shall be issued in lieu thereof except as expressly permitted by any of the provisions of this Agreement. The Company shall deliver to the Warrant Agent for cancellation and retirement, and the Warrant Agent shall so cancel and retire, any other Warrant Certificate purchased or acquired by the Company otherwise than upon the exercise thereof. The Warrant Agent shall deliver all canceled Warrant Certificates to the Company, or shall, at the written request of the Company, destroy such canceled Warrant Certificates, and in such case shall deliver a certificate of destruction thereof to the Company, subject to any applicable law, rule or regulation requiring the Warrant Agent to retain such canceled certificates.

Section 9. Certain Representations; Reservation and Availability of Shares of Common Stock or Cash.

(a) This Agreement has been duly authorized, executed and delivered by the Company and, assuming due authorization, execution and delivery hereof by the Warrant Agent, constitutes a valid and legally binding obligation of the Company enforceable against the Company in accordance with its terms, and the Warrants have been duly authorized, executed and issued by the Company and, assuming due authentication thereof by the Warrant Agent pursuant hereto and payment therefor by the Holders as provided in the Registration Statement, constitute valid and legally binding obligations of the Company enforceable against the Company in accordance with their terms and entitled to the benefits hereof; in each case except as enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws relating to or affecting creditors' rights generally or by general equitable principles (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(b) As of the date hereof, the authorized capital stock of the Company consists of (i) 40,000,000 shares of Common Stock, of which \_\_\_\_\_ shares of Common Stock are issued and outstanding, and \_\_\_\_\_ shares of Common Stock are reserved for issuance upon exercise of the Warrants, and (ii) 7,000 shares of Preferred Stock, none of which are issued and outstanding. Except as disclosed in the Registration Statement, there are no other outstanding obligations, warrants, options or other rights to subscribe for or purchase from the Company any class of capital stock of the Company.

(c) The Company covenants and agrees that it will cause to be reserved and kept available out of its authorized and unissued shares of Common Stock or its authorized and issued shares of Common Stock held in its treasury, free from preemptive rights, the number of shares of Common Stock that will be sufficient to permit the exercise in full of all outstanding Warrants.

(d) The Warrant Agent will create a special account for the issuance of Common Stock upon the exercise of Warrants.

(e) The Company further covenants and agrees that it will pay when due and payable any and all federal and state transfer taxes and charges which may be payable in respect of the original issuance or delivery of the Warrant Certificates or certificates evidencing Common Stock upon exercise of the Warrants. The Company shall not, however, be required to pay any tax or governmental charge which may be payable in respect of any transfer involved in the transfer or delivery of Warrant Certificates or the issuance or delivery of certificates for Common Stock in a name other than that of the Holder of the Warrant Certificate evidencing Warrants surrendered for exercise or to issue or deliver any certificate for shares of Common Stock upon the exercise of any Warrants until any such tax or governmental charge shall have been paid (any such tax or governmental charge being payable by the Holder of such Warrant Certificate at the time of surrender) or until it has been established to the Company's reasonable satisfaction that no such tax or governmental charge is due.

Section 10. Common Stock Record Date. Each Holder shall be deemed to have become the holder of record for the Warrant Shares pursuant to Section 2(d)(i) of the Warrant Certificate.

Section 11. Adjustment of Exercise Price, Number of Shares of Common Stock or Number of the Company Warrants. The Exercise Price, the number of shares covered by each Warrant and the number of Warrants outstanding are subject to adjustment from time to time as provided in Section 3 of the Warrant Certificate. In the event that at any time, as a result of an adjustment made pursuant to Section 3 of the Warrant Certificate, the Holder of any Warrant thereafter exercised shall become entitled to receive any shares of capital stock of the Company other than shares of Common Stock, thereafter the number of such other shares so receivable upon exercise of any Warrant shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to the shares contained in Section 3 of the Warrant Certificate, and the provisions of Sections 7, 9 and 13 of this Agreement with respect to the shares of Common Stock shall apply on like terms to any such other shares. All Warrants originally issued by the Company subsequent to any adjustment made to the Exercise Price pursuant to the Warrant Certificate shall evidence the right to purchase, at the adjusted Exercise Price, the number of shares of Common Stock purchasable from time to time hereunder upon exercise of the Warrants, all subject to further adjustment as provided herein.

