As filed with the Securities and Exchange Commission on January 31, 2013

Registration No. 333-185053

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

Amendment No. 1 to
FORM S-1

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

NOVELOS THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**2834**	**04-3321804**
(State or other jurisdiction of incorporation or organization)	*(Primary Standard Industrial Classification Code Number)*	*(I.R.S. Employer Identification Number)*

One Gateway Center
Suite 504
Newton, Massachusetts 02458
(617) 244-1616
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Harry S. Palmin
President and Chief Executive Officer
Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, Massachusetts 02458
(617) 244-1616
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Paul Bork, Esq.
Foley Hoag LLP
155 Seaport Boulevard
Boston, Massachusetts 02210
(617) 832-1000

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

Title of Each Class of Securities to be Registered	Amount being Registered	Proposed Maximum Offering Price Per Security	Proposed Maximum Aggregate Offering Price (1)	Amount of Registration Fee
Units consisting of Common Stock and Warrants	18,000,000	$ -	$ -	$ -
Common Stock, par value $0.00001 per share (2)	18,000,000	$ 0.75	$ 13,500,000	$ 1,841.40
Warrants to purchase Common Stock (2)	27,000,000	$ -	$ -	$ -
Common Stock issuable upon exercise of Warrants	27,000,000	$ 0.75	$ 20,250,000	$ 2,762.10
Total			$ 33,750,000	$ 4,603.50*

* Of the total registration fee, $3,410 has been previously paid.

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended, using the closing price as reported on the OTC Markets on January 28, 2013, which was $0.75.

(2) Pursuant to Rule 416, 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.

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

The information in this preliminary 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 preliminary prospectus is not an offer to sell these securities and it is not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED January 31, 2013

PRELIMINARY PROSPECTUS

Novelos Therapeutics, Inc.

18,000,000 Units Consisting of
18,000,000 Shares of Common Stock and
Class A Warrants to Purchase 9,000,000 Shares of Common Stock
Class B Warrants to Purchase 18,000,000 Shares of Common Stock

We are offering up to 18,000,000 units consisting of 18,000,000 shares of our common stock, Class A Warrants to purchase up to 9,000,000 shares of our common stock and Class B Warrants to purchase up to 18,000,000 shares of common stock. The Class A Warrants and Class B Warrants will be exercisable immediately after the closing of this offering. The Class A Warrants will be exercisable until the close of business on the anniversary of the date of issuance at an exercise price equal to $ and the Class B Warrants will be exercisable until the close of business on the day following the date of issuance at an exercise price equal to $. Each investor will receive, for each unit purchased, a share of common stock, a Class A Warrant to purchase one-half of a share of our common stock and a Class B Warrant to purchase one share of our common stock. The units will not be certificated and the common stock and warrants will be immediately separable and will be separately transferable immediately upon issuance. The securities are being offered on a "best efforts" basis, and we are not required to sell any specific dollar amount or number of securities. The offering price for the units and the exercise price of the warrants will remain fixed for the duration of the offering. All costs associated with the registration will be borne by us.

Our common stock is quoted on the OTCQX platform of OTC Markets under the symbol NVLT. We do not intend to apply for a listing of the warrants on any securities exchange and we do not expect that the warrants will be quoted on OTC Markets. On January 30, 2013, the last reported sale price of our common stock on the OTCQX was $0.73 per share.

Investing in the offered securities involves a high degree of risk. See "Risk Factors" beginning on page 6 of this prospectus for a discussion of information that you should consider before investing in our securities.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

	Per Unit	Total
Public offering price	$	$
Placement agent's fees (1)	$	$
Proceeds, before expenses, to us	$	$

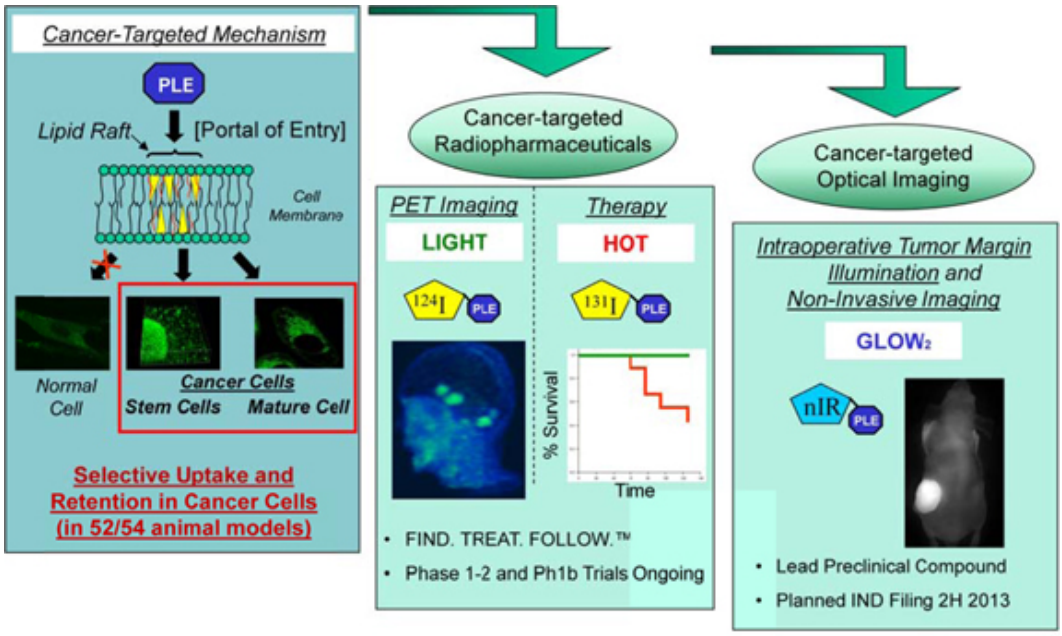
(1) In addition we have agreed to issue the placement agent warrants to purchase up to an aggregate of 7 % of the number of shares of common stock sold in this offering and to pay the placement agent a non-accountable expense allowance equal to 1% of the gross offering proceeds.

Burrill Securities ("Burrill") has agreed to act as our exclusive placement agent in connection with this offering. In addition, Burrill may engage one or more sub-placement agents or selected dealers. The placement agent is not purchasing the securities offered by us, is not required to sell any specific number or dollar amount of securities, but will assist us in this offering on a "reasonable best efforts" basis. We have agreed to pay the placement agent a cash fee equal to 7% of the gross proceeds of the offering of securities by us and grant a warrant exercisable for a number of shares of common stock equal to 7% of the number of units sold in the offering. We estimate the total expenses of this offering, excluding the placement agent fees, will be approximately $. Because there is no minimum offering amount required as a condition to closing in this offering, the actual public offering amount, placement agent fees, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above. See "Plan of Distribution" beginning on page 52 of this prospectus for more information on this offering and the placement agent arrangement.

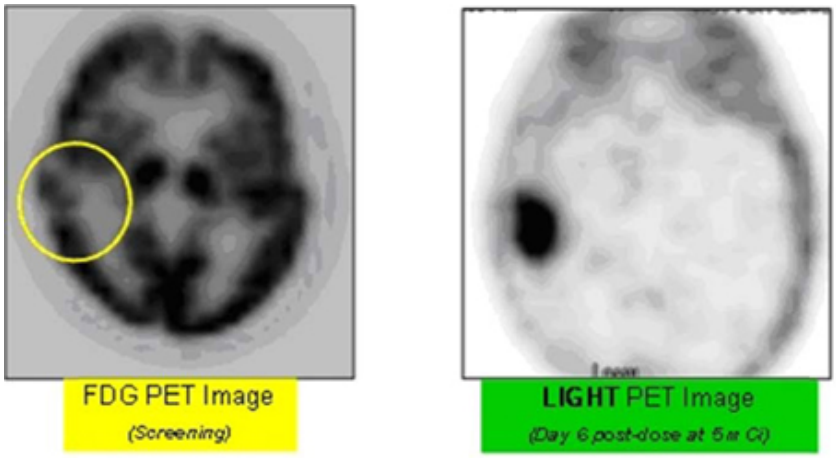
This offering will terminate days after the date of this prospectus, unless the offering is fully subscribed before that date or we decide to terminate the offering prior to that date. In either event, the offering may be closed without further notice to you.

The date of this prospectus is , 2013.

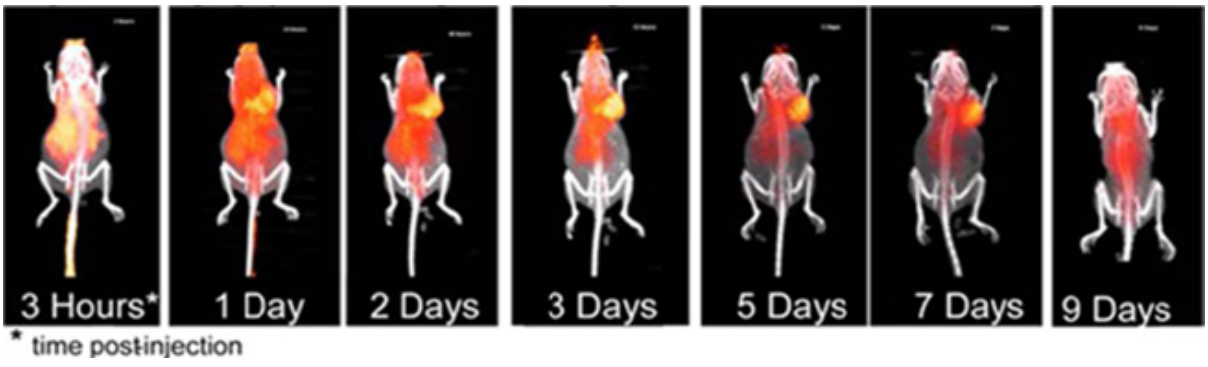
Cancer-Targeted, Broad Spectrum, Multi-Product Technology Platform



FDG Compared with **LIGHT** as a Cancer PET Imaging Agent in a Lung Cancer Patient with a Brain Metastasis



Time-Lapse Photography Illustrating Tumor Regression in Mouse After a Single Dose of **HOT**



The images provided above are for illustrative purposes only and may not be indicative of all results.
The above illustrations do not refer to products approved by the FDA.
Novelos has not received any revenue from the sale of its products

NOVELOS THERAPEUTICS, INC.

TABLE OF CONTENTS

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.

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 this prospectus or that we have referred you to. We have not authorized anyone to provide you with different information. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities offered by this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities in any circumstances in which such offer or solicitation is unlawful or in any state or to any person within any state to whom such offer would be unlawful under the laws or securities regulations of such state. No offers will be made to, nor accepted from, any person that does not meet the definition of an “institutional investor” under the blue sky laws of its state of domicile unless otherwise specified in the “Plan of Distribution” section below. Neither the delivery of this prospectus nor any sale made in connection with this prospectus shall, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus or that the information contained by reference to this prospectus is correct as of any time after its date. In this prospectus, references to “Novelos Therapeutics, Inc.,” “the Company,” “we,” “us,” and “our,” refer to Novelos Therapeutics, Inc.

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 our financial statements and the related notes 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.

On April 8, 2011, Novelos entered into a business combination with Cellectar, Inc., a privately held Wisconsin corporation that designed and developed products to detect, treat and monitor a wide variety of human cancers (the Acquisition). References in this prospectus to "Cellectar" relate to the activities and financial information of Cellectar, Inc. prior to the Acquisition, references to "Novelos" relate to the activities and financial information of Novelos Therapeutics, Inc. prior to the Acquisition and references to "we" "us" or "the Company" relate to the activities and obligations of the combined company following the Acquisition.

Please refer to the Glossary of Certain Scientific Terms on page 56 of this prospectus for definitions of certain technical and scientific terms used throughout this prospectus.

Overview

Our Business

Novelos Therapeutics, Inc. is a pharmaceutical company developing drugs for the treatment and diagnosis of cancer. Since the Acquisition, we have been developing novel drugs for the treatment and diagnosis of cancer based on the Cellectar compounds. We believe our cancer-targeted compounds (referred to as LIGHT, HOT and GLOW2) are selectively taken up and retained in cancer cells, including cancer stem cells, versus normal cells. Thus, our therapeutic compounds appear to directly kill cancer cells while minimizing harm to normal cells. This offers the potential for a paradigm shift in cancer therapy by providing efficacy versus all three major drivers of mortality in cancer: primary tumors, metastases and stem cell-based relapse. I-124-CLR1404 (LIGHT) is a small-molecule, broad-spectrum, cancer-targeted positron emission tomography (PET) imaging agent. We believe LIGHT has first-in-class potential and Phase 1-2 clinical trials are ongoing across 11 solid tumor indications. I-131-CLR1404 (HOT) is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that delivers cytotoxic (cell-killing) radiation directly and selectively to cancer cells and cancer stem cells. We believe HOT also has first-in-class potential. The HOT Phase 1b dose-escalation trial is ongoing and, subject to additional funding, we expect HOT to enter Phase 2 trials in the third quarter of 2013 as a monotherapy for solid tumors with significant unmet medical need. Importantly, the chemical identity of LIGHT and HOT could enable use of LIGHT as an ideal biomarker for HOT to potentially predict efficacy in individual cancer patients. CLR1502 (GLOW2) is a preclinical, cancer-targeted, non-radioactive optical imaging agent that may improve the outcome of cancer surgery (effectively acting as an adjunct therapeutic agent by virtue of intraoperative tumor margin illumination) as well as enable non-invasive tumor imaging. Together, we believe our compounds are able to "find, treat and follow" cancer anywhere in the body in a novel, effective and highly selective way.

LIGHT is a small-molecule, broad-spectrum, cancer-targeted imaging agent that we believe has first-in-class potential for selective detection of tumors and metastases in a broad range of cancers. LIGHT is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-124, a short-lived PET imaging radioisotope. PET imaging used in conjunction with CT scanning has now become the imaging method of choice in oncology. In studies to date, LIGHT selectively illuminated malignant tumors in 52 of 54 animal models of cancer, demonstrating broad-spectrum, cancer-selective uptake and retention. Investigator-sponsored Phase 1-2 trials of LIGHT as a PET imaging agent are ongoing across 11 solid tumor indications. Initial positive imaging results have been established in patients with lung and brain cancers. These human trials, if successful, would likely provide proof-of-concept for LIGHT as a PET imaging agent with the potential to supplant the current "gold standard" agent, 18F-fluoro-deoxyglucose (FDG), due to what we believe to be LIGHT's superior cancer-specificity and more favorable logistics of clinical use. As a chemically identical biomarker for HOT, we believe that LIGHT tumor uptake data could accelerate clinical development of HOT by guiding selection of indications for HOT Phase 2 trials and potentially be used in such trials to identify suitable patients and assess therapeutic efficacy. For the same reason, and in view of the quantitative nature of PET imaging, LIGHT imaging may be capable of estimating an efficacious dose of HOT in individual patients.

HOT is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that we believe has first-in-class potential. HOT is comprised of a proprietary PLE, acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-131, a cytotoxic radioisotope that is already in common use to treat thyroid and other cancer types. The ongoing Phase 1b dose-escalation trial is aimed at determining the Maximum Tolerated Dose of HOT. We expect to initiate HOT Phase 2 efficacy trials, subject to additional funding, as a monotherapy for solid tumors with significant unmet medical need as soon as a starting dose is established. We may determine such a dose based on an efficacy signal or an acceptable safety profile in the Phase 1b trial. Selection of indications for Phase 2, as well as aspects of trial design, will be guided by ongoing PET imaging trials in cancer patients with LIGHT, a chemically identical biomarker for HOT. Preclinical experiments in more than a dozen *in vivo* (in animals) tumor models have demonstrated selective killing of cancer cells along with a benign safety profile. In view of HOT'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 first developing HOT as a monotherapy for solid tumors with significant unmet medical need.

GLOW2 is a small-molecule, broad-spectrum, cancer-targeted, non-radioactive optical imaging agent that we believe has first-in-class potential for intraoperative tumor margin illumination and non-invasive tumor imaging. GLOW2 is comprised of a proprietary PLE, acting as a cancer-targeted delivery and retention vehicle, covalently attached to a near-infrared (800nm) fluorophore. According to the American Cancer Society (2011), most cancer patients will have some type of surgery, and Cancer Facts and Figures indicated that approximately 1.3 million cancer patients were diagnosed with solid tumors in the U.S. alone in 2011. GLOW2 may facilitate and enable diagnostic, staging, debulking and curative cancer surgeries, intraoperatively in real time (i.e. during the actual surgical procedure) by defining tumor margins and regional lymph node involvement, resulting in more accurate tumor resectioning and improved outcome and prognosis. In this context, GLOW2 would effectively act as an adjunct therapeutic agent. In preclinical *in vivo* (in animals) tumor models, non-invasive optical imaging showed pronounced accumulation of GLOW2 in tumors versus normal organs and tissues in addition to successfully delineated tumor margins during tumor resection. Thus, GLOW2 may also have utility for non-invasive imaging of relatively superficial tumor types in man (e.g., melanoma, head & neck, colon, esophageal). Subject to additional funding, we expect to submit an IND for GLOW2 in the second half of 2013 and begin clinical trials shortly thereafter.