Section 12. Certification of Adjusted Exercise Price or Number of Shares of Common Stock. Whenever the Exercise Price or the number of shares of Common Stock issuable upon the exercise of each Warrant is adjusted as provided in Section 11 or 13, the Company shall (a) promptly prepare a certificate setting forth the Exercise Price of each Warrant as so adjusted, and a brief statement of the facts accounting for such adjustment, (b) promptly file with the Warrant Agent and with each transfer agent for the Common Stock a copy of such certificate and (c) instruct the Warrant Agent to send a brief summary thereof to each Holder of a Warrant Certificate.

Section 13. Fractional Shares of Common Stock.

(a) The Company shall not issue fractions of Warrants or distribute Warrant Certificates which evidence fractional Warrants. Whenever any fractional Warrant would otherwise be required to be issued or distributed, the actual issuance or distribution shall reflect a rounding of such fraction to the nearest whole Warrant (rounded down).

(b) The Company shall not issue fractions of shares of Common Stock upon exercise of Warrants or distribute stock certificates which evidence fractional shares of Common Stock. Whenever any fraction of a share of Common Stock would otherwise be required to be issued or distributed, the actual issuance or distribution in respect thereof shall be made in accordance with Section 2(d)(v) of the Warrant Certificate.

Section 14. Conditions of the Warrant Agent's Obligations. The Warrant Agent accepts its obligations herein set forth upon the terms and conditions hereof, including the following to all of which the Company agrees and to all of which the rights hereunder of the Holders from time to time of the Warrant Certificates shall be subject:

- (a) Compensation and Indemnification. The Company agrees promptly to pay the Warrant Agent the compensation detailed on Exhibit 2 hereto for all services rendered by the Warrant Agent and to reimburse the Warrant Agent for reasonable out-of-pocket expenses (including reasonable counsel fees) incurred without gross negligence, bad faith or willful misconduct by the Warrant Agent in connection with the services rendered hereunder by the Warrant Agent. The Company also agrees to indemnify the Warrant Agent for, and to hold it harmless against, any loss, liability or expense incurred without gross negligence, bad faith or willful misconduct on the part of the Warrant Agent, arising out of or in connection with its acting as Warrant Agent hereunder, including the reasonable costs and expenses of defending against any claim of such liability.

- (b) Agent for the Company. In acting under this Warrant Agreement and in connection with the Warrant Certificates, the Warrant Agent is acting solely as agent of the Company and does not assume any obligations or relationship of agency or trust for or with any of the Holders of Warrant Certificates or beneficial owners of Warrants.
- (c) Counsel. The Warrant Agent may consult with counsel satisfactory to it, which may include counsel for the Company, and the written advice of such counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in accordance with the advice of such counsel.
- (d) Documents. The Warrant Agent shall be protected and shall incur no liability for or in respect of any action taken or omitted by it in reliance upon any Warrant Certificate, notice, direction, consent, certificate, affidavit, statement or other paper or document reasonably believed by it to be genuine and to have been presented or signed by the proper parties.
- (e) Certain Transactions. The Warrant Agent, and its officers, directors and employees, may become the owner of, or acquire any interest in, Warrants, with the same rights that it or they would have if it were not the Warrant Agent hereunder, and, to the extent permitted by applicable law, it or they may engage or be interested in any financial or other transaction with the Company and may act on, or as depository, trustee or agent for, any committee or body of Holders of Warrant Securities or other obligations of the Company as freely as if it were not the Warrant Agent hereunder. Nothing in this Warrant Agreement shall be deemed to prevent the Warrant Agent from acting as trustee under any indenture to which the Company is a party.
- (f) No Liability for Interest. Unless otherwise agreed with the Company, the Warrant Agent shall have no liability for interest on any monies at any time received by it pursuant to any of the provisions of this Agreement or of the Warrant Certificates.
- (g) No Liability for Invalidity. The Warrant Agent shall have no liability with respect to any invalidity of this Agreement or any of the Warrant Certificates (except as to the Warrant Agent's countersignature thereon).
- (h) No Responsibility for Representations. The Warrant Agent shall not be responsible for any of the recitals or representations herein or in the Warrant Certificates (except as to the Warrant Agent's countersignature thereon), all of which are made solely by the Company.
- (i) No Implied Obligations. The Warrant Agent shall be obligated to perform only such duties as are herein and in the Warrant Certificates specifically set forth and no implied duties or obligations shall be read into this Agreement or the Warrant Certificates against the Warrant Agent. The Warrant Agent shall not be under any obligation to take any action hereunder which may tend to involve it in any expense or liability, the payment of which within a reasonable time is not, in its reasonable opinion, assured to it. The Warrant Agent shall not be accountable or under any duty or responsibility for the use by the Company of any of the Warrant Certificates authenticated by the Warrant Agent and delivered by it to the Company pursuant to this Agreement or for the application by the Company of the proceeds of the Warrant Certificates. The Warrant Agent shall have no duty or responsibility in case of any default by the Company in the performance of its covenants or agreements contained herein or in the Warrant Certificates or in the case of the receipt of any written demand from a Holder of a Warrant Certificate with respect to such default, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law.