Our core technology platform is based upon the research conducted by Cellectar's founder and our Chief Scientific Officer, Dr. Jamey Weichert, which commenced in 1994 at the University of Michigan (U. Mich.) where phospholipid ether analogs were initially designed, synthesized, radiolabeled, and evaluated. Since 1998, Dr. Weichert has continued his research at the University of Wisconsin (U. Wisc.) and founded Cellectar in 2002 to further develop and commercialize the technology. Cellectar obtained exclusive rights to the related technology patents in North America owned by U. Mich. in 2003, and continued development of the platform while obtaining ownership of numerous additional patents and patent applications in North America, Europe and Japan (lasting until 2025, 2028 and 2030, without extensions) prior to the Acquisition. The license granted by U. Mich. to Cellectar (the U. Mich. license) gives us the exclusive right to develop, manufacture, market and sublicense our HOT and LIGHT compounds, and provides, among other things, that we pay a royalty equal to 3% of net sales of any licensed products sold by us or our sublicensees, with a reduction in such royalties in the case of certain incoming or outgoing sublicense arrangements. The license also requires us to make payments to U. Mich., ranging from $50,000 to $200,000, upon the achievement of certain key regulatory and commercial milestones, for an aggregate of up to $400,000 in milestone payments. The license expires upon the expiration of the last covered Michigan patent (currently 2016 without extensions). U. Mich. may terminate the agreement if we cease operations, if we fail to make any required payments under the agreement, or if we otherwise materially breach the agreement, subject to the applicable notice and cure periods. If the U. Mich. license expires or terminates for any reason, it will not impact the ownership of the additional patents that we have independently obtained. However the early termination of the U. Mich. license would result in the loss of our rights to use the covered patents.

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 development stage company with a history of losses and can provide no assurance of our future operating results;
- At present, our success depends solely on the successful commercialization of Cellectar compounds;
- 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 may hinder our ability to obtain future financing;
- The failure to complete development of our therapeutic 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;
- 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 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 are exposed to product, clinical and preclinical liability risks that could create a substantial financial burden should we be sued; and
- We could suffer monetary damages or incur substantial costs in the event of future legal proceedings.

For a more detailed description of the material risks and uncertainties we face, please see "Risk Factors" beginning on page 6 of this prospectus.

Company Information

Our headquarters and manufacturing operation, which is compliant with current Good Manufacturing Practices (cGMP), is located at 3301 Agriculture Drive, Madison, Wisconsin 53716. Our principal executive offices are located at One Gateway Center, Suite 504, Newton, Massachusetts 02458. Our telephone number is (617) 244-1616 and our web address is www.novelos.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

Securities offered by us:	Up to 18,000,000 units. Each unit will consist of one share of our common stock, a Class A Warrant to purchase up to one-half of a share of our common stock at an exercise price of $ per share and a Class B Warrant to purchase up to one share of our common stock at an exercise price of $ per share. Investors will be permitted to purchase only even numbers of units, hence Warrants will be exercisable only for whole numbers of shares.
Description of Class A Warrants:	The Class A warrants will be exercisable on or after the closing date of this offering until the close of business on the anniversary of the date of issuance.
Description of Class B Warrants:	The Class B Warrants will be exercisable on or after the closing date of this offering until the close of business on the day following the date of issuance.
Securities Purchase Agreement:	The securities to be offered by us in this offering will be issued and sold pursuant to a securities purchase agreement between us and each investor.
Common Stock to be outstanding after this offering:	shares. (1)
Use of Proceeds:	We expect to use the net proceeds received from this offering to fund our research and development activities, including furthering the development of LIGHT, HOT and GLOW2 and for general corporate purposes, including capital expenditures, working capital, and, potentially, acquisition activities. For a more complete description of our anticipated use of proceeds from this offering, see "Use of Proceeds."
Risk Factors:	See "Risk Factors" beginning on page 6 and the other information included in this prospectus for a discussion of factors you should carefully consider before deciding whether to purchase our securities.
OTCQX symbol for our Common Stock:	NVLT

(1) The number of shares of our common stock to be outstanding after this offering is based on 46,397,997 shares of common stock outstanding as of January 25, 2013 and excludes, as of that date:

- shares issuable upon the exercise of warrants sold in this offering;
- an aggregate of 6,459,188 shares of common stock issuable upon the exercise of outstanding stock options issued to employees, directors and consultants, including under our 2006 Stock Incentive Plan;
- an aggregate of 3,649,562 additional shares of common stock reserved for future issuance under our 2006 Stock Incentive Plan;
- an aggregate of 21,288,585 additional shares of common stock reserved for issuance under outstanding warrant agreements entered into in connection with financing transactions completed during 2012 and 2011 with expiration dates between January 31, 2013 and November 1, 2017, at exercise prices ranging from $0.60 per share to $1.25 per share; and
- an aggregate of 223,874 additional shares of common stock reserved for issuance under various outstanding warrant agreements, with expiration dates between July 27, 2015 and December 31, 2015, at exercise prices ranging from $0.60 per share to $100.98 per share.

Unless we specifically state otherwise, the share information in this prospectus is as of January 25, 2013 and reflects or assumes no exercise of outstanding options or warrants to purchase shares of our common stock.

The shares issued to Cellectar shareholders in the Acquisition constituted immediately following the Acquisition (and immediately prior to the private placement that followed the Acquisition), approximately 85% of our outstanding common stock after giving effect to the Acquisition. Since the former stockholders of Cellectar retained the majority voting interest in the combined business following the Acquisition, the Acquisition has been accounted for as a reverse acquisition whereby Cellectar, Inc. is treated as the acquirer for accounting and financial reporting purposes. As such, the financial information for periods prior to the Acquisition presented in this prospectus represents the historical financial information of Cellectar, except for the capital structure which represents the historical amounts of Cellectar retroactively adjusted to reflect the legal capital structure of Novelos by applying the exchange ratio established in the Acquisition.

Summary Historical Financial Information

The following table summarizes our financial data. We have derived the following summary of our statements of operations data for the nine months ended September 30, 2012 and 2011 and the summary of our balance sheet data as of September 30, 2012 from our unaudited consolidated financial statements appearing elsewhere in this prospectus. We have derived the following summary of our statements of operations data for the fiscal years ended December 31, 2011 and 2010 and the summary of our balance sheet data as of December 31, 2011 and 2010 from our audited financial statements appearing elsewhere in this prospectus. The following summary of our financial data set forth below should be read together with our financial statements and the related notes to those statements, as well as the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," appearing elsewhere in this prospectus.

	Nine Months Ended September 30,		Year Ended December 31,	
	2012	2011	2011	2010
Statement of Operations Data:				
Research and development costs	$ 3,896,005	$ 2,445,429	$ 3,599,080	$ 2,984,207
General and administrative costs	2,695,503	1,827,510	2,692,433	1,156,549
Merger costs	-	746,207	746,207	52,925
Total costs and expenses	6,591,508	5,019,146	7,037,720	4,193,681
Other expense	(48,418)	(450,356)	(397,702)	(366,582)
Net loss	(6,639,926)	(5,469,502)	(7,435,422)	(4,560,263)
Net loss attributable to common stockholders	(7,183,285)	(5,469,502)	(7,435,422)	(4,560,263)
Basic and diluted net loss attributable to common stockholders per common share	(0.18)	(0.25)	(0.31)	(0.36)

	September 30,	December 31,	
	2012	2011	2010
Balance Sheet Data:			
Current assets	$ 5,988,743	$ 5,815,927	$ 1,279,781
Working capital	5,251,951	5,312,346	374,964
Total assets	10,389,051	10,563,176	4,802,142
Long term debt, including current portion	450,000	450,000	3,846,728
Total stockholders' equity	9,066,741	9,481,123	133,762

RISK FACTORS

Investing in our securities involves a high degree of risk. Before you invest in our securities, you should be aware that our business faces numerous financial and market risks, including those described below, as well as general economic and business risks. The following discussion provides information concerning the material risks and uncertainties that we have identified and believe may adversely affect our business, financial condition and results of operations. Before you decide whether to invest in our securities, you should carefully consider these risks and uncertainties, together with all of the other information included in this prospectus.

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 significant operating losses for the foreseeable future. At September 30, 2012, our consolidated cash balance was approximately $5,598,000. In October 2012, we received approximately $953,000 in proceeds from the exercise of warrants to purchase common stock. On November 2, 2012 we completed a private placement of our common stock and warrants that generated gross proceeds of $2,000,000. The proceeds from the private placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location. We estimate that the project will cost a total of approximately $3,000,000 and estimate that it will be completed by the end of 2013, although we have not yet entered into contractual commitments with vendors. We may seek to obtain the additional capital required to complete the project from additional sales of common stock (other than through this offering, unless we obtain in excess of $10,000,000 in gross proceeds), proceeds from warrant exercises, and/or from equipment financing. We believe our cash on hand at September 30, 2012 plus the proceeds from exercises of warrants during October 2012, together with the net proceeds from this offering (assuming $10,000,000 of units are sold in this offering), would be adequate to fund operations into the middle of the first quarter of 2014. During that time, we anticipate that we will incur approximately $15,500,000 in costs, subject to the availability of funds. Of this amount, approximately $11,700,000 is estimated for research and development activities and approximately $3,800,000 is estimated for general and administrative costs. The research and development costs consist of approximately $2,900,000 for the development of HOT (including approximately $1,100,000 in Phase 1b trial costs and approximately $1,800,000 in Phase 2 trial costs), approximately $1,900,000 for the development of LIGHT, approximately $1,700,000 for the development of GLOW2 and approximately $5,200,000 for our general, unallocated research and development costs including salaries, overhead, patent and other costs that are not specific to a certain development project. In addition to these estimated costs, we may incur up to an estimated total of $13,200,000 in development costs during 2014 and 2015, if necessary, to complete the Phase 1b dose-escalation trial, the Phase 2 trials in HOT, the investigator sponsored trials in LIGHT and the Phase 2 trials in LIGHT. 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 or not we obtain listing on a national exchange and, if not, our prospects for obtaining such listing;
- 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 event, our business, prospects, financial condition, and results of operations may be adversely affected.

We are a development stage company with a history of losses and can provide no assurance of our future operating results.

We are a development stage company and have incurred net losses 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. In addition, 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 will 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 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 December 31, 2011, we had working capital of $5,312,346 and stockholders' equity of $9,481,123. As of September 30, 2012, we had working capital of $5,251,951 and stockholders' equity of $9,066,741. For the period from Cellectar's inception in November 2002 until the business combination with Novelos on April 8, 2011, and thereafter through September 30, 2012, Cellectar (and, from and after the business combination, Novelos) incurred aggregated net losses of $38,120,352. Net loss for the year ended December 31, 2011 was $7,435,422 and the net loss for the nine months ended September 30, 2012 was $6,639,926. We may never achieve profitability.

At present, our success depends solely on the successful commercialization of our three compounds in development.

Prior to the Acquisition, Novelos had for over ten years been developing oxidized glutathione-based compounds for the treatment of cancer, including NOV-002, an injectable small-molecule compound based on a proprietary formulation of oxidized glutathione that Novelos had been developing for use in combination with standard-of-care chemotherapies for the treatment of solid tumors, and NOV-205, a hepatoprotective agent with immunomodulating and anti-inflammatory properties.

Following the Acquisition, development of NOV-002 and NOV-205 was suspended and we are now focused on the development of novel drugs for the treatment and diagnosis of cancer based on the cancer-targeting technologies of Cellectar: I-124-CLR1404 (LIGHT, labeled with a short-lived radioisotope, iodine-124), I-131-CLR1404 (HOT, a radiolabeled compound) and CLR1502 (GLOW2, a preclinical, cancer-targeted, non-radioactive optical imaging agent. As a result, the successful commercialization of LIGHT, HOT and GLOW2 is crucial for our success. 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 previous preliminary testing results and data from earlier studies may be inconsistent with clinical data;
- 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 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 commercialize our cancer-targeting technologies for some other reason, our business, prospects, financial condition, and results of operations may be adversely affected.

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 may hinder our ability to obtain future financing.

Our financial statements as of December 31, 2011 were prepared under the assumption that we will continue as a going concern. The independent registered public accounting firm that audited our 2011 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.

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 preclinical 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
- anticipated expense and time believed to be 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 we are unable to receive clearance to conduct clinical trials for a product, or the trials are halted by the FDA, 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 receive 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. For example, we incurred costs of over $35 million in clinical trial expenses over a period of 4 years in connection with the Phase 3 trial of NOV-002 for non-small cell lung cancer, and NOV-002 did not ultimately demonstrate efficacy for that indication.

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 preclinical 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 suffered significant setbacks in the development of NOV-002 and NOV-205, as some of the promising results of earlier trials were not demonstrated in later stage trials. As a result, following the Acquisition, development of these compounds has been suspended.

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 preclinical 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, 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 adequate capacity to supply drug product for Phase 2 studies of HOT, but we will need to expand for larger Phase 3 studies. LIGHT is currently manufactured by our collaborator, the University of Wisconsin at Madison, in small quantities, for use in investigator-sponsored clinical trials pursuant to a materials transfer agreement expiring in June 2013. However, this agreement may be terminated at any time by either party. 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.

Although, we recently completed a private placement resulting in gross proceeds of $2,000,000, which we have agreed to use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location, we estimate that the project will cost a total of approximately $3,000,000 and estimate that it will be completed by the end of 2013. We have limited experience with such construction, and we may encounter delays or cost overruns in completing it, and we may have difficulty raising the additional capital required to fully fund the project.

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 are exposed to product, clinical and preclinical 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 which 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 intend to 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.

We do not know of any current or potential direct competitors for HOT and LIGHT. Marketed drugs Zevalin® (Spectrum Pharmaceuticals) and Bexxar® (Glaxo Smith Kline) provide examples of targeted radiotherapeutics specifically for lymphoma indication. FDG is the current standard for PET imaging for cancer and may be an alternative diagnostic imaging agent to LIGHT.

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 are 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.

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 chief executive officer, Harry Palmin, Cellectar founder and our chief scientific officer, Dr. Jamey Weichert, and our senior vice president of research and development, Dr. Christopher Pazoles. 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 attracting and retaining highly qualified personnel, but there can be no assurance we will be successful in doing so in the future.

Risks Related to our Common Stock

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, including the registration statement of which this prospectus forms a part, or exemptions from registration; and
- market conditions specific to biopharmaceutical companies, the healthcare industry and the stock market generally.

Seven of our stockholders beneficially own approximately 61% of our outstanding common stock, which limits the influence of other stockholders.

As of January 25, 2013, 61% of our outstanding common stock is beneficially owned by seven 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.

There may be a limited public market for our securities; we presently fail to qualify for listing on any national securities exchanges.

Our common stock currently does not meet all of the requirements for initial listing on a registered stock exchange. Specifically, our cash on hand is not sufficient to fund operations for twelve months and the bid price of our common stock is less than the minimum bid price required to obtain a listing. Trading in our common stock continues to be conducted in the over-the-counter market (currently the OTCQX). As a result, an investor may find it difficult to dispose of or to obtain accurate quotations as to the market value of our common stock, and our common stock may be less attractive for margin loans, or for investment by financial institutions, as consideration in future capital raising transactions or other contexts.

Our common stock has historically been a "penny stock" under SEC rules. It may be more difficult to resell shares of common stock classified as "penny stock".

Our common stock has historically been a "penny stock" under applicable SEC rules (generally defined as non-exchange traded stock with a per-share price below $5.00). These rules impose additional sales practice requirements on broker-dealers that recommend the purchase or sale of penny stocks to persons other than those who qualify as "established customers" or "accredited investors." For example, broker-dealers must determine the appropriateness for non-qualifying persons of investments in penny stocks. Broker-dealers must also provide, prior to a transaction in a penny stock not otherwise exempt from the rules, a standardized risk disclosure document that provides information about penny stocks and the risks in the penny stock market. The broker-dealer also must provide the customer with current bid and offer quotations for the penny stock, disclose the compensation of the broker-dealer and its salesperson in the transaction, furnish monthly account statements showing the market value of each penny stock held in the customer's account, provide a special written determination that the penny stock is a suitable investment for the purchaser, and receive the purchaser's written agreement to the transaction.

Legal remedies available to an investor in "penny stocks" may include the following:

- if a "penny stock" is sold to the investor in violation of the requirements listed above, or other federal or states securities laws, the investor may be able to cancel the purchase and receive a refund of the investment.
- if a "penny stock" is sold to the investor in a fraudulent manner, the investor may be able to sue the persons and firms that committed the fraud for damages.

However, investors who have signed arbitration agreements may have to pursue their claims through arbitration.

These requirements may have the effect of reducing the level of trading activity, if any, in the secondary market for a security that becomes subject to the penny stock rules. The additional burdens imposed upon broker-dealers by such requirements may discourage broker-dealers from effecting transactions in our securities, which could severely limit the market price and liquidity of our securities. These requirements may restrict the ability of broker-dealers to sell our common stock and may affect your ability to resell our common stock.

Many brokerage firms will discourage or refrain from recommending investments in penny stocks. Most institutional investors will not invest in penny stocks. In addition, many individual investors will not invest in penny stocks due, among other reasons, to the increased financial risk generally associated with these investments.

For these reasons, penny stocks may have a limited market and, consequently, limited liquidity. We can give no assurance at what time, if ever, our common stock will not be classified as a "penny stock" in the future.

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

Our internal control over financial reporting may have weaknesses and conditions that could require correction or remediation, 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 money. We have also issued options and warrants 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.

Shares eligible for future sale may adversely affect the market.