Section 15. Purchase or Consolidation or Change of Name of Warrant Agent. Any corporation into which the Warrant Agent or any successor Warrant Agent may be merged or with which it may be consolidated, or any corporation resulting from any merger or consolidation to which the Warrant Agent or any successor Warrant Agent shall be party, or any corporation succeeding to the corporate trust business of the Warrant Agent or any successor Warrant Agent, shall be the successor to the Warrant Agent under this Agreement without the execution or filing of any paper or any further act on the part of any of the parties hereto, provided that such corporation would be eligible for appointment as a successor Warrant Agent under the provisions of Section 17. In case at the time such successor Warrant Agent shall succeed to the agency created by this Agreement any of the Warrant Certificates shall have been countersigned but not delivered, any such successor Warrant Agent may adopt the countersignature of the predecessor Warrant Agent and deliver such Warrant Certificates so countersigned; and in case at that time any of the Warrant Certificates shall not have been countersigned, any successor Warrant Agent may countersign such Warrant Certificates either in the name of the predecessor Warrant Agent or in the name of the successor Warrant Agent; and in all such cases such Warrant Certificates shall have the full force provided in the Warrant Certificates and in this Agreement.

In case at any time the name of the Warrant Agent shall be changed and at such time any of the Warrant Certificates shall have been countersigned but not delivered, the Warrant Agent may adopt the countersignature under its prior name and deliver Warrant Certificates so countersigned; and in case at that time any of the Warrant Certificates shall not have been countersigned, the Warrant Agent may countersign such Warrant Certificates either in its prior name or in its changed name; and in all such cases such Warrant Certificates shall have the full force provided in the Warrant Certificates and in this Agreement.

Section 16. Duties of Warrant Agent. The Warrant Agent undertakes the duties and obligations imposed by this Agreement upon the following terms and conditions, by all of which the Company, by its acceptance hereof, shall be bound:

(a) The Warrant Agent may consult with legal counsel reasonably acceptable to the Company (who may be legal counsel for the Company), and the opinion of such counsel shall be full and complete authorization and protection to the Warrant Agent as to any action taken or omitted by it in good faith and in accordance with such opinion.

(b) Whenever in the performance of its duties under this Agreement the Warrant Agent shall deem it necessary or desirable that any fact or matter be proved or established by the Company prior to taking or suffering any action hereunder, such fact or matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate signed by the Chief Executive Officer, Chief Financial Officer or Vice President of the Company; and such certificate shall be full authentication to the Warrant Agent for any action taken or suffered in good faith by it under the provisions of this Agreement in reliance upon such certificate.

(c) Subject to the limitation set forth in Section 14, the Warrant Agent shall be liable hereunder only for its own gross negligence, bad faith or willful misconduct, or for a breach by it of this Agreement.

(d) The Warrant Agent shall not be liable for or by reason of any of the statements of fact or recitals contained in this Agreement or in the Warrant Certificates (except its countersignature thereof) by the Company or be required to verify the same, but all such statements and recitals are and shall be deemed to have been made by the Company only.

(e) The Warrant Agent shall not be under any responsibility in respect of the validity of this Agreement or the execution and delivery hereof (except the due execution hereof by the Warrant Agent) or in respect of the validity or execution of any Warrant Certificate (except its countersignature thereof); nor shall it be responsible for any breach by the Company of any covenant or condition contained in this Agreement or in any Warrant Certificate; nor shall it be responsible for the adjustment of the Exercise Price or the making of any change in the number of shares of Common Stock required under the provisions of Section 11 or 13 or responsible for the manner, method or amount of any such change or the ascertaining of the existence of facts that would require any such adjustment or change (except with respect to the exercise of Warrants evidenced by Warrant Certificates after actual notice of any adjustment of the Exercise Price); nor shall it by any act hereunder be deemed to make any representation or warranty as to the authorization or reservation of any shares of Common Stock to be issued pursuant to this Agreement or any Warrant Certificate or as to whether any shares of Common Stock will, when issued, be duly authorized, validly issued, fully paid and nonassessable.

(f) Each party hereto agrees that it will perform, execute, acknowledge and deliver or cause to be performed, executed, acknowledged and delivered all such further and other acts, instruments and assurances as may reasonably be required by the other party hereto for the carrying out or performing by any party of the provisions of this Agreement.

(g) The Warrant Agent is hereby authorized to accept instructions with respect to the performance of its duties hereunder from the Chief Executive Officer, Chief Financial Officer or Vice President of the Company, and to apply to such officers for advice or instructions in connection with its duties, and it shall not be liable and shall be indemnified and held harmless for any action taken or suffered to be taken by it in good faith in accordance with instructions of any such officer, provided Warrant Agent carries out such instructions without gross negligence, bad faith or willful misconduct.

(h) The Warrant Agent and any shareholder, director, officer or employee of the Warrant Agent may buy, sell or deal in any of the Warrants or other securities of the Company or become pecuniarily interested in any transaction in which the Company may be interested, or contract with or lend money to the Company or otherwise act as fully and freely as though it were not Warrant Agent under this Agreement. Nothing herein shall preclude the Warrant Agent from acting in any other capacity for the Company or for any other legal entity.

(i) The Warrant Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorney or agents, and the Warrant Agent shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agents or for any loss to the Company resulting from any such act, default, neglect or misconduct, provided reasonable care was exercised in the selection and continued employment thereof.

Section 17. Change of Warrant Agent. The Warrant Agent may resign and be discharged from its duties under this Agreement upon 30 days' notice in writing sent to the Company and to each transfer agent of the Common Stock, and to the Holders of the Warrant Certificates. The Company may remove the Warrant Agent or any successor Warrant Agent upon 30 days' notice in writing, sent to the Warrant Agent or successor Warrant Agent, as the case may be, and to each transfer agent of the Common Stock, and to the Holders of the Warrant Certificates. If the Warrant Agent shall resign or be removed or shall otherwise become incapable of acting, the Company shall appoint a successor to the Warrant Agent. If the Company shall fail to make such appointment within a period of 30 days after such removal or after it has been notified in writing of such resignation or incapacity by the resigning or incapacitated Warrant Agent or by the Holder of a Warrant Certificate (who shall, with such notice, submit his Warrant Certificate for inspection by the Company), then the Holder of any Warrant Certificate may apply to any court of competent jurisdiction for the appointment of a new Warrant Agent. Any successor Warrant Agent, whether appointed by the Company or by such a court, shall be a corporation organized and doing business under the laws of the United States or of a state thereof, in good standing, which is authorized under such laws to exercise corporate trust powers and is subject to supervision or examination by federal or state authority and which has at the time of its appointment as Warrant Agent a combined capital and surplus of at least \$50,000,000. After appointment, the successor Warrant Agent shall be vested with the same powers, rights, duties and responsibilities as if it had been originally named as Warrant Agent without further act or deed; but the predecessor Warrant Agent shall deliver and transfer to the successor Warrant Agent any property at the time held by it hereunder, and execute and deliver any further assurance, conveyance, act or deed necessary for the purpose. Not later than the effective date of any such appointment, the Company shall file notice thereof in writing with the predecessor Warrant Agent and each transfer agent of the Common Stock, and mail a notice thereof in writing to the Holders of the Warrant Certificates. However, failure to give any notice provided for in this Section 17, or any defect therein, shall not affect the legality or validity of the resignation or removal of the Warrant Agent or the appointment of the successor Warrant Agent, as the case may be.