From time to time, certain of our stockholders may be eligible to sell all or some of their shares of common stock by means of ordinary brokerage transactions in the open market pursuant to Rule 144 promulgated under the Securities Act, subject to certain limitations. In general, pursuant to amended Rule 144, non-affiliate stockholders may sell freely after six months subject only to the current public information requirement. Affiliates may sell after six months subject to the Rule 144 volume, manner of sale (for equity securities), current public information, and notice requirements. Of the approximately 46 million shares of our common stock outstanding as of January 25, 2013, approximately 19.9 million shares are tradable without restriction, and approximately an additional 15.1 million shares that had been issued in unregistered transactions and are held by non-affiliates are tradable without time or volume limitations pursuant to Rule 144. We have registered the resale of an additional 4,000,000 shares of our common stock, pursuant to registration obligations. Given the limited trading of our common stock, resales of even a small number of shares of our common stock pursuant to Rule 144 or an effective registration statement may adversely affect the market price of our common stock.

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 amended restated 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 restated certificate of incorporation and restated 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 Novelos 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

The offering may not be fully subscribed, and, even if the offering is fully subscribed, we will need additional capital in the future. If additional capital is not available, we may not be able to continue to operate our business pursuant to our business plan or we may have to discontinue our operations entirely.

The placement agent in this offering will offer the securities on a "reasonable best efforts" basis, meaning that we may raise substantially less than the total maximum offering amounts. We will not provide any refund to investors if less than all of the units are sold. Therefore, in evaluating the offering, you should not assume that we will receive all of the proceeds from this offering that we would receive if all the units are sold. If the offering is not fully subscribed, the length of time we will be able to fund our operations with the proceeds will be shortened, as we do not generate positive cash flow. In order to continue to fund our operations, we would likely have to raise additional proceeds through debt or equity financing activities. Any equity financings will likely be dilutive to existing stockholders, and any debt financings will likely involve covenants restricting our business activities. Additional financing may not be available on acceptable terms, or at all.

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.

There is no minimum offering amount required as a condition to closing this offering and therefore 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 units offered in this offering, at an assumed public offering price of $ per unit, and after deducting the placement agent fees 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.

There is no public market for the warrants to purchase common stock in this offering.

There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited.

If you are not an institutional investor, you may purchase shares in this offering only if you reside within the states in which we will apply to have the securities registered or are exempt from registration, and, if required, meet any requisite suitability standards.

Because our common stock is quoted on the over-the-counter market (currently the OTCQX) and not listed on a national securities exchange, this offering must be registered, or be exempt from registration, in any state in which the units are to be offered or sold. We will apply to register the units, or will seek to obtain an exemption from registration, only in certain states. In addition, if we register the units in the State of California, sales will only be made to residents of California who have not less than (i) a $60,000 liquid net worth (exclusive of home, home furnishings and automobile) plus $60,000 gross annual income, or (ii) a $225,000 liquid net worth. Investors in Wisconsin must qualify as "Accredited Investors" as that term is defined in Rule 501(a) of Regulation D under the Securities Act of 1933, as amended, and modified by Section 413 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. If you are not an "institutional investor," you must be a resident of these jurisdictions to purchase our shares in the offering. The definition of an "institutional investor" varies from state to state, but generally includes financial institutions, broker-dealers, banks, insurance companies and other qualified entities. If you are not an institutional investor, you may purchase shares in this offering only if you reside in the jurisdictions where there is an effective registration or exemption, and, if required, meet any requisite suitability standards.

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 unit, we estimate that the net proceeds to us from the sale of the securities that we are offering, assuming gross proceeds of $ million, assuming the offering is fully subscribed, will be approximately $ million, after deducting the placement agent fee and estimated offering expenses. In addition, if all of the warrants included in the units 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 may not be successful in selling any or all of the securities offered hereby. Because there is no minimum offering amount required as a condition to closing in this offering, we may sell less than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us.

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

- to fund our research and development activities, including the further development of our LIGHT, HOT and GLOW2 compounds in a wide range of cancers; and
- for general corporate purposes, such as general and administrative expenses, capital expenditures, working capital, prosecution and maintenance of our intellectual property, and the potential investment in technologies or products that complement our business.

We believe that our cash on hand at September 30, 2012, plus proceeds received in October 2012 from the exercise of warrants to purchase common stock, together with the net proceeds from this offering (assuming $10 million of units are sold in this offering and no exercise of the warrants being issued pursuant to the offering) would be adequate to fund operations through February 2014. We estimate that our costs during that time will be approximately $15.5 million. This amount consists of approximately $2.9 million for HOT development, approximately $1.9 million for LIGHT development, approximately $1.7 million for GLOW2 development and approximately $5.2 million for general, fixed and overhead research and development expenses that are not allocated to specific projects and approximately $3.8 million in general and administrative costs.

The above cost estimates contemplate the following clinical development activity:

- continuation of the investigator-sponsored LIGHT Phase 1-2 imaging trials in brain cancer which we anticipate will generate additional proof-of-concept data, having generated initial proof-of-concept data in the second quarter of 2012;
- continuation of the investigator-sponsored LIGHT Phase 1-2 imaging trials in lung cancer which we anticipate will generate additional proof-of-concept data, having generated initial proof-of-concept data in the second quarter of 2012;
- continuation of an investigator-sponsored LIGHT Phase1-2 imaging trial across 9 solid tumors, which we anticipate will generate initial proof-of-concept data in the second quarter of 2013;
- initiation of company-sponsored LIGHT Phase 2 imaging trials in brain cancer and another solid tumor indication in the first quarter of 2014;
- continuation of the HOT Phase 1b dose-escalation trial;
- initiation of a HOT Phase 2a trial in brain cancer or lung cancer in the third quarter of 2013 which we anticipate will generate initial efficacy data in the first quarter of 2014;
- initiation of a HOT Phase 2 trial in other solid tumors in the fourth quarter of 2013; and
- filing of an IND for GLOW2 in the fourth quarter of 2013, and initiation of a Phase 1-2 clinical trial in the first quarter of 2014.

We estimate that an additional $14.0 million in funding will be required in order to operate through the completion of the HOT and LIGHT Phase 2 trials.

On November 2, 2012, we completed a private placement of our common stock and warrants that generated gross proceeds of $2,000,000. The proceeds from the private placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location. We estimate that the project will cost a total of approximately $3,000,000 and estimate that it will be completed by the end of 2013, although we have not yet entered into contractual commitments with vendors. We may seek to obtain the additional capital required to complete the project from additional sales of common stock (other than through this offering), proceeds from warrant exercises, and/or from equipment financing. If the proceeds from this offering are greater than $10 million, we may use all or a portion of the amount in access of $10 million towards the project.

We have no current understandings, commitments or agreements with respect to any acquisition of or investment in any technologies or products.

Even if we sell all of the securities subject to this offering on favorable terms, of which there can be no assurance, 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, 2012:

- on an actual basis; and
- on a pro forma as adjusted basis to give effect to 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 included elsewhere in this prospectus.

	As of September 30, 2012	
	Actual	Pro Forma As Adjusted (1)
Cash and cash equivalents	$ 5,597,764	$
Wisconsin Department of Commerce Loan	450,000	
Capital lease obligations	4,665	
Total debt obligations	454,665	
Stockholders' equity (deficit):		
Common stock, par value $0.00001 per share: 150,000,000 shares authorized; 43,460,497 issued as of September 30, 2012	434	
Additional paid in capital	47,186,659	
Deficit accumulated during the development stage	(38,120,352)	
Total stockholders' equity	9,066,741	
Total capitalization	$ 9,521,406	$

(1) Assumes that $ of units are sold in this offering at an assumed offering price of $ per unit and that the net proceeds thereof are approximately $ after placement agent fees and estimated offering expenses.

MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Market Information

Our common stock was quoted on the OTC Bulletin Board under the symbol NVLT beginning on June 14, 2005 and until February 16, 2012, since which time it has been quoted on the OTCQX platform. The following table provides, for the periods indicated, the high and low bid prices for our common stock. These over-the-counter market quotations reflect inter-dealer prices, without retail mark-up, mark-down or commission, and may not represent actual transactions.

Fiscal Year 2010	High	Low
First Quarter	$ 466.36	$ 26.16
Second Quarter	42.66	14.67
Third Quarter	23.08	6.17
Fourth Quarter	9.17	2.82

Fiscal Year 2011	High	Low
First Quarter	$ 8.10	$ 1.52
Second Quarter	3.82	0.95
Third Quarter	1.55	1.13
Fourth Quarter	1.39	0.33

Fiscal Year 2012	High	Low
First Quarter	$ 0.99	$ 0.40
Second Quarter	2.20	0.75
Third Quarter	1.20	0.91
Fourth Quarter	1.07	0.66

Fiscal Year 2013	High	Low
First Quarter (through January 25, 2013)	$ 0.77	$ 0.62

The above share prices have been adjusted to give effect to a 1-for-153 reverse split of our common stock completed April 8, 2011 in connection with the Acquisition.

On January 25, 2013 there were 358 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 development of our business.

Our transfer agent and registrar is American Stock Transfer and Trust Company, 59 Maiden Lane, New York, NY 10038.

Equity compensation plans

The following table provides information as of December 31, 2012 regarding shares authorized for issuance under our equity compensation plans, including individual compensation arrangements.

We have two equity compensation plans approved by our stockholders: the 2000 Stock Option and Incentive Plan and the 2006 Stock Incentive Plan. During 2004 and 2005, we also issued options to our directors and consultants that were not approved by our stockholders and during 2011 we issued options to certain consultants that were not approved by our stockholders. These options are exercisable within a ten-year period from the date of the grant and vest at various intervals with all options being fully vested within three years of the date of grant. The option price per share is not less than the fair market value of our common stock on the date of grant.

Equity compensation plan information

Plan category	Number of shares to be issued upon exercise of outstanding options, warrants and rights (#) (a)	Weighted-average exercise price of outstanding options, warrants and rights ($) (b)	Number of shares remaining available for future issuance under equity compensation plans (excluding shares reflected in column (a)) (#) (c)
Equity compensation plans approved by stockholders	6,329,050	$ 1.37	3,669,562
Equity compensation plans not approved by stockholders	110,138	$ 10.16	0
Total	6,439,188	$ 1.52	3,669,562

DILUTION

Our net tangible book value as of September 30, 2012 was $7,391,279, or $0.17 per share of common stock, based upon 43,460,497 shares outstanding as of that date. 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. After giving effect to the sale of the securities in this offering at the assumed public offering price of $ per unit, after deducting the placement agent fee and other estimated offering expenses payable by us, our pro forma net tangible book value at September 30, 2012 would have been approximately $ million, or $ per share. This represents an immediate increase 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 unit		$
Net tangible book value per share as of September 30, 2012	$ 0.17	
Increase per share attributable to sale of securities to investors	$	
Pro forma 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.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read together with our financial statements and the related notes appearing elsewhere in this prospectus. This discussion contains forward-looking statements reflecting our current expectations that involve risks and uncertainties. See "Special Note Regarding Forward-Looking Statements" for a discussion of the uncertainties, risks and assumptions associated with these statements. Actual results and the timing of events could differ materially from those discussed in our forward-looking statements as a result of many factors, including those set forth under "Risk Factors" and elsewhere in this prospectus.

Acquisition

On April 8, 2011, we completed the Acquisition. Immediately prior to the Acquisition, we completed a 1-for-153 reverse split of our common stock. We then issued 17,001,596 shares of our common stock to the former shareholders of Cellectar as consideration for the Acquisition, constituting approximately 85% of our outstanding common stock after giving effect to the Acquisition. Upon the closing of the Acquisition, we completed the private placement of 6,846,537 shares of our common stock and warrants to purchase an additional 6,846,537 shares of our common stock. The Acquisition was accounted for as a reverse acquisition whereby Cellectar, Inc. was treated as the acquirer for accounting and financial reporting purposes. As such, references to the results of operations for the twelve months ended December 31, 2010 represent the historical results of Cellectar. References to the results of operations for the twelve months ended December 31, 2011 include the historical results of Cellectar from January 1, 2011 through April 8, 2011 and include the consolidated results of the combined company from April 9, 2011 through December 31, 2011.

As a result of the Acquisition, we have implemented a revised business plan focused on the development of the Cellectar compounds. We conduct our operations from Cellectar's headquarters in Madison, Wisconsin and our executive offices are in Newton, Massachusetts. Further development of our other compounds (NOV-002 and NOV-205) has been suspended.

On April 8, 2011, immediately prior to the Acquisition, Cellectar paid approximately $627,000 in full settlement of a note payable to a bank. The payment was made in order to avoid an event of default that would have occurred as a result of the change of control that occurred as a result of the Acquisition. On April 8, 2011, the holders of Cellectar convertible notes converted outstanding principal of $2,720,985 and accrued unpaid interest into a total of 4,181,535 shares of common stock.

Overview

We are a pharmaceutical company developing novel drugs for the treatment and diagnosis of cancer. Our cancer-targeted compounds are selectively taken up and retained in cancer cells, including cancer stem cells, versus normal cells. Thus, our therapeutic compounds appear to directly kill cancer cells while minimizing harm to normal cells. This offers the potential for a paradigm shift in cancer therapy by providing efficacy versus all three major drivers of mortality in cancer: primary tumors, metastases and stem cell-based relapse. I-124-CLR1404 (LIGHT) is a small-molecule, broad-spectrum, cancer-targeted PET imaging agent. We believe LIGHT has first-in-class potential and Phase 1-2 clinical trials are ongoing across 11 solid tumor indications. I-131-CLR1404 (HOT) is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that delivers cytotoxic radiation directly and selectively to cancer cells and cancer stem cells. We believe HOT also has first-in-class potential. The HOT Phase 1b dose-escalation trial is ongoing and we expect HOT to enter Phase 2 trials in the third quarter of 2013, subject to additional funding, as a monotherapy for solid tumors with significant unmet medical need. CLR1502 (GLOW2) is a preclinical, cancer-targeted, non-radioactive optical imaging agent for intraoperative tumor margin illumination and non-invasive tumor imaging. Together, we believe our compounds are able to "find, treat and follow" cancer anywhere in the body in a novel, effective and highly selective way.

LIGHT is a small-molecule, broad-spectrum, cancer-targeted imaging agent that we believe has first-in-class potential for selective detection of tumors and metastases in a broad range of cancers. LIGHT is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-124, a short-lived PET imaging radioisotope. PET imaging used in conjunction with CT scanning has now become the imaging method of choice in oncology. In studies to date, LIGHT selectively illuminated malignant tumors in 52 of 54 animal models of cancer, demonstrating broad-spectrum, cancer-selective uptake and retention. Investigator-sponsored Phase 1-2 trials of LIGHT as a PET imaging agent are ongoing across 11 solid tumor indications. Initial positive imaging results have been established in patients with lung and brain cancers. These human trials, if successful, would likely provide proof-of-concept for LIGHT as a PET imaging agent with the potential to supplant the current "gold standard" agent, 18F-fluoro-deoxyglucose (FDG), due to what we believe to be LIGHT's superior cancer-specificity and more favorable logistics of clinical use. As a chemically identical biomarker for HOT, we believe that LIGHT tumor uptake data could accelerate clinical development of HOT by guiding selection of indications for HOT Phase 2 trials and potentially be used in such trials to identify suitable patients and assess therapeutic efficacy. For the same reason, and in view of the quantitative nature of PET imaging, LIGHT imaging may be capable of estimating an efficacious dose of HOT in individual patients.

HOT is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that we believe has first-in-class potential. HOT is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-131, a cytotoxic (cell-killing) radioisotope that is already in common use to treat thyroid and other cancer types. The ongoing Phase 1b dose-escalation trial is aimed at determining the Maximum Tolerated Dose of HOT. We expect to initiate HOT Phase 2 efficacy trials, subject to additional funding, as a monotherapy for solid tumors with significant unmet medical need as soon as a starting dose is established. We may determine such a dose based on an efficacy signal or an acceptable safety profile in the Phase 1b trial. Selection of indications for Phase 2, as well as aspects of trial design, will be guided by ongoing PET imaging trials in cancer patients with LIGHT, a chemically identical biomarker for HOT. Preclinical experiments in more than a dozen *in vivo* (in animals) tumor models have demonstrated selective killing of cancer cells along with a benign safety profile. In view of HOT'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 first developing HOT as a monotherapy for solid tumors with significant unmet medical need.

GLOW2 is a small-molecule, broad-spectrum, cancer-targeted, non-radioactive optical imaging agent that we believe has first-in-class potential for intraoperative tumor margin illumination and non-invasive tumor imaging. GLOW2 is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently attached to a near-infrared (800nm) fluorophore. According to the American Cancer Society (2011), most cancer patients will have some type of surgery, and Cancer Facts and Figures indicated that approximately 1.3 million cancer patients were diagnosed with solid tumors in the U.S. alone in 2011. GLOW2 may facilitate and enable diagnostic, staging, debulking and curative cancer surgeries, intraoperatively in real time (i.e. during the actual surgical procedure) by defining tumor margins and regional lymph node involvement, resulting in more accurate tumor resectioning and improved outcome and prognosis. In this context, GLOW2 would effectively act as an adjunct therapeutic agent. In preclinical *in vivo* (in animals) tumor models, non-invasive optical imaging showed pronounced accumulation of GLOW2 in tumors versus normal organs and tissues in addition to successfully delineated tumor margins during tumor resection. Thus, GLOW2 may also have utility for non-invasive imaging of relatively superficial tumor types in man (e.g., melanoma, head & neck, colon, esophageal). Subject to additional funding, we expect to submit an IND for GLOW2 in the second half of 2013 and begin clinical trials shortly thereafter.

Prior to the Acquisition, for more than 10 years, Novelos had been developing oxidized glutathione-based compounds for the treatment of cancer, including NOV-002, an injectable small-molecule compound based on a proprietary formulation of oxidized glutathione that Novelos had been developing for use in combination with standard of care chemotherapies for the treatment of solid tumors. From 2005 through 2010 Novelos raised approximately $67 million in capital for the development of our compounds. From November 2006 through January 2010, Novelos conducted a Phase 3 trial of NOV-002 plus first-line chemotherapy in advanced non-small cell lung cancer which, when completed in February 2010, did not meet its primary and secondary efficacy endpoints. Following the completion of the Phase 3 trial during 2010, Novelos continued clinical development of NOV-002 in breast cancer and NOV-205 in hepatitis C, although further development of those compounds has been suspended. Novelos also explored strategic alternatives which resulted in the completion of the Acquisition in April 2011.

Results of Operations

Executive summary. In March 2010, Cellectar completed a Phase 1a dosimetry trial of HOT in humans (the Phase 1a Trial), demonstrating initial safety and establishing dosing parameters for a Phase 1b dose-escalation trial. Following the completion of the Phase 1a Trial and as a result of limited funding, Cellectar suspended research and manufacturing activities, terminated certain non-key personnel and implemented salary reductions in an effort to contain costs while Cellectar concentrated on its fundraising efforts. Following the Acquisition, we have resumed development activities including the commencement of clinical trials in HOT and LIGHT. The increases in research and development costs for the nine months ended September 30, 2012 compared to the nine months ended September 30, 2011 and the year ended December 31, 2011 as compared to the year ended December 31, 2010 are primarily related to the recommencement of research activities following the Acquisition.

Research and development expense. Research and development expense consists of costs incurred in identifying, developing and testing, and manufacturing product candidates, which primarily include salaries and related expenses for personnel, costs of our research and manufacturing facility, cost of manufacturing materials, fees paid to professional service providers for independent monitoring and analysis of our clinical trials, and costs to secure intellectual property. The Company analyzes its research and development expenses based on four categories as follows: clinical projects, preclinical projects, chemistry and manufacturing costs, and general fixed and overhead costs that are not allocated to the functional project costs, including personnel costs, manufacturing facility costs, related overhead costs and patent costs.

General and administrative expense. General and administrative expense consists primarily of salaries and other related costs for personnel in executive, finance and administrative functions. Other costs include insurance, costs for public and investor relations, directors' fees and professional fees for legal and accounting services.

Nine Months Ended September 30, 2012 and 2011

Research and Development. Research and development expense for the nine months ended September 30, 2012 was approximately $3,896,000 (comprised of $596,000 in clinical project costs, $252,000 of preclinical project costs, $330,000 of manufacturing and related costs and $2,718,000 in general unallocated research and development costs) compared to approximately $2,445,000 (comprised of $37,000 in clinical project costs, $141,000 of preclinical project costs, $95,000 of chemistry, manufacturing and related costs and $2,172,000 in general unallocated research and development costs) for the same period in 2011. The approximately $1,451,000, or 59%, increase in research and development expense occurred in several categories. The $559,000 increase in clinical projects in the nine months ended September 30, 2012 versus the comparable period in 2011 is related to costs associated with the Phase 1-2 trials for LIGHT and the Phase 1b trial for HOT. The $111,000 increase in preclinical projects for the nine months ended September 30, 2012 versus the same period in 2011 was related to contributions to the UW towards unrestricted research activities and increased consulting to support preclinical research activities. Manufacturing costs increased $235,000 primarily as a result of increased chemistry and manufacturing activities to support the clinical trials. General unallocated research and development costs increased approximately $546,000 primarily as a result of an approximately $285,000 increase in salary and related costs resulting principally from the addition of employees following the Acquisition; an approximately $152,000 increase in stock-based compensation associated with recognition of compensation expense over the vesting periods of stock option grants in May and December 2011; an approximately $67,000 increase in patent expenses and approximately $18,000 increase in travel costs.

General and Administrative. General and administrative expense for the nine months ended September 30, 2012 was approximately $2,696,000 compared to approximately $1,828,000 in the same period of 2011. The $868,000, or 47%, increase in general and administrative costs was primarily related to the following items: stock-based compensation increased approximately $352,000 resulting from the recognition of compensation expense over the vesting periods of stock options granted in May and December 2011; salary increased approximately $293,000 resulting principally from the addition of employees following the Acquisition; the cost of subcontracted services increased by approximately $120,000 as a result of increased investor relations activities and costs associated with public company reporting. Insurance costs increased approximately $57,000, directors' fees increased approximately $39,000, rent increased approximately $14,000 associated with the addition of the Massachusetts location and travel costs increased approximately $28,000 due principally to an increase in travel between our Massachusetts and Wisconsin offices. These increases were offset by an approximately $146,000 decrease in expense attributable to a $125,000 reimbursement of a retention payment received from the Company's directors and officers insurance carrier following the dismissal with prejudice on June 11, 2012 of the securities litigation described in Note 14. The Company recorded this reimbursement as a reduction of legal fees in the three months ended September 30, 2012.

Merger Costs. We did not incur any merger-related costs in the nine months ended September 30, 2012. Merger costs during the nine months ended September 30, 2011 consisted of $450,000 in investment banking fees, $286,000 in legal fees and $10,000 in insurance costs.

Grant income. Qualifying therapeutic discovery projects, among others, include those designed to treat or prevent diseases or conditions by conducting preclinical or clinical activities for the purpose of securing FDA approval of a product. We received payments of approximately $44,000 in the first nine months of 2011 under a cash grant from the U.S. Internal Revenue Service as a qualifying therapeutic discovery project credit pursuant to Patient Protection and Affordable Care Act. The payments have been recorded as a component of other income. There were no such payments in 2012.

Loss on Derivative Warrants. We recorded losses on derivative warrants of approximately $42,000 and $67,000 in the nine months ended September 30, 2012 and 2011, respectively. These amounts represent the change in fair value, during the respective period, of outstanding warrants which contain "down-round" anti-dilution provisions whereby the number of shares for which the warrants are exercisable and/or the exercise price of the warrants is subject to change in the event of certain issuances of stock at prices below the then-effective exercise prices of the warrants.

Interest expense, net. Interest expense, net for the nine months ended September 30, 2012 and 2011 consists approximately of the following:

	Nine Months Ended September 30,	
	2012	2011
Interest expense, convertible notes	$ —	$ (159,000)
Beneficial conversion feature, convertible notes	—	(258,000)
Interest expense, bank note	—	(6,000)
Interest expense, other	(6,000)	(9,000)
Interest income	—	4,000
	$ (6,000)	$ (428,000)

Since the Convertible Notes were converted based on revised conversion terms that resulted in the issuance of an additional 343,963 shares of common stock than would have been issued if the Convertible Notes had been converted in accordance with their original terms, the value of these additional shares of approximately $258,000 was recorded as a component of interest expense in the quarter ended June 30, 2011. The decrease in interest expense on the convertible notes and bank note was a result of the settlement of those obligations in connection with the Acquisition.

*Deemed Dividend on Warrant Amendment***.** During the nine months ended September 30, 2012, the Company amended the terms of its Class B Warrants with certain investors who held warrants to purchase 5,255,000 shares of our common stock to extend the expiration date for the exercise of such warrants until October 11, 2012. These warrants had been issued in connection with the June Offering, had an expiration date of September 11, 2012 and are exercisable at a price of $1.00 per share. The modification of the expiration date of the warrants resulted in a deemed dividend to warrant holders of approximately $543,000 which was calculated as the difference between the fair value of the warrants immediately before and after the modification using the Black-Scholes option pricing model.

The deemed dividends have been included in the calculation of net loss attributable to common stockholders of approximately $7,183,000, or $0.18 per share, for the nine months ended September 30, 2012. The deemed dividends are excluded from our net loss (from operating activities) of approximately $6,640,000, or $0.17 per share, for the nine months ended September 30, 2012.

No deemed dividend was recorded in the nine months ended September 30, 2011.

Twelve Months Ended December 31, 2011 and 2010

Research and Development. Research and development expense for the year ended December 31, 2011 was approximately $3,599,000 (comprised of approximately $166,000 in clinical project costs, $207,000 of preclinical project costs, $205,000 of manufacturing and related costs and $3,021,000 in general unallocated research and development costs) compared to approximately $2,984,000 (comprised of $200,000 in clinical project costs, $459,000 of preclinical project costs, $58,000 of manufacturing and related costs and $2,267,000 in general unallocated research and development costs) for 2010. The approximately $615,000, or 20.6%, increase in research and development resulted from increases in manufacturing and general unallocated research costs partially offset by decreases in clinical and preclinincal costs. The $34,000 decrease in clinical projects in the year ended December 31, 2011 versus 2010 was related to a $200,000 decrease in costs related to the completion of the Phase 1a trial in March 2010 partially offset by clinical costs incurred in 2011 related to the Company's Phase 1b trial for HOT. The $252,000 decrease in preclinical projects, for the year ended December 31, 2011 versus 2010 was primarily related to a $210,000 decrease in subcontracted preclinical research as those activities had increased in the first half of 2010 in preparation for future clinical trials. These decreases were offset by an increase of approximately $754,000 in general unallocated research and development costs primarily due to an approximately $215,000 increase in salary and related costs as a result of increases in personnel following the Acquisition, an approximately $165,000 increase in stock-based compensation resulting from stock options granted in May 2011 and December 2011 following the Acquisition, an approximately $87,000 increase in patent costs as well as increases in subcontracted services, facilities and equipment maintenance costs incurred as we resumed manufacturing and research activities following the Acquisition.

General and Administrative. General and administrative expense for the year ended December 31, 2011 was approximately $2,692,000 compared to approximately $1,157,000 in 2010. The $1,535,000, or 132.7%, increase in general and administrative costs were primarily related to the following items: Salary increased approximately $582,000 resulting from the addition of employees in connection with the Acquisition and the removal of salary reductions that had been in place in order to conserve cash; stock-based compensation increased by $390,000 associated with stock option grants made in May and December 2011; the cost of subcontracted services increased by approximately $331,000 as a result of increased investor relations activities, directors' fees and costs associated with public company reporting. Insurance costs increased approximately $67,000, rent increased approximately $49,000 associated with the addition of the Massachusetts location following the Acquisition and travel costs increased approximately $53,000 due principally to an increase in travel between our Massachusetts and Wisconsin offices.

Merger Costs. Merger costs during the year ended December 31, 2011 consisted of $450,000 in investment banking fees, approximately $286,000 in legal fees and approximately $10,000 in insurance costs compared to approximately $53,000 of merger costs in 2010, primarily related to legal fees.

Grant income. Qualifying therapeutic discovery projects, among others, include those designed to treat or prevent diseases or conditions by conducting preclinical or clinical activities for the purpose of securing FDA approval of a product. The Company received payments of approximately $44,000 in the year ended December 31, 2011 compared to $200,000 for 2010 under a cash grant from the U.S. Internal Revenue Service as a qualifying therapeutic discovery project credit pursuant to Patient Protection and Affordable Care Act. The payments have been recorded as a component of other income.

Loss on Derivative Warrants. We recorded a loss on derivative warrants of approximately $12,000 in the year ended December 31, 2011. This amount represents the change in fair value, during the respective period, of outstanding warrants that contain "down-round" anti-dilution provisions whereby the number of shares for which the warrants are exercisable and/or the exercise price of the warrants is subject to change in the event of certain issuances of stock at prices below the then-effective exercise prices of the warrants.

Interest expense, net. Interest expense, net, for the years ended December 31, 2011 and 2010 consists approximately of the following:

	Year Ended December 31,	
	2011	**2010**
Interest expense, convertible notes	$ (159,000)	$ (305,000)
Beneficial conversion feature, convertible notes	(258,000)	(214,000)
Interest expense, bank note	(6,500)	(55,000)
Interest expense, other	(11,000)	(7,000)
Interest income	4,500	15,000
	$ (430,000)	$ (566,000)

Since the convertible notes were converted based on revised conversion terms that resulted in the issuance of an additional 343,963 shares of common stock than would have been issued if the convertible notes had been converted in accordance with their original terms, the value of these additional shares of approximately $258,000 was recorded as a component of interest expense at the date of conversion in 2011. Since the convertible notes were convertible into common stock at the date of issuance at a price per share which is less than the estimated fair value of our common stock at that date, the estimated intrinsic value of the beneficial conversion feature of approximately $214,000 was recorded as a component of interest expense on the date of issuance in 2010. The decrease in interest expense on the convertible notes and bank note was a result of the settlement of those obligations in connection with the Acquisition. The increase in other interest expense is principally a result of the issuance of notes payable to the Wisconsin Department of Commerce in September 2010. The reduction of interest income was a result of a decrease in average cash balances and interest rates.

Liquidity and Capital Resources

We have financed our operations since inception primarily through the sale of equity securities and securities convertible into equity securities. To date, Cellectar and Novelos have raised capital aggregating approximately $120 million. Novelos has raised capital aggregating approximately $93 million, including proceeds from the April 2011and November 2012 private placements, the December 2011 underwritten offering, the June 2012 public offering and cash warrant exercises during 2012. Since its inception and prior to the Acquisition, Cellectar had raised capital aggregating approximately $27 million. As of September 30, 2012, we had approximately $5,598,000 in cash and cash equivalents.

During the nine months ended September 30, 2012, approximately $4,891,000 in cash was used in operations. During this period we reported a net loss of approximately $6,640,000. However, this loss included the following non-cash items: an approximately $42,000 loss on derivative warrants, approximately $1,160,000 in stock-based compensation, and approximately $384,000 in depreciation and amortization expense. Changes in working capital provided cash of approximately $163,000.

During the nine months ended September 30, 2012, we purchased approximately $37,000 of equipment.

In June 2012 we completed a public offering of our common stock and warrants for net proceeds of approximately $4,871,000. During the nine months ended September 30, 2012, we received approximately $151,000 in connection with warrant exercises.

The consolidated financial statements included elsewhere in this prospectus have been prepared on a basis that assumes that we will continue as a going concern and that contemplates the continuity of operations, realization of assets and the satisfaction of liabilities and commitments in the normal course of business. We have incurred losses since inception in devoting substantially all of our efforts toward research and development and had an accumulated deficit of $38,120,352 at September 30, 2012. During the nine months ended September 30, 2012, we generated a net loss of $6,639,926 and we expect that we will continue to generate operating losses for the foreseeable future. At September 30, 2012, our cash balance was approximately $5,598,000. We believe our cash on hand, combined with the proceeds received from the exercise of warrants to purchase common stock during October 2012, is adequate to fund operations through May 2013. On November 2, 2012, we completed a private placement of our common stock and warrants that generated gross proceeds of $2,000,000. The proceeds from the private placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location. We estimate that the project will cost a total of approximately $3,000,000 and estimate that it will be completed by the end of 2013, although we have not yet entered into contractual commitments with vendors. We may seek to obtain the additional capital required to complete the project from additional sales of common stock (other than proceeds from this offering, unless we obtain gross proceeds in excess of $10,000,000), proceeds from warrant exercises, and/or from equipment financing. Our ability to execute our operating plan beyond May 2013 depends on our ability to obtain additional funding via the sale of equity and/or debt securities, a strategic transaction or otherwise. We have in the past successfully completed multiple rounds of financing but, due to market conditions and other factors, including our development stage, the proceeds we have been able to secure have been less than the amounts we initially sought to obtain. Other than the uncertainties regarding our ability to obtain additional funding, there are currently no known trends, demands, commitments, events or uncertainties that are likely to materially affect our liquidity.

Critical Accounting Policies and Estimates

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States, or GAAP, requires management to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the periods presented. Management bases its estimates and judgments on historical experience, knowledge of current conditions and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates. We review these estimates and assumptions periodically and reflect the effects of revisions in the period that they are determined to be necessary.

We believe that the following accounting policies reflect our more significant judgments and estimates used in the preparation of our financial statements.

Accrued Liabilities. As part of the process of preparing financial statements, we are required to estimate accrued liabilities. This process involves identifying services that have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for such service as of each balance sheet date in our financial statements. Examples of estimated expenses for which we accrue include: contract service fees such as amounts paid to clinical research organizations and investigators in conjunction with clinical trials; fees paid to vendors in conjunction with the manufacturing of clinical materials; and professional service fees, such as for lawyers and accountants. In connection with such service fees, our estimates are most affected by our understanding of the status and timing of services provided relative to the actual levels of services incurred by such service providers. The majority of our service providers invoice us monthly in arrears for services performed. In the event that we do not identify certain costs that have begun to be incurred, or we over- or underestimate the level of services performed or the costs of such services, our reported expenses for such period would be too high or too low. The date on which certain services commence, the level of services performed on or before a given date and the cost of such services are often determined based on subjective judgments. We make these judgments based on the facts and circumstances known to us, in accordance with GAAP.

Goodwill and Other Intangible Assets. As of September 30, 2012 and December 31, 2011 there was approximately $1,675,000 of goodwill recorded in connection with the Acquisition. We are required to evaluate goodwill for impairment annually or whenever events or changes in circumstances suggest that the carrying value of an asset may not be recoverable. The Company evaluates goodwill for impairment annually in the fourth fiscal quarter and additionally on an interim basis if an event occurs or circumstances change such as a decline in the Company's stock price, or a material adverse change in the business climate, which would more likely than not reduce the fair value of the reporting unit below its carrying amount.