Section 18. Issuance of New Warrant Certificates. Notwithstanding any of the provisions of this Agreement or of the Warrants to the contrary, the Company may, at its option, issue new Warrant Certificates evidencing Warrants in such form as may be approved by its Board of Directors to reflect any adjustment or change in the Exercise Price per share and the number or kind or class of shares of stock or other securities or property purchasable under the several Warrant Certificates made in accordance with the provisions of this Agreement.

Section 19. Notices. Notices or demands authorized by this Agreement to be given or made (i) by the Warrant Agent or by the Holder of any Warrant Certificate to or on the Company, (ii) subject to the provisions of Section 17, by the Company or by the Holder of any Warrant Certificate to or on the Warrant Agent or (iii) by the Company or the Warrant Agent to the Holder of any Warrant Certificate, shall be deemed given (a) on the date delivered, if delivered personally, (b) on the first Business Day following the deposit thereof with Federal Express or another recognized overnight courier, if sent by Federal Express or another recognized overnight courier, (c) on the fourth Business Day following the mailing thereof with postage prepaid, if mailed by registered or certified mail (return receipt requested), and (d) the date of transmission, if such notice or communication is delivered via facsimile or email attachment at or prior to 5:30 p.m. (New York City time) on a Business Day and (e) the next Business Day after the date of transmission, if such notice or communication is delivered via facsimile or email attachment on a day that is not a Business Day or later than 5:30 p.m. (New York City time) on any Business Day, in each case to the parties at the following addresses (or at such other address for a party as shall be specified by like notice):

(a) If to the Company, to:

Collectar Biosciences, Inc.  
3301 Agriculture Drive  
Madison, WI 53716  
Facsimile: (608) 441-8121  
Attention: Chad Kolean, Vice President and CFO

(b) If to the Warrant Agent, to:

American Stock Transfer & Trust Company, LLC  
6201 15<sup>th</sup> Avenue  
Brooklyn, New York 11219  
Attention: \_\_\_\_\_

For any notice delivered by email to be deemed given or made, such notice must be followed by notice sent by overnight courier service to be delivered on the next business day following such email, unless the recipient of such email has acknowledged via return email receipt of such email.

(c) If to the Holder of any Warrant Certificate, to the address of such Holder as shown on the registry books of the Company. Any notice required to be delivered by the Company to the Holder of any Warrant may be given by the Warrant Agent on behalf of the Company. Notwithstanding any other provision of this Agreement, where this Agreement provides for notice of any event to a Holder of any Warrant, such notice shall be sufficiently given if given to the Depository (or its designee) pursuant to the procedures of the Depository or its designee.

Section 20. Supplements and Amendments.

(a) The Company and the Warrant Agent may from time to time supplement or amend this Agreement without the approval of any Holders of Warrant Certificates in order to cure any ambiguity, to correct or supplement any provision contained herein which may be defective or inconsistent with any other provisions herein, or to make any other provisions with regard to matters or questions arising hereunder which the Company and the Warrant Agent may deem necessary or desirable and which shall not adversely affect the interests of the Holders of the Warrants Certificates in any material respect.