Stock-based Compensation. We account for stock-based compensation by measuring the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award, using the Black-Scholes option-pricing model. The cost of non-performance based awards is recognized over the period during which an employee is required to provide service in exchange for the award, the requisite service period (usually the vesting period). For stock options with performance-based vesting provisions, recognition of compensation expense commences if and when the achievement of the performance criteria is deemed probable and is recognized over the relevant performance period. We account for transactions in which services are received from non-employees in exchange for equity instruments based on the fair value of such services received or of the equity instruments issued (using the Black-Scholes option-pricing model) whichever is more reliably measured. The measurement of stock-based compensation for non-employees is subject to periodic adjustments as the options vest, and the expense is recognized over the period during which a non-employee is required to provide services for the award (usually the vesting period).

Accounting for equity instruments granted or sold by us under accounting guidance requires fair-value estimates of the equity instrument granted or sold. If our estimates of the fair value of these equity instruments are too high or too low, our expenses may be over- or understated. For equity instruments granted or sold in exchange for the receipt of goods or services, we estimate the fair value of the equity instruments based on consideration of factors that we deem to be relevant at that time.

Derivative Warrants. Certain warrants to purchase common stock that do not meet the requirements for classification as equity, in accordance with the Derivatives and Hedging Topic of the FASB ASC, are classified as liabilities on our balance sheet. In such instances, net-cash settlement is assumed for financial reporting purposes, even when the terms of the underlying contracts do not provide for a net-cash settlement. These warrants are considered derivative instruments as the agreements contain "down-round" provisions whereby the number of shares for which the warrants are exercisable and/or the exercise price of the warrants is subject to change in the event of certain issuances of stock at prices below the then-effective exercise price of the warrants. The primary underlying risk exposure pertaining to the warrants is the change in fair value of the underlying common stock. Such financial instruments are initially recorded at fair value, or relative fair value when issued with other instruments, with subsequent changes in fair value recorded as a component of gain or loss on derivatives in each reporting period.

The fair value of the outstanding derivative warrants is estimated as of a reporting date. The Company uses valuation methods and assumptions that consider among others the fair value of the underlying stock, risk-free interest rate, volatility, expected life and dividend rates in estimating fair value for the warrants considered to be derivative instruments. We estimate volatility based on an average of our historical volatility and volatility estimates of publicly held drug development companies with similar market capitalizations. If our estimates of the fair value of these derivative warrants are too high or too low, our expenses may be over- or understated.

Fair value measurements. We account for certain financial assets at fair value, defined as the price that would be received to sell an asset or pay to transfer a liability (i.e., exit price) in the principal, most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. As such, fair value is a market-based measurement that is determined based on assumptions that market participant would use in pricing an asset or liability. If management made different assumptions or judgments, material differences in measurements of fair value could occur.

Contingencies. From time to time, we may become involved in legal disputes regarding our products in development, intellectual property rights, stockholder claims or other matters. We are currently involved in two such matters that are ongoing. We assess each matter to determine if a contingent liability should be recorded. In making this assessment, we may consult, depending on the nature of the matter, with external legal counsel and technical experts. Based on the information we obtain, combined with our judgment regarding all the facts and circumstances of each matter, we determine whether it is probable that a contingent loss may be incurred and whether the amount of such loss can be reasonably estimated. Should a loss be probable and reasonably estimable we record a loss. In determining the amount of the loss, we consider advice received from experts in the specific matter, current status of legal proceedings, if any, prior case history and other factors. Should the judgments and estimates made by us be incorrect, we may need to record additional contingent losses that could materially adversely impact the results of operations and financial conditions.

BUSINESS

Business of Novelos

Novelos Therapeutics, Inc. (Novelos or the Company) is a pharmaceutical company developing compounds for the treatment and diagnosis of cancer. On April 8, 2011, Novelos entered into a business combination with Cellectar, Inc. (Cellectar), a privately held Wisconsin corporation that designed and developed products to detect, treat and monitor a wide variety of human cancers (the Acquisition). Following the Acquisition, we have been developing novel drugs for the treatment and diagnosis of cancer.

We believe our cancer-targeted compounds (referred to as LIGHT, HOT and GLOW2) are selectively taken up and retained in cancer cells, including cancer stem cells, versus normal cells. Thus, our therapeutic compounds appear to directly kill cancer cells while minimizing harm to normal cells. This offers the potential for a paradigm shift in cancer therapy by providing efficacy versus all three major drivers of mortality in cancer: primary tumors, metastases and stem cell-based relapse. I-124-CLR1404 (LIGHT) is a small-molecule, broad-spectrum, cancer-targeted positron emission tomography (PET) imaging agent. We believe LIGHT has first-in-class potential and Phase 1-2 clinical trials are ongoing across 11 solid tumor indications. I-131-CLR1404 (HOT) is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that delivers cytotoxic (cell-killing) radiation directly and selectively to cancer cells and cancer stem cells. We believe HOT also has first-in-class potential. The HOT Phase 1b dose-escalation trial is ongoing and we expect HOT to enter Phase 2 trials in the third quarter of 2013, subject to additional funding, as a monotherapy for solid tumors with significant unmet medical need. CLR1502 (GLOW2) is a preclinical, cancer-targeted, non-radioactive optical imaging agent for intraoperative tumor margin illumination and non-invasive tumor imaging. Together, we believe our compounds are able to "find, treat and follow" cancer anywhere in the body in a novel, effective and highly selective way.

Market Overview

Our target market is broad and represents the market for the treatment and diagnosis of cancer. According to Drug Discovery News (April 2009) and PharmaLive (October 8, 2009), the global market for cancer pharmaceuticals reached an estimated $66 billion in 2007, nearly doubling from $35 billion in 2005 and is expected to grow to $80 billion by 2012. Furthermore, the US National Cancer Institute (January 12, 2011) estimates that the overall cost of treating cancer in the US will increase to $158 billion by 2020 from $125 billion in 2010 and Global Industry Analysts (GIA) forecasts the global market for cancer therapies to reach $225 billion by 2017 (November 2011). According to BCC Research (April 2011), the total market for next-generation cancer diagnostics was $776 million in 2010 and is growing at a compounded annual growth rate of 47%, to reach a forecast market size of $5.3 billion in 2015.

Technology Overview

Our compounds are optimized phospholipid ether analogs (PLEs) that interact with lipid rafts, which are specialized microdomains within cell membranes. Importantly, the core chemical structure shared across all three products provides selective targeting of cancer cells, including cancer stem cells, in preference to normal cells (due to enrichment of lipid rafts in the former). The cancer-targeting PLE carrier molecule was deliberately designed to be coupled to imaging or therapeutic molecules. For example iodine can be attached via a very stable covalent bond resulting in two distinct products differing only with respect to the isotope of iodine they contain – HOT contains radioactive I-131 and LIGHT contains the shorter-lived radioactive I-124. Because of their chemical identity, LIGHT also represents an ideal biomarker that may be used to predict tumor sensitivity of HOT and, potentially, establish an efficacious dose in individual patients. Other, non-radioactive molecules can also be attached to the PLE core. In the case of GLOW2, this is an infrared emitting fluorophore (800 nm) whose signal can penetrate through up to approximately 1 cm of tissue. This may enable GLOW2's use to visualize tumor margins during cancer surgery (effectively acting as an adjunct therapeutic agent) and to non-invasively detect relatively superficial tumors. Thus, to date, three cancer-targeted product profiles have been generated from a single chemical core structure that is the foundation of our technology platform – a diagnostic PET imaging agent, LIGHT, a molecular radiotherapeutic agent, HOT and a non-radioactive optical imaging agent to increase the success of cancer surgery and non-invasively image certain tumors.

Our core technology platform is based on research conducted by Cellectar's founder and our Chief Scientific Officer, Dr. Jamey Weichert, beginning in 1994 at the University of Michigan (U. Mich.), where phospholipid ether analogs were initially designed, synthesized, radiolabeled, and evaluated. Since 1998, Dr. Weichert has continued his research at the University of Wisconsin (U. Wisc.) and subsequently founded Cellectar in 2002 to further develop and commercialize the technology. Cellectar obtained exclusive rights to the related technology patents owned by U. Mich. in 2003 and continued development of the platform while obtaining ownership of numerous additional patents and patent applications (lasting until 2025, 2028 and 2030 without extensions) prior to the Acquisition.

Products in Development

LIGHT

I-124-CLR1404 (LIGHT) is a small-molecule, broad-spectrum, cancer-targeted imaging agent that we believe has first-in-class potential for selective detection of tumors and metastases in a broad range of cancers. LIGHT is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-124, a short-lived PET imaging radioisotope. PET imaging used in conjunction with CT scanning has now become the imaging method of choice in oncology. In studies to date, LIGHT selectively illuminated malignant tumors in 52 of 54 animal models of different cancer types, demonstrating broad-spectrum, cancer-selective uptake and retention. Investigator-sponsored Phase 1-2 trials of LIGHT as a PET imaging agent are ongoing at the University of Wisconsin across 11 solid tumor indications. The investigator-sponsored IND for LIGHT was submitted on March 28, 2003 and was approved by the FDA on April 25, 2003. The IND is held by Dr. Lance Hall at the University of Wisconsin, who both initiates and conducts the investigation and under whose immediate direction the investigational drug is administered. Novelos, the National Cancer Institute or the University of Wisconsin Institute for Clinical and Translational Research provide funding for the trials and the data is shared with Novelos while the trials progress and at the conclusion of the trials. Initial positive imaging results have been established in patients with lung and brain cancers. These human trials, if successful, would likely provide proof-of-concept for LIGHT as a PET imaging agent with the potential to supplant the current "gold standard" agent, 18F-fluoro-deoxyglucose (FDG), due to what we believe to be LIGHT's superior cancer-specificity and more favorable logistics of clinical use. As a chemically identical biomarker for HOT, LIGHT we believe that tumor uptake data could accelerate clinical development of HOT by guiding selection of indications for HOT Phase 2 trials and potentially be used in such trials to identify suitable patients and assess therapeutic efficacy. For the same reason, and in view of the quantitative nature of PET imaging, LIGHT imaging may be capable of estimating an efficacious dose of HOT in individual patients.

Chemically, LIGHT is comprised of our proprietary PLE, 18-(p-[I-124]iodophenyl) octadecyl phosphocholine, acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine -124, a radioactive isotope with a radiation half-life of four days.

We compared LIGHT and FDG side by side (24 hours apart) in the same tumor-bearing mouse (PC3 human prostate carcinoma) that was also treated with carrageenan to induce inflammation. As expected, FDG demonstrated significant uptake into the inflammatory lesion and organs such as heart and bladder compared to the malignant tumors, which were poorly imaged. LIGHT, on the other hand, showed no uptake into the inflammatory lesion and organs, yet clear and demonstrable uptake into the tumors.

Additionally, the radioisotopic half-life of only 110 minutes for fluorine-18 labeled agents, such as FDG, severely limits their delivery range relative to the point of manufacture. I-124 has a four-day half-life that permits worldwide distribution of LIGHT from one manufacturing location. Additionally, the longer half-life affords a longer imaging window of up to seven days following injection.

The third part of an investigator-sponsored Phase 1-2 trial of LIGHT as a PET imaging agent for patients with advanced non-small cell lung cancer (NSCLC) was initiated in December 2011 at the University of Wisconsin Carbone Cancer Center (UWCCC) and first patient was enrolled in February 2012. Dr. Anne M. Traynor at UWCCC is the principal investigator for this trial. Novelos provides funding for the trial and the data is shared with Novelos while the study progresses and at the conclusion of the study. Up to 9 patients will be enrolled across two dose levels (5 mCi and 3 mCi) in this Phase 1-2 trial. The first cohort comprising three patients dosed with LIGHT at 5mCi has been successfully completed. We saw clear and sustained uptake of LIGHT in cancerous tumors against low background and have not observed any adverse safety signals. Although still early and in a small number of subjects, there is some suggestion that LIGHT imaging was more tumor-selective than the comparator modality 18F-fluoro-deoxyglucose (18F-FDG) PET. In addition, in one patient, three brain metastases were detected with LIGHT that were not seen with FDG, altering the treatment plan for this patient. Having observed initial cancer-specific uptake with LIGHT at 5 mCi dose in NSCLC patients, and as we seek a minimally efficacious dose, we are enrolling three patients at 3 mCi dose in the next cohort.

An investigator-sponsored Phase 1-2 trial of LIGHT as a PET imaging agent for brain cancer was initiated in December 2011 at UWCCC and first patient was enrolled in March 2012. Dr. Lance Hall at the UWCCC is the principal investigator for this trial. This trial is being funded by UWCCC and an Institute for Clinical and Translational Research (ICTR) grant, whereas the data is shared with Novelos while the study progresses and at the conclusion of the study. Up to 20 patients will be enrolled at a 5 mCi dose. In June 2012, we announced that three glioma patients were dosed with LIGHT at 5 mCi. The preliminary results from these three glioma patients showed strong and sustained uptake of LIGHT in cancerous tumors was seen against very low background and no adverse safety signals were observed. Patient enrollment is continuing.

An investigator-sponsored Phase 1-2 trial of LIGHT 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 University of Wisconsin Carbone Cancer Center (UWCCC) and the first patient was enrolled in October 2012. Dr. Glenn Liu at UWCCC is the principal investigator for this trial. Novelos provides funding for the trial and the data is shared with Novelos while the study progresses and at the conclusion of the study. Up to 9 patients per tumor type will be enrolled across two dose levels (5 mCi and 3 mCi) in this Phase 1-2 trial.

An investigator-sponsored Phase 1-2 trial of LIGHT as a PET imaging agent for metastatic brain cancer was initiated in January 2012 at UWCCC and the clinical trial protocol is being amended to facilitate patient enrollment. Dr. Lance Hall at the UWCCC is the principal investigator for this clinical trial. Dr. Jamey Weichert is the primary principal investigator for the $1.2 million grant from the National Cancer Institute, which funds the trial.

We are constructing a clinical-stage manufacturing facility for LIGHT at our Madison, WI location, which, subject to additional funding, is expected to be completed in the fourth quarter of 2013. Once the facility is completed, we plan to initiate company-sponsored LIGHT Phase 2 trials in solid tumor indications, starting in the first quarter of 2014. The objectives of these Phase 2 trials will include comparison to standard of care cancer imaging with pathology confirmation, as well as optimization of dosing and imaging parameters. Meanwhile, we will continue exploration of dose and imaging time points, along with comparison to standard of care cancer imaging, in the ongoing investigator-sponsored LIGHT Phase 1-2 trials.

According to Bio-Tech Systems (November 2010), sales of FDG in the US in 2009 were approximately $300 million and projected to grow to approximately $900 million in 2017. FDG accumulates in any tissue having increased glucose metabolism compared to surrounding tissue. As a result and in contrast to LIGHT, FDG is not selective for malignant tumors. FDG localizes in certain normal tissue such as heart, kidney and brain tissues that also have high glucose metabolism. FDG is also known to localize in inflammatory sites. Other major limitations to the use of FDG are found in pelvic imaging due to the high renal (kidney) clearance of the compound. These characteristics of FDG, therefore, decrease its diagnostic specificity for certain malignancies. FDG is no longer covered by patent and is typically manufactured onsite at PET imaging medical facilities because of its limited (110 minute) half-life.

HOT

I-131-CLR1404 (HOT) is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that we believe has first-in-class potential. HOT is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-131, a cytotoxic (cell-killing) radioisotope 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 imbues HOT with broad-spectrum anti-cancer activity. Selective uptake and retention has also been demonstrated in cancer stem cells compared with normal cells, offering the prospect of longer lasting cancer remission. In 2009, we filed an IND with the FDA to study HOT in humans. In early 2010, we successfully completed a Phase 1a dosimetry trial demonstrating initial safety, tumor imaging and pharmokinetic consistency and establishing a starting dose for a Phase 1b dose-escalation trial. Radiation dosimetry measures how much radiation is absorbed by tumors and body organs in order to optimize delivery of radiation therapy. The ongoing Phase 1b dose-escalation trial is aimed at determining the Maximum Tolerated Dose of HOT. We expect to initiate HOT Phase 2 efficacy trials, subject to additional funding, as a monotherapy for solid tumors with significant unmet medical need, such as glioma and lung cancer, as soon as a starting dose is established. We may determine such a dose based on an efficacy signal or an acceptable safety profile in the Phase 1b trial. Selection of indications for Phase 2, as well as aspects of trial design, will be guided by ongoing PET imaging trials in cancer patients with LIGHT, a chemically identical biomarker for HOT. Preclinical experiments in *in vivo* (in animals) tumor models have demonstrated selective killing of cancer cells along with a benign safety profile. HOT’s anti-tumor/survival-prolonging activities have been demonstrated in more than a dozen xenograft models (human tumor cells implanted into animals) including breast, prostate, lung, glioma (brain), pancreatic, ovarian, uterine, renal and colorectal cancers and melanoma. In all but two models, a single administration of a well-tolerated dose of HOT was sufficient to demonstrate efficacy. In view of HOT’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 first developing HOT as a monotherapy for solid tumors with significant unmet medical need.

Chemically, HOT is comprised of our proprietary PLE, 18-(p-[I-131]iodophenyl) octadecyl phosphocholine, acting as a cancer-targeted delivery and retention vehicle, covalently labeled with iodine-131, a cytotoxic radioisotope with a radiation half-life of eight days.

Single intravenous, well-tolerated doses of HOT administered therapeutically in animals (i.e., after primary tumors were established) have been observed to result in significant anti-tumor and/or survival benefit compared to control animals in mouse xenograft tumor models including ovarian, pancreatic, non-small cell lung, triple-negative breast, prostate, glioma, colorectal and kidney cancers. Survival benefit generally reflected the degree of tumor growth suppression. Efficacy was also seen in a xenograft model employing human uterine sarcoma cells which over-express efflux pumps known to underlie resistance to many standard chemotherapeutic drugs. The broad *in vivo* efficacy profile of HOT across many tumor types is reflected in the fact that selective tumor localization of LIGHT (which uses the same cancer-targeting drug delivery and retention vehicle as HOT) has been demonstrated in over 50 xenograft, spontaneous and transgenic cancer models. HOT was also tested in combination with a standard efficacious dose of gemcitabine in a pancreatic cancer xenograft model. Single doses of HOT or gemcitabine given alone were equally efficacious while the combination therapy was significantly more efficacious than either treatment alone (additive). In each xenograft study, the dose of HOT was ~100 μCi, which is approximately 50-fold less than the maximum tolerated dose of HOT determined in a six-month rat radiotoxicity study.

Extensive, IND-enabling, Good Laboratory Practices (GLP) *in vivo* and *in vitro* preclinical pharmacokinetic/distribution, toxicology and drug safety studies were successfully completed using non-pharmacological concentrations/doses of PLE consistent with its role as a delivery/retention vehicle in HOT. Tissue distribution studies supported prediction of acceptable human organ exposures and body clearance for HOT. Importantly, and in sharp distinction from biological products labeled with I-131, the small molecule HOT 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 (80-200x) over the anticipated maximum human therapy dose of HOT.

In February 2010 we completed a Phase 1a dosimetry trial with a single intravenous dose of 10 mCi HOT in eight patients with relapsed or refractory advanced solid tumors. Single doses of HOT were well tolerated. The reported adverse events were all considered minimal, manageable and either not dose limiting or not related to HOT. 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 HOT expected to be therapeutically effective can 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 HOT. Uptake of HOT 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 HOT 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/m2 (for example, 20 mCi dose for a patient with 1.6m^2 body surface area) for the Phase 1b escalating dose trial that is ongoing.

The primary objective of this multicenter Phase 1b dose-escalation trial in patients with a range of advanced solid tumors is to define the Maximum Tolerated Dose (MTD) of HOT. In addition to determining the MTD, the Phase 1b trial is 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/m2 of HOT, triggering enrollment into the third cohort at 37.5 mCi/m2. Data from the second cohort indicated HOT was well-tolerated, without any dose limiting or sub-dose limiting toxicities, enabling enrollment of the first patient in the third cohort.

Concurrently, separate studies are expected to generate imaging data in cancer patients using LIGHT. These imaging trials with LIGHT are expected to a facilitate selection of indications and trial designs for HOT Phase 2 trials with an initial focus on solid tumors with significant unmet medical need, planned to begin in the third quarter of 2013, in the event we obtain the additional funding necessary for that purpose. Based on its broad-spectrum mechanism of action and wide-ranging single agent activity in animal cancer models, HOT is anticipated to be used as monotherapy through proof-of-concept clinical trials, with subsequent exploration of combination with chemotherapeutic agents (a number of which are known to be radiosensitizers and thus with potential to enhance the efficacy of HOT).

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 — remain goals of novel therapies as well. We believe our isotope delivery technology is poised to achieve these goals. Because, to date, HOT has been shown to reliably and near-universally accumulate in cancer cells and because the therapeutic properties of the 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.

Other targeted radiotherapies include the marketed drugs Zevalin® (90Y, Spectrum Pharmaceuticals) and Bexxar® (I-131, GSK). In both cases, tumor-targeting is monoclonal antibody-based and limited to non-Hodgkins lymphoma, which is a type of cancer involving cells of the immune system. Thus, these agents are not appropriate comparators for HOT because of their limited therapeutic utility (only one type of tumor) and because their target indication is often well-managed by other drugs (unlike HOT, which has potential to treat tumor types for which the current standard of care is associated with very poor outcomes). Notably, both Zevalin® and Bexxar® were approved on the basis of objective response rates (shrinking of tumors) without data to support improvement in survival, suggesting that regulatory approval of radiopharmaceuticals may be based on relatively shorter and smaller pivotal clinical trials than is often the case in oncology.

In conclusion, we believe that HOT is not subject to the full extent of development risk typically associated with early-stage cancer therapeutics for the following reasons:

- HOT is selectively taken up by and retained in cancer versus normal cells and its PLE delivery vehicle is intended to be given to patients in sub-pharmacological doses, resulting in an improved safety profile compared to standard chemotherapy.
- HOT does not rely on inhibition or enhancement of a specific pathway; it works by exposing cancer cells to sustained lethal radiation from within.
- To date, HOT (as demonstrated with LIGHT studies) has shown near-universal cancer-specific retention in more than 50 *in vivo* tumor models, making the molecule potentially effective in numerous cancer types (broad-spectrum) as compared to type-specific therapies.
- We believe we have completed all applicable preclinical safety, pharmacology and toxicology studies that we believe will be required for an NDA including both single-dose and multi-dose studies.
- HOT is a small molecule that is easily characterized and synthesized and is therefore not subject to scale-up and manufacturing risks typically associated with large molecules such as monoclonal antibodies.
- HOT exploits a new cancer-selective delivery and retention mechanism, but is paired with a proven and effective radioisotope (I-131) for therapy.

GLOW2

GLOW2 is a small-molecule, broad-spectrum, cancer-targeted, non-radioactive optical imaging agent that we believe has first-in-class potential for intraoperative tumor margin illumination and non-invasive tumor imaging. GLOW2 is comprised of a proprietary phospholipid ether analog (PLE), acting as a cancer-targeted delivery and retention vehicle, covalently attached to a near-infrared (800nm) fluorophore. According to the American Cancer Society (2011), most cancer patients will have some type of surgery, and Cancer Facts and Figures indicated that approximately 1.3 million cancer patients were diagnosed with solid tumors in the U.S. alone in 2011. GLOW2 may facilitate and enable diagnostic, staging, debulking and curative cancer surgeries, intraoperatively in real time (i.e. during the actual surgical procedure) by defining tumor margins and regional lymph node involvement, resulting in more accurate tumor resectioning and improved outcome and prognosis. In this context, GLOW2 would effectively act as an adjunct therapeutic agent. In preclinical *in vivo* (in animals) tumor models, non-invasive optical imaging showed pronounced accumulation of GLOW2 in tumors versus normal organs and tissues in addition to successfully delineated tumor margins during tumor resection. Thus, GLOW2 may also have utility for non-invasive imaging of relatively superficial tumor types in man (e.g., melanoma, head & neck, colon, esophageal). Subject to additional funding, we expect to submit an IND for GLOW2 in the second half of 2013 and begin clinical trials shortly thereafter.

Other Pipeline Compounds

We have other preclinical compounds that are based on our proprietary cancer-targeting technology. For example, CLR1404 (COLD) is a cancer-targeted chemotherapy when used in high (100x) pharmacology relevant doses that, in preclinical experiments, has been observed to inhibit the phosphatidylinosotol 3-kinase (PI3K)/Akt survival pathway, which is overexpressed in many types of cancer. As a result, in such preclinical experiments COLD has been observed to selectively inhibit Akt activity, induce apoptosis through caspase activation and inhibit cell proliferation in cancer cells versus normal cells. COLD also exhibits significant *in vivo* efficacy in mouse xenograft tumor models, including non-small cell lung cancer and triple-negative breast cancers, producing long-lasting tumor growth suppression and significantly increased survival. We believe COLD has the potential to be best-in-class versus other Akt inhibitors in development due to (a) cancer cell/cancer stem cell targeting, resulting in cancer-selective inhibition of Akt and cell proliferation or (b) suitability for intravenous administration that we believe offers the prospect of greater systemic exposure and hence Akt inhibition in cancer cells, which we believe would result in superior efficacy.

Technology

LIGHT, HOT and GLOW2 are optimized PLEs that interact with lipid rafts, which are specialized microdomains within cell membranes. Importantly, the core chemical structure shared across all three products provides selective targeting of cancer cells, including cancer stem cells, in preference to normal cells (due to enrichment of lipid rafts in the former). The cancer-targeting PLE carrier molecule was deliberately designed to be coupled to imaging or therapeutic molecules. For example iodine can be attached via a very stable covalent bond resulting in two distinct products differing only with respect to the isotope of iodine they contain – HOT contains short-lived radioactive I-131 and LIGHT contains the even more short-lived radioactive I-124. Because of their chemical identity, LIGHT also represents an ideal biomarker that can be used to predict tumor sensitivity HOT and, potentially, establish an efficacious dose in individual patients. Other, non-radioactive molecules can also be attached to the PLE core. In the case of GLOW2, this is an infrared emitting fluorophore (800 nm) whose signal can penetrate through up to approximately 1 cm of tissue. This may enable GLOW2's use to visualize tumor margins during cancer surgery (effectively acting as an adjunct therapeutic agent) and to non-invasively detect relatively superficial tumors. Thus, to date, three cancer-targeted product profiles have been generated from a single chemical core structure that is the foundation of our technology platform – a diagnostic PET imaging agent, LIGHT, a molecular radiotherapeutic agent, HOT and a non-radioactive optical imaging agent to increase the success of cancer surgery and non-invasively image certain tumors, GLOW2.

Using another fluorescent-labeled PLE (CLR1501 or GLOW1), selective uptake and retention has been demonstrated in cancer cells *in vitro*. Twenty-four hours after treatment, a variety of human tumor cell types (melanoma, colorectal, uterine, pancreatic, ovarian, glioblastoma) show six- to ten-fold more staining with GLOW1 relative to normal cells (e.g., skin fibroblasts). Significantly, uptake/retention was also seen in cancer stem cells, which are known to be relatively resistant to both chemotherapy and radiation andmay therefore contribute to eventual relapse of disease following conventional chemotherapy.

Malignant tumor targeting, including targeting of cancer stem cells, has also been demonstrated *in vivo*. For example, mice without intact immune systems, and inoculated with Panc-1 (pancreatic carcinoma), were injected with GLOW2 24 or 96 hours prior to imaging. *In vivo* optical imaging showed pronounced accumulation of GLOW2 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 LIGHT clearly shows selective uptake and retention by both primary tumors and metastases, including cancer stem cells. Furthermore, PET/CT analysis following co-injection of HOT (for therapy) and LIGHT (for imaging) revealed time-dependent tumor shrinkage and disappearance (over 9 days) in a cancer xenograft model. Finally, we believe that the capability of our technology to target cancer stem cells *in vivo* was demonstrated by treating tumor-bearing mice with GLOW1 and then removing the tumor and isolating cancer stem cells, which continued to display GLOW1 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. Specifically, cancer cell membranes are highly enriched in "lipid rafts". Lipid rafts are 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 phophatidylinosotol 3-kinase (P13K)/Akt survival pathway). Data suggests that lipid rafts serve portals of entry for PLEs such as LIGHT, HOT and GLOW2. The marked selectivity of our compounds for cancer cells versus non-cancer cells is due to the fact that cancer cells have far more lipid rafts. In addition to accumulating in lipid rafts, LIGHT, HOT and GLOW2 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 suppresses uptake of PLEs into cancer cells.

Legacy Products

Prior to the Acquisition, Novelos had been developing NOV-002, a small-molecule immunomodulating and anti-cancer compound based on a proprietary formulation of oxidized glutathione. NOV-002 has been administered to approximately 1,000 cancer patients in clinical trials and was in Phase 2 development for solid tumors in combination with chemotherapy.

From November 2006 through January 2010, we conducted a Phase 3 trial of NOV-002 plus first-line chemotherapy in advanced non-small cell lung cancer (NSCLC) following three Phase 2 trials (two conducted in Russia and one conducted by us in the U.S.) that had demonstrated clinical activity and safety. The Phase 3 trial enrolled 903 patients, 452 of whom received NOV-002. In February 2010, we announced that the primary endpoint of improvement in overall survival compared to first-line chemotherapy alone was not met in this pivotal Phase 3 trial. Following evaluation of the detailed trial data, we announced in March 2010 that the secondary endpoints also were not met in the trial and that adding NOV-002 to paclitaxel and carboplatin chemotherapy was not statistically or meaningfully different in terms of efficacy-related endpoints or recovery from chemotherapy toxicity versus chemotherapy alone. However, NOV-002 was safe and did not add to the overall toxicity of chemotherapy. Based on the results from the Phase 3 trial, we have discontinued development of NOV-002 for NSCLC in combination with first-line paclitaxel and carboplatin chemotherapy. The aggregate costs incurred in connection with our development of NOV-002, including administrative overhead, were approximately $70 million.

Prior to the Acquisition, Novelos had also been developing NOV-205, a second oxidized glutathione-based compound. NOV-205 had been administered to approximately 200 hepatitis patients in clinical trials and was in Phase 2 development for chronic hepatitis C non-responders. An IND for NOV-205 as a monotherapy for chronic hepatitis C was accepted by the FDA in 2006. A U.S. Phase 1b clinical trial with NOV-205 in patients who previously failed treatment with pegylated interferon plus ribavirin was completed in December 2007. Based on favorable safety results of that trial, in March 2010 Novelos initiated a multi-center U.S. Phase 2 trial evaluating NOV-205 as monotherapy in up to 40 chronic hepatitis C genotype 1 patients who previously failed treatment with pegylated interferon plus ribavirin. Safety was established in twenty patients receiving either 30mg or 60mg of NOV-205 daily for 49 days; however, no viral load reduction was observed.

Further development of NOV-002 and NOV-205 has been suspended. At this time, we expect to devote our resources to the development and commercialization of the Cellectar compounds, and we do not expect to conduct any further development of the oxidized glutathione compounds. The IND for NOV-205 was withdrawn on July 5, 2011. We anticipate that the IND for NOV-002 will be placed on inactive status.

Manufacturing

We manufacture HOT at our current Good Manufacturing Practices compliant (cGMP) radiopharmaceutical manufacturing facility in Madison, Wisconsin. 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. This license establishes a possession limit of 9 Curies of iodine-131. The facility also holds a State of Wisconsin DHS Radioactive Materials License which authorizes the use and possession of radioactive materials by Cellectar 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 HOT manufacturing and other research needs. Each of these iodine isotopes is purchased from third party vendors. LIGHT manufacturing is conducted by our collaborator, the University of Wisconsin in Madison, in connection with investigator-sponsored clinical trials, pursuant to a materials transfer agreement expiring in June 2013. The materials transfer agreement contains standard provisions for the protection of data and intellectual property and may be terminated by either party at any time before expiration. We are in the process of negotiating a fee-based arrangement with the University of Wisconsin covering the manufacture of LIGHT. Under Novelos' guidance, in the fall of 2011 the LIGHT manufacturing facility at the University of Wisconsin was made compliant with stricter FDA guidelines and requirements for cGMP PET agent production that officially went into effect in June 2012. On November 2, 2012, we completed a private placement of our common stock and warrants for gross proceeds of $2,000,000. The proceeds from the private placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location. We estimate that the project will cost a total of approximately $3,000,000 and estimate that it will be completed by the end of 2013, although we have not yet entered into contractual commitments with vendors. We may seek to obtain the additional capital required to complete the project from additional sales of common stock (other than through this offering, unless we obtain gross proceeds in excess of $10,000,000), proceeds from warrant exercises, and/or from equipment financing. The drug substance is identical for both products with the exception of the different iodine isotope used in each. 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 should be feasible. We have also demonstrated 24-month stability for the drug substance in desiccated and refrigerated form. 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 capacity for any Phase 2 trials of HOT and the potential for larger scale build-out for larger Phase 3 trials. 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 (CFR part 211) and cGMP. GLOW2 is currently synthesized at a laboratory (gram) scale in our Madison facility via a non-cGMP process. This process is expected to increase in scale and cGMP compliance as part of IND-enabling studies over the coming year.

Sales and Marketing

We have not entered into any joint development or similar partnering agreements with respect to LIGHT, HOT, GLOW2 or COLD. 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 a pharmaceutical company or various pharmaceutical 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 in the future.

Competition for Our Clinical-Stage Compounds

LIGHT

FDG is the current gold standard for cancer PET imaging. According to Bio-Tech Systems (November 2010), sales of FDG in the US in 2009 were approximately $300 million and projected to grow to approximately $880 million in 2017. FDG accumulates in any tissue having increased glucose metabolism compared to surrounding tissue. As a result, and in contrast to LIGHT, FDG is not selective for malignant tumors. FDG localizes in certain normal tissue such as heart, kidney and brain tissues that also have high glucose metabolism. FDG is also known to localize in inflammatory sites. Other major limitations to the use of FDG are found in pelvic imaging due to the high renal (kidney) clearance of the compound. We believe these characteristics of FDG, therefore, decrease its diagnostic specificity for certain malignancies. FDG is no longer covered by patent and is typically manufactured onsite at PET imaging medical facilities because of its limited (110 minute) half-life.

We compared LIGHT and FDG side by side (24 hours apart) in the same tumor-bearing mouse that was also treated with carageenan to induce inflammation. As expected, FDG demonstrated significant uptake into the inflammatory lesion and organs such as heart and bladder compared to the malignant tumors, which were poorly imaged. LIGHT, on the other hand, showed no uptake into the inflammatory lesion and organs, yet clear and demonstrable uptake into the tumors.