(b) In addition to the foregoing, with the consent of Holders of Warrants entitled, upon exercise thereof, to receive not less than a majority of the shares of Common Stock issuable thereunder, the Company and the Warrant Agent may modify this Agreement for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Warrant Agreement or modifying in any manner the rights of the Holders of the Warrant Certificates; provided, however, that no modification of the terms (including but not limited to the adjustments described in Section 11) upon which the Warrants are exercisable or reducing the percentage required for consent to modification of this Agreement may be made without the consent of the Holder of each outstanding warrant certificate affected thereby. As a condition precedent to the Warrant Agent's execution of any amendment, the Company shall deliver to the Warrant Agent a certificate from a duly authorized officer of the Company that states that the proposed amendment complies with the terms of this Section 20.

Section 21. Successors. All covenants and provisions of this Agreement by or for the benefit of the Company or the Warrant Agent shall bind and inure to the benefit of their respective successors and assigns hereunder.

Section 22. Benefits of this Agreement. Nothing in this Agreement shall be construed to give any Person other than the Company, the Holders of Warrant Certificates and the Warrant Agent any legal or equitable right, remedy or claim under this Agreement; but this Agreement shall be for the sole and exclusive benefit of the Company, the Warrant Agent and the Holders of the Warrant Certificates.

Section 23. Governing Law. This Agreement and each Warrant Certificate issued hereunder shall be governed by, and construed in accordance with, the laws of the State of New York without giving effect to the conflicts of law principles thereof.

Section 24. Counterparts. This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument.

Section 25. Captions. The captions of the sections of this Agreement have been inserted for convenience only and shall not control or affect the meaning or construction of any of the provisions hereof.

Section 26. Information. The Company agrees to promptly provide to the Holders of the Warrants any information it provides to the holders of the Common Stock, except to the extent any such information is publicly available on the EDGAR system (or any successor thereof) of the Securities and Exchange Commission.

Section 27. Force Majeure. Notwithstanding anything to the contrary contained herein, Warrant Agent shall not be liable for any delays or failures in performance resulting from acts beyond its reasonable control including, without limitation, acts of God, terrorist acts, shortage of supply, breakdowns or malfunctions, interruptions or malfunction of computer facilities, or loss of data due to power failures or mechanical difficulties with information storage or retrieval systems, labor difficulties, war, or civil unrest, it being understood that the Warrant Agent shall use reasonable best efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the day and year first above written.

CELLECTAR BIOSCIENCES, INC.

By: \_\_\_\_\_  
Name:  
Title:

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC

By: \_\_\_\_\_  
Name:  
Title:

**Annex A: Form of Warrant Certificate Request Notice**

WARRANT CERTIFICATE REQUEST NOTICE

To: American Stock Transfer & Trust Company, LLC as Warrant Agent for Collectar Biosciences, Inc. (the “Company”)

The undersigned Holder of Series C-2016 Common Stock Purchase Warrants (“Warrants”) in the form of Global Warrants issued by the Company hereby elects to receive a Warrant Certificate evidencing the Warrants held by the Holder as specified below:

1. Name of Holder of Warrants in form of Global Warrants: \_\_\_\_\_
2. Name of Holder in Warrant Certificate (if different from name of Holder of Warrants in form of Global Warrants):  
\_\_\_\_\_
3. Number of Warrants in name of Holder in form of Global Warrants: \_\_\_\_\_
4. Number of Warrants for which Warrant Certificate shall be issued: \_\_\_\_\_
5. Number of Warrants in name of Holder in form of Global Warrants after issuance of Warrant Certificate, if any:  
\_\_\_\_\_
6. Warrant Certificate shall be delivered to the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The undersigned hereby acknowledges and agrees that, in connection with this Warrant Exchange and the issuance of the Warrant Certificate, the Holder is deemed to have surrendered the number of Warrants in form of Global Warrants in the name of the Holder equal to the number of Warrants evidenced by the Warrant Certificate.

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

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**Exhibit 1: Form of Warrant Certificate**