Additionally, the radioisotopic half-life of only 110 minutes for fluorine-18 labeled agents, such as FDG, severely limits their delivery range relative to the point of manufacture. I-124 has a four-day half-life that permits worldwide distribution of LIGHT from one manufacturing location. Additionally, the longer half-life affords a longer imaging window of up to seven days following injection.

HOT

HOT's "intracellular radiation" mechanism of cancer cell killing, coupled with delivery to a wide range of malignant tumor types, imbues HOT with broad-spectrum anti-cancer activity. Selective uptake and retention has also been demonstrated in cancer stem cells compared with normal stem cells, offering a prospect of longer lasting cancer remission. Other targeted radiotherapies include the marketed drugs Zevalin® (manufactured by Spectrum Pharmaceuticals) and Bexxar® (manufactured by GlaxoSmithKline). In both cases, tumor-targeting is monoclonal antibody-based and limited to non-Hodgkins lymphoma, which is a type of cancer involving cells of the immune system. Thus, these agents are not appropriate comparators for HOT because of their limited therapeutic utility (only one type of tumor) and because their target indication is often well-managed by other drugs (unlike HOT which has potential to treat tumor types for which the current standard of care is associated with very poor outcomes). Notably, both Zevalin® and Bexxar® were approved on the basis of objective response rates (shrinking of tumors) without data to support improvement in survival, suggesting that regulatory approval of radiopharmaceuticals may be based on relatively shorter and smaller pivotal clinical trials than is often the case in oncology. We do not believe Zevalin® or Bexxar® would be competing products of HOT in any material respect. Other cancer-targeted molecular radiotherapeutic agents are in various stages of development for solid tumors. These primarily utilize monoclonal antibodies for cancer cell targeting and are, therefore, each restricted to a relatively narrow range of tumor indications compared to HOT.

Intellectual Property

We have established a broad U.S. and international intellectual property rights portfolio around our proprietary cancer-targeting phospholipid ether ("PLE") technology platform including LIGHT, HOT and GLOW2.

Our proprietary rights include patents and patent applications that are either owned by us or exclusively licensed to us by the University of Michigan (the "Michigan patents"). LIGHT and HOT 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 LIGHT, HOT, GLOW2 and other PLEs. Many of these patents and applications are filed in key commercial markets worldwide. These patents will generally expire between 2025 and 2030 unless extended.

In particular, LIGHT is covered by the Michigan patents as well as two of our U.S. patents, one of which is directed to its use for virtual colonoscopy (expiring 2025) and another of which is directed to its use for *in vitro* diagnostics (expiring 2025). LIGHT is also covered by pending U.S., Japanese and European patent applications directed to its use for *in vivo* diagnostics and once issued should expire in 2025. Lastly, the use of LIGHT for diagnostics purposes with cancer stem cells is pending in the U.S., Japan and Europe. Patents resulting from these applications are expected to expire in 2030.

HOT is covered by two additional series of our patents and applications aside from the Michigan patents. The first is directed to a method of use for cancer therapy and has also been filed in Europe and Japan, in addition to the U.S. These are expected to expire in 2025. Secondly, an application directed to cancer stem-cell therapy is pending in the U.S., Europe, Russia and Japan. Patents resulting from these applications are expected to expire in 2030. Some of these resulting patents may be extendable on a country-by-country basis.

GLOW2 is covered by patent applications directed to the compound, methods of use and method of manufacture that have been filed in U.S., Europe, Russia and Japan. Patents resulting from these applications are expected to expire in 2029. Some of these resulting patents may be extendable on a country-by-country basis.

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.).

The early termination of the University of Michigan license agreement would result in the loss of our rights to use the covered patents.

In addition to the above noted patents/applications directed to LIGHT, HOT and GLOW2, 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 and Europe related to our clinical-stage pipeline compound, NOV-002, and other preclinical compounds based on oxidized glutathione. Issued composition-of-matter patents cover proprietary formulations of oxidized glutathione that do not expire until 2019, and these patents include methods of manufacture for oxidized glutathione formulated with various metals.

Licenses / Collaborations

In September 2003, Cellectar entered into a license agreement with the University of Michigan (the U. Mich. license), which granted Cellectar exclusive rights to the development, manufacture and marketing of products under several composition of matter patents in North America that expire at varying dates in 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 New Drug Application (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, provided that 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 sublicensees for such licensed products, provided however if 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, Cellectar 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 agreement if we cease operations, if we fail to make any required payment under the agreement, or if we otherwise materially breach the 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 agreement with six months' notice to U. Mich. and the return of licensed product and related data. The U. Mich. license contained 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.

Employees

As of January 25, 2013 we had 23 full time employees. We believe our relationships with our employees are good.

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 preclinical 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:

- preclinical laboratory and animal tests performed under the FDA's Good Laboratory Practices regulations, referred to herein as GLP;
- submission to the FDA of an Investigational New Drug ("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.

Preclinical Testing

During preclinical 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. An IND must be submitted to the FDA and become effective before studies in humans may commence.

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, who 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 New Drug Application ("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 2012, the NDA review fee alone is $1,841,500, 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 Heath 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, which 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.

In recent years, there have been positive developments regarding medical reimbursement for therapeutic radiopharmaceuticals in the United States. The Centers for Medicare and Medicaid Services have proposed that the reimbursement for radiopharmaceuticals shift from a cost-to-charge ratio (CCR) to an average selling price (ASP) plus 4% model. There has been support expressed for this proposal by government agencies, key industry members and the industry consortium, The Council on Radionuclides and Radiopharmaceuticals. The historical CCR model resulted in a reimbursement rate that was lower than the cost to purchase the drugs, thus creating a disincentive for hospitals to prescribe radiopharmaceuticals. The current ASP proposal is a solution to this reimbursement problem. Furthermore, there are proposals pending, which, if adopted, would decrease the physician reimbursement for chemotherapy and conventional radiation therapy. The proposed reduction in physician reimbursement for chemotherapy could likely result in the movement of a large volume of cancer care from the physician's office to the hospital environment. The proposed reduction in physician reimbursement for radiation therapy would result in a gap in revenue for radiation oncologists. Both proposed reductions favor an increase in opportunities to prescribe therapeutic radiopharmaceuticals.

LITIGATION

A putative federal securities class action complaint was filed on March 5, 2010 in the United States District Court for the District of Massachusetts by an alleged shareholder of Novelos, on behalf of himself and all others who purchased or otherwise acquired Novelos common stock in the period between December 14, 2009 and February 24, 2010, against Novelos and its President and Chief Executive Officer, Harry S. Palmin. On October 1, 2010, the court appointed lead plaintiffs (Boris Urman and Ramona McDonald) and appointed lead plaintiffs' counsel. On October 22, 2010, an amended complaint was filed. The amended complaint claimed, among other things, that Novelos violated Section 10(b) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder in connection with alleged misleading disclosures related to the progress of the Phase 3 clinical trial of NOV-002 for non-small cell lung cancer. In December 2010, the defendants filed a motion to dismiss the complaint with prejudice. On June 23, 2011, the motion to dismiss was granted and the case was dismissed without prejudice. Because the dismissal was without prejudice, the plaintiffs could reinstitute the proceeding by filing an amended complaint. In August 2011, the plaintiffs filed a second amended complaint realleging that the defendants violated Section 10(b) of the Exchange Act and Rule 10b-5 in connection with alleged misleading disclosures related to the Phase 3 clinical trial for NOV-002 in non-small cell lung cancer. In September 2011, the defendants filed a motion to dismiss the second amended complaint. On June 11, 2012, the second amended complaint was dismissed with prejudice. The plaintiffs did not file a notice of appeal prior to the expiration of the deadline for such filing on July 13, 2012.

From its inception through 2010, Novelos was primarily engaged in the development of certain oxidized glutathione-based compounds for application as therapies for disease, particularly cancer. These compounds were originally developed in Russia and in June 2000, Novelos acquired commercial rights from the Russian company ("ZAO BAM") which owned the compounds and related Russian patents. In April 2005, Novelos acquired worldwide rights to the compounds (except for the Russian Federation) in connection with undertaking extensive development activities in an attempt to secure US Food and Drug Administration ("FDA") approval of the compounds as therapies. These development activities culminated in early 2010 in an unsuccessful Phase 3 clinical trial of an oxidized glutathione compound (NOV-002) as a therapy for non-small cell lung cancer. After the disclosure of the negative outcome of the Phase 3 clinical trial in 2010, ZAO BAM claimed that Novelos modified the chemical composition of NOV-002 without prior notice to or approval from ZAO BAM, constituting a material breach of the June 2000 technology and assignment agreement. In September 2010, Novelos filed a complaint in Massachusetts Superior Court seeking a declaratory judgment by the court that the June 2000 agreement has been entirely superseded by the April 2005 agreement and that the obligations of the June 2000 agreement have been performed and fully satisfied. ZAO BAM answered the complaint and alleged counterclaims. In August 2011, Novelos filed a motion for judgment on the pleadings as to the declaratory judgment count and all counts of ZAO BAM's amended counterclaims. On October 17, 2011, the court ruled in favor of Novelos on each of the declaratory judgment claims and dismissed all counts of ZAO BAM's counterclaim. Judgment in favor of Novelos was entered on October 20, 2011. On November 14, 2011 ZAO BAM filed a notice of appeal.

We do not anticipate that these litigation contingencies will have a material adverse effect on the Company's future financial position, results of operations or cash flows.

PROPERTIES

We lease our executive office in Newton, Massachusetts. Our office consists of approximately 2,000 square feet and is rented for approximately $5,300 per month. This lease may be terminated by either party with one month's notice.

We lease office, laboratory and manufacturing space in Madison, Wisconsin. The space consists of approximately 19,500 square feet and is rented for approximately $12,900 per month and expires on September 14, 2014. The lease may be renewed for two-year periods through 2024 with an increase of 3% in annual rent. We are planning to undertake the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at our Madison, WI location that we anticipate will take approximately one year to complete and will commence in late 2012.

We believe that our present facilities are adequate to meet our current needs. If new or additional space is required, we believe that adequate facilities are available at competitive prices.

MANAGEMENT

As of January 25, 2013 our directors[1] and executive officers are:

Name	Age	Position
Stephen A. Hill, B.M. B.Ch., M.A., F.R.C.S. (2)	54	Chairman of the Board and Director (Class II)
Harry S. Palmin	42	President, Chief Executive Officer and Director (Class III)
J. Patrick Genn	56	Vice President of Investor Relations
Kimberly A. Hawkins	40	Vice President of Clinical Development
Christopher J. Pazoles, Ph.D.	62	Senior Vice President of Research and Development
Joanne M. Protano	44	Vice President, Chief Financial Officer and Treasurer
Jamey P. Weichert, Ph.D.	57	Chief Scientific Officer and Director (Class III)
Thomas Rockwell Mackie, Ph.D. (3)	58	Director (Class I)
James S. Manuso, Ph.D. (3)(2)	63	Director (Class I)
John Neis (4)(3)	57	Director (Class II)
John E. Niederhuber, M.D. (4)(2)	74	Director (Class I)
Howard M. Schneider (4)	69	Director (Class III)
Michael F. Tweedle, Ph.D. (3)	62	Director (Class II)

(1) Our certificate of incorporation provides for the division of the Board into three classes, Class I, Class II and Class III, as nearly equal in size as possible with staggered three-year terms. At each annual meeting of our stockholders, the terms of one such class expires. Terms of the Class II directors are to expire at our next annual meeting, or such later time at which their respective successors are duly elected and qualified.
(2) Member of the nominating and corporate governance committee.
(3) Member of the compensation committee.
(4) Member of the audit committee.

Our executive officers are appointed by, and serve at the discretion of, our board of directors.

Stephen A. Hill. Dr. Hill was elected the chairman of the board of directors of Novelos in September 2007. Dr Hill was appointed the President and CEO of Targacept Inc. in November 2012, effective December 1, 2012. 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 chairman of the board of directors of Audeo Oncology, Inc. since June 2012. 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’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.

Harry S. Palmin. Mr. Palmin has served as president and a director of Novelos since 1998 and as its chief executive officer since January 2005. From 1998 to September 2005, he served as our acting chief financial officer. From 1996 to 1998, he was a vice president at Lehman Brothers and from 1993 to 1996, he was an associate at Morgan Stanley. Mr. Palmin earned a B.A. in economics and business and a M.A. in international economics and finance from the International Business School at Brandeis University. He has also studied at the London School of Economics and the Copenhagen Business School. Mr. Palmin’s experience managing the funding and development of our product candidates for 14 years and his knowledge of capital markets are strong qualifications to serve on the Board.

J. Patrick Genn. Mr. Genn was appointed our vice president of investor relations in December 2011. He has 28 years of senior management experience in finance, banking and investment management. Mr. Genn was previously President of Continuum Investment Holdings, Inc. from 2006 through mid-2010 while serving on the board of directors of several biotech and technology companies including Cellectar, Inc. From 2001 through 2005, he was an advisor and consultant to several companies including Carmel Valley Ventures and Continuum Investment Partners. Mr. Genn held several senior management positions at Wells Fargo between 1987 and 2001. He was a member of the senior management team that launched its mortgage lending division in 1987 and its premier banking division in 1993. He was also a member of the core mergers and acquisitions integration team and managed private client services in San Diego, CA. Mr. Genn received a B.B.A. in Marketing and a M.S. in Product Management from the University of Wisconsin-Madison.

Kimberly A. Hawkins. Ms. Hawkins has served as our vice president of clinical development since November 2010 and, prior to that, as our director of clinical development beginning in May 2006. She has worked for 18 years in the biopharmaceutical industry managing and overseeing clinical operations for multiple global Phase 1, 2 and 3 clinical studies. From 2001 to 2006, Ms. Hawkins was a senior manager in clinical development at Antigenics, Inc., a cancer biotechnology company where she managed multiple Phase 1 and 2 studies. From 1994 to 2001 she was employed by Genzyme Corporation, Center for Clinical Research Practice, where she held the positions of clinical research associate, trainer of good clinical practice and study coordinator. From 1993 to 1994 she held the position of clinical research coordinator at Boston Medical Center. Ms. Hawkins has a B.S. degree in Human Physiology from Boston University and a Master's Degree in Public Health from Boston University School of Public Health.

Christopher J. Pazoles. Dr. Pazoles has served as our vice president of research and development since July 2005. He has 30 years of biopharmaceutical research and development and senior management experience. From May 2004 to June 2005, he held a senior research and development position at the Abbott Bioresearch Center, a division of Abbott Laboratories. From October 2002 to January 2004, he served as chief operating officer and head of research and development at ALS Therapy Development Foundation. From 1994 to October 2002, Dr. Pazoles served as vice president of research for Phytera, Inc. From 1981 to 1994, he served as a researcher and senior manager with Pfizer. Dr. Pazoles holds a Ph.D. in microbiology from the University of Notre Dame.

Joanne M. Protano. Ms. Protano was appointed our vice president, chief financial and accounting officer, and treasurer in December 2007. She has 20 years of finance and senior management experience. She previously held the position of Senior Director of Finance and Controller of Novelos from June 2006 to December 2007. From 1996 to 2006, she held various management and senior management positions with Ascential Software, Inc. and predecessor companies including Assistant Controller, Reporting for Ascential Software, Vice President and Chief Financial Officer for the Ascential Software Division of Informix Software, Inc. and Corporate Controller of Ardent Software, Inc. Prior to her tenure in the technology industry, from 1990 to 1996 she was employed by Deloitte and Touche LLP as an audit manager, serving technology and healthcare clients. Ms. Protano received a B.S. in business administration from Bryant College.

Jamey P. Weichert. Dr. Weichert was the primary founder of Cellectar and served as Cellectar's Chairman and Chief Scientific Officer beginning in 2002. He was appointed as the Chief Scientific Officer and a director of Novelos at the time of the Acquisition. Dr. Weichert is an Associate Professor of the Departments of Radiology, Medical Physics, Pharmaceutics and member of the Comprehensive Cancer Center at the University of Wisconsin, Madison. He has a bachelor's degree in chemistry from the University of Minnesota and a doctorate in medicinal chemistry from U. Mich. His research interests include the design, synthesis and evaluation of biomimetic CT and MRI imaging agents and diapeutic radiopharmaceuticals. He has been involved in molecularly targeted imaging agent development his entire professional career and has developed or co-developed several imaging agents nearing clinical trial status. Dr. Weichert serves or has served on the editorial boards of numerous scientific journals and has authored more than 40 peer reviewed publications and 150 abstracts. He also has 20 issued or pending patents related to drug delivery, imaging and contrast agent development. Dr. Weichert's experience founding and managing the development of our Cellectar product candidates and his knowledge of radiation technology are strong qualifications to serve on the Board.

Thomas Rockwell Mackie. Dr. Mackie became a director of Novelos at the time of Novelos's 2011 business combination with Cellectar, Inc. (the "Acquisition"). He had served as a director of Cellectar since December 2006. In 1997, he co-founded TomoTherapy Incorporated, a maker of advanced radiation therapy solutions for the treatment of cancer and other diseases and served as Chairman of its board of directors from 1999 until its acquisition by Accuray Incorporated in June 2011. Dr. Mackie also served as President of TomoTherapy Inc. from 1997 until 1999 and as Treasurer from 1997 until 2000. From 2010 to the present, he has served as the Director, Medical Device Focus Area of the Morgridge Institute for Research at the University of Wisconsin, Madison and, since 1987, Dr. Mackie has been a professor in the departments of Medical Physics and Human Oncology at the University of Wisconsin, where he established the TomoTherapy research program. Dr. Mackie also co-founded Geometrics Corporation (now merged with ADAC Corp.), which developed a radiotherapy treatment planning system. Dr. Mackie currently serves as a director of Shine Medical Technologies and Bioionix Inc. and served on the management committee of Wisconsin Investment Partners from 2006 to 2009. Dr. Mackie has a B.Sc. in Physics from the University of Saskatchewan and a Ph.D. in Physics from the University of Alberta in Edmonton. Dr. Mackie's qualifications to serve on the Board include his extensive senior management experience with radiation technology companies.

James S. Manuso. Dr. Manuso has served as a director of Novelos since August 2007. Since January 2005, Dr. Manuso has served as Chairman and Chief Executive Officer of SuperGen, Inc. (now renamed Astex Pharmaceuticals, Inc.), served as President of SuperGen from January 2005 through July 2011 and has served as a director of SuperGen since February 2001. Dr. Manuso is co-founder and former president and chief executive officer of Galenica Pharmaceuticals, Inc. Dr. Manuso co-founded and, from 1998 to 2002, was general partner of PrimeTech Partners, a biotechnology venture management partnership, and Managing General Partner of The Channel Group LLC, an international life sciences corporate advisory firm. He was also president of Manuso, Alexander & Associates, Inc., management consultants and financial advisors to pharmaceutical and biotechnology companies. Dr. Manuso was a vice president and Director of Health Care Planning and Development for The Equitable Companies (now Group Axa), where he also served as Acting Medical Director. He currently serves on the board of directors of the Biotechnology Industry Organization (BIO) and its Health Section Governing Board and serves on the board of privately-held KineMed, Inc. He previously served on the boards of Merrion Pharmaceuticals Ltd. (Dublin, Ireland), Inflazyme Pharmaceuticals, Inc. (Vancouver, Canada), Symbiontics, Inc., (ZyStor, Inc., sold to BioMarin), Quark Biotech, Inc., Galenica Pharmaceuticals, Inc., Supratek Pharma, Inc., and EuroGen, Ltd. (London, UK). Dr. Manuso earned a B.A. in economics and chemistry from New York University, a Ph.D. in experimental psychophysiology from the Graduate Faculty of The New School University, a certificate in health systems management from Harvard Business School, and an executive M.B.A. from Columbia Business School. Dr. Manuso's experience founding, leading and serving as a director for pharmaceutical companies makes him a highly qualified member of the Board.

John Neis. Mr. Neis became a director of Novelos at the time of the Acquisition. He had served as director of Cellectar 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 23 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 Energy Systems, Deltanoid Pharmaceuticals, Inviragen, Inc. and Mithridion, 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 he also serves on the advisory boards for 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' extensive experience leading emerging companies makes him a highly qualified member of the Board.

John E. Niederhuber. Dr. Niederhuber became a director of Novelos at the time of the Acquisition. From August 2010 to the present, Dr. Niederhuber has served as executive vice president of Inova Health System and chief executive officer of the Inova Translational Medicine Institute. Since July 2011, he has been an adjunct Professor of Oncology at the Johns Hopkins University School of Medicine and Deputy Director of The Johns Hopkins Clinical Research Network. Since August 2010, Dr. Niederhuber has served as a Director on the Emergent Biosolutions Board. Dr. Niederhuber served as Director of the National Cancer Institute (NCI) from 2005 to 2010. He has also served as NCI's Chief Operating Officer and Deputy Director for Translational and Clinical Sciences. Dr. Niederhuber served as Chair of the National Cancer Advisory Board (NCAB) from 2002 to 2004. In addition to his management and advisory roles, Dr. Niederhuber has remained involved in research, through his laboratory on the National Institutes of Health (NIH) campus. Under his leadership, the Tumor and Stem Cell Biology Section, which is a part of the Cell and Cancer Biology Branch of NCI's Center for Cancer Research, is studying tissue stem cells as the cell-of-origin for cancer. Dr. Niederhuber also holds a clinical appointment on the NIH Clinical Center Medical Staff. As a surgeon, Dr. Niederhuber's clinical emphasis is on gastrointestinal cancer, hepatobiliary (liver, bile duct, and gall bladder) cancer, and breast cancer. He is recognized for his pioneering work in hepatic artery infusion chemotherapy and was the first to demonstrate the feasibility of totally implantable vascular access devices. Dr. Niederhuber is a graduate of Bethany College in West Virginia and the Ohio State University School of Medicine. He was an NIH Academic Trainee in Surgery at the University of Michigan from 1969 to 1970 and was a Visiting Fellow in the Division of Immunology at The Karolinska Institute in Stockholm, Sweden from 1970 to 1971. He completed his training in surgery at the University of Michigan in 1973 and was a member of the faculty of the University of Michigan from 1973 to 1987, being promoted to Professor of Microbiology/Immunology and Professor of Surgery in 1980. During 1986 and 1987, he was Visiting Professor in the Department of Molecular Biology and Genetics at The Johns Hopkins University School of Medicine in Baltimore, MD. Dr. Niederhuber's qualifications to serve on the Board include his extensive experience with cancer research.

Howard M. Schneider . Mr. Schneider has served as a director of Novelos since February 2005. Mr. Schneider is currently retired. From January to December 2003, he served as chief executive officer of Metrosoft, Inc., and had been an advisor to such company from July to December 2002. From May 2000 to May 2001, he served as president of Wofex Brokerage, Inc. and from 1965 to 1999, he served as an executive at Bankers Trust Company holding a variety of positions in the commercial banking and investment banking businesses. Mr. Schneider received a B.A. in economics from Harvard College and a M.B.A. from New York University. Mr. Schneider's extensive senior management experience in the financial sector makes him a highly qualified member of our board of directors.

Michael F. Tweedle. Dr. Tweedle became a director of Novelos at the time of the Acquisition. Since May 2009 he has served as Professor and Stefanie Spielman Chair in Cancer Imaging in Radiology and the James Comprehensive Cancer Center of Ohio State University, Director of the Wright Center Molecular Imaging (MI) Agents Laboratory of Ohio State University, and since May 2010, has had an adjunct appointment in the Chemistry Department of Ohio State University. Prior to joining Ohio State University, his academic appointments included Adjunct Associate Professor at University of Pennsylvania and the Science Advisory Board of New York University. Dr. Tweedle was the President of Bracco Research USA Inc. from 1995 to 2009 where he was the lead scientist and chief executive for creation of new molecular imaging pharmaceuticals. His industrial experience in drug discovery research also includes appointments at the Diagnostics Drug Discovery Division at Bristol-Myers Squibb, New England Nuclear, NEN/DuPont Pharmaceuticals, and The Squibb Institute for Medical Research. He has invented and led translational development of diagnostic imaging pharmaceuticals for nuclear medicine, one of the first gadolinium-based MRI agents (ProHance TM), X ray, Optical and US agents, and a radiotheranostic. In 2005 he won the Harry Fisher Medal. Dr. Tweedle holds a B.A from Knox College and a Ph.D. from Rice University and was a Stanford University NRS Fellow. Dr. Tweedle's qualifications to serve on the Board of directors include his extensive experience with radiation and cancer research and drug discovery.

Code of Ethics

The board of directors has adopted a Code of Ethics applicable to all of our directors, officers and employees, including our principal executive officer, principal financial officer and principal accounting officer. A copy of the Code of Ethics is available at our website www.novelos.com.

Compensation of Directors and Executive Officers

Summary Compensation: The following table sets forth certain information about the compensation we paid or accrued with respect to our principal executive officer and our two most highly compensated executive officers (other than our chief executive officer) who served as executive officers during the year ended December 31, 2012 and whose annual compensation exceeded $100,000 for that year.

Other annual compensation in the form of perquisites and other personal benefits has been omitted as the aggregate amount of those perquisites and other personal benefits was less than $10,000 for each person listed.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Option Awards ($) (1)	All other compensation ($)	Total ($)
Harry S. Palmin (2)(3)	2012	$ 275,400	$ 0	$ 209,069	$ 0	$ 484,469
President, Chief Executive Officer	2011	$ 270,000	$ 0	$ 917,570	$ 0	$ 1,187,570
Christopher J. Pazoles (2)	2012	$ 255,000	$ 0	$ 77,163	$ 0	$ 332,163
Senior Vice President of Research and Development	2011	$ 246,250	$ 0	$ 271,470	$ 0	$ 517,720
J. Patrick Genn (2)(4)	2012	$ 195,840	$ 0	$ 92,595	$ 0	$ 288,435
Vice President, Investor Relations	2011	$ 128,000	$ 0	$ 203,603	$ 12,555	$ 344,158

(1) The amounts shown in this column represent the aggregate grant date fair value of each stock award, without regard to the portion of the award that vested during the respective year and was estimated on the grant date using the Black-Scholes option-pricing model and the following ranges of assumptions: volatility ranging from 109% -115%; risk-free interest rates ranging from 0.915% – 2.175%; expected life of 6 - 6.25 years and a dividend yield of 0% .

(2) Effective January 1, 2013, Mr. Palmin's annual salary was increased to $300,000, Dr. Pazoles' annual salary was increased to $265,200 and Mr. Genn's salary was increased to $203,674.

(3) The aggregate grant-date fair value for option awards granted to Mr. Palmin during 2011 excludes $772,305 related to performance-based awards because the awards were forfeited during 2012 when the milestones were not met. The aggregate grant-date fair value of option awards granted to Mr. Palmin during 2012 excludes $98,456 related to performance-based awards because it is not yet probable that the awards will vest.

(4) Other compensation paid to Mr. Genn during 2011 represents consulting fees paid for investor relations services prior to his employment with the Company, which commenced in May 2011.

Employment Agreements

On January 31, 2006, we entered into an employment agreement with Harry Palmin effective January 1, 2006, whereby he agreed to serve as our president and chief executive officer for an initial term of two years at an annual salary of $225,000. The agreement is automatically renewed for successive one-year terms unless notice of termination is provided by either party at least 90 days prior to the end of such term. The agreement was renewed for an additional one-year term on January 1, 2011 in accordance with its terms. On December 17, 2007, the Board of Directors approved an increase in Mr. Palmin's annual salary to $270,000 effective January 1, 2008. He is eligible to receive an annual cash bonus at the discretion of the compensation committee and he is entitled to participate in our employee fringe benefit plans or programs generally available to our senior executives. The agreement provides that in the event that we terminate Mr. Palmin without cause (as defined below) or he resigns for good reason (as defined below), we will (i) pay Mr. Palmin his pro rata share of the average of his annual bonus paid during the two fiscal years preceding his termination; (ii) pay Mr. Palmin his base salary for 11 months after the date of termination; (iii) continue to provide him benefits for 11 months after the date of termination; and (iv) fifty percent of his unvested stock options will vest. The agreement provides for the vesting of unvested options upon a Change of Control, defined as the sale of all or substantially all of the assets or issued and outstanding capital stock of the Company, (ii) merger or consolidation involving the Company in which stockholders of the Company immediately before such merger or consolidation do not own immediately after such merger or consolidation capital stock or other equity interests of the surviving corporation or entity representing more than fifty percent (50%) in voting power of capital stock or other equity interests of such surviving corporation or entity outstanding immediately after such merger or consolidation, or (iii) a change, without the approval of the board of directors, in the composition of the board of directors such that directors who were serving as of the date of the agreement cease to constitute a majority of the board of directors. The agreement also contains a non-compete provision, which prohibits Mr. Palmin from competing with us for one year after termination of his employment with us.

"Cause" means (i) gross neglect of duties for which employed; (ii) committing fraud, misappropriation or embezzlement in the performance of duties as our employee; (iii) conviction or guilty or nolo plea of a felony or misdemeanor involving moral turpitude; or (iv) willfully engaging in conduct materially injurious to us or violating a covenant contained in the employment agreement.

"Good Reason" means (i) the failure of our board of directors to elect Mr. Palmin to the offices of president and chief executive officer; (ii) the failure by our stockholders to continue to elect Mr. Palmin to our board of directors; (iii) our failure to pay Mr. Palmin the compensation provided for in the employment agreement, except for across-the-board cuts applicable to all of our officers on an equal percentage basis, provided that such reduction is approved by our board of directors; (iv) relocation of Mr. Palmin's principal place of employment to a location beyond 50 miles of Newton, Massachusetts; (v) a reduction of base salary or material reduction in other benefits or any material change by us to Mr. Palmin's function, duties, authority, or responsibilities, which change would cause Mr. Palmin's position with us to become one of lesser responsibility, importance, or scope; and (vi) our material breach of any of the other provisions of the employment agreement.

On June 1, 2011, the employment agreement between the Company and Harry Palmin dated January 31, 2006 was amended to remove the obligation of the Company to continue to pay Mr. Palmin's salary and benefits for a period of 11 months following termination by the Company without Cause or termination by Mr. Palmin with Good Reason. The Company may elect that the obligation of Mr. Palmin not to compete with the Company survive for a period of one year from his termination, provided however that Mr. Palmin would continue to receive his base salary during that one-year noncompetition period.

We had entered into retention agreements with each of our four vice presidents. The agreements provided for the lump-sum payment of six months' base salary and benefits to each such officer following a termination without cause or a resignation with good reason occurring on or before November 14, 2011. Certain of the agreements provided that if the executives were employed by us as of October 1, 2010, they would receive a payment of two months' base salary as a retention bonus on that date. The retention bonus was paid in October 2010 and would have been deducted from the severance amounts that became payable upon a subsequent involuntary termination. The retention agreements expired in November 2011.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth certain information regarding stock options held as of December 31, 2012 by the executive officers named in the summary compensation table. There were no option grants during 2010.

	Individual Grants				
Name	Year of Grant	Number of securities underlying unexercised options (# exercisable)	Number of securities underlying unexercised options (# unexercisable)	Exercise or base price ($/share)	Expiration date
Harry S. Palmin	2012(1)	—	335,100	$ 0.75	12/14/2022
	2012(2)	—	167,550	0.75	12/14/2022
	2011(1)	83,775	251,325	0.45	12/16/2021
	2011(1)	171,325	418,875	1.40	5/18/2021
	2009(3)	1,633	—	114.75	12/8/2019
	2008(4)	2,614	—	65.79	12/15/2018
	2007(4)	1,307	—	69.00	12/17/2017
	2006(4)	980	—	139.23	12/11/2016
	2005(5)	1,633	—	1.53	1/31/2015
	2005(5)	980	—	1.53	3/31/2015
	2004(6)	2,156	—	1.53	4/1/2014
	2003(7)	46	—	107.10	8/1/2013
Christopher J. Pazoles	2012(3)	—	125,000	$ 0.75	12/14/2022
	2011(3)	33,333	66,667	0.45	12/16/2021
	2011(3)	99,999	100,001	1.40	5/18/2021
	2009(3)	1,307	—	114.75	12/8/2019
	2008(4)	1,307	—	65.79	12/15/2018
	2007(4)	816	—	69.00	12/17/2017
	2006(4)	653	—	139.23	12/11/2016
	2005(8)	654	—	1.53	4/8/2015
J. Patrick Genn	2012(3)	—	150,000	$ 0.75	12/14/2022
	2011(3)	24,999	50,001	0.45	12/16/2021
	2011(3)	74,999	75,001	1.40	5/18/2021

(1) These shares vest quarterly in increments of one-sixteenth over four years from the date of grant. The exercise price equals the closing price on the date of grant.

(2) These shares vest based on the achievement of specified milestones.

(3) These shares vest quarterly in increments of one-twelfth over three years from the date of grant. The exercise price equals the closing price on the date of grant.

(4) These shares vest annually in increments of one-third over three years from the date of grant. The exercise price equals the closing price on the date of grant.

(5) These shares initially vested over a two-year period. Pursuant to their terms, the shares fully vested upon the completion of a non-bridge loan financing, which occurred in the second quarter of 2005. The exercise price equals the fair market value of our common stock on the date of grant as determined by our board of directors.

(6) These shares initially vested one-third upon grant and one-third annually over the following two years. Pursuant to their terms, one additional year of vesting occurred upon the completion of a non-bridge loan financing, which occurred in the second quarter of 2005. The exercise price equals the fair market value of our common stock on the date of grant as determined by our board of directors.

(7) These shares vest annually in increments of one-third over three years from the date of grant. The exercise price equals the fair market value of our common stock on the date of grant as determined by our board of directors.

(8) These shares vested in increments of one-fourth every six months over two years from the date of grant. The exercise price equals the fair market value of our common stock on the date of grant as determined by our board of directors.

Options granted pursuant to the 2006 Stock Incentive Plan will become fully vested upon a termination event within one year following a change in control, as defined. A termination event is defined as either termination of employment other than for cause or constructive termination resulting from a significant reduction in either the nature or scope of duties and responsibilities, a reduction in compensation or a required relocation.

Director Compensation

Summary Compensation: The following table sets forth certain information about the compensation we paid or accrued with respect to our directors who served during the year ended December 31, 2012.

Name and Principal Position	Year	Director Fees ($) (2)	Option Awards ($) (3)	All other compensation ($)	Total ($)
Stephen A. Hill, Chairman (1)	2012	$ 46,750	$ 45,773	$ —	$ 92,523
T. Rockwell Mackie (1)	2012	30,250	30,515	—	60,765
James S. Manuso, Director (1)	2012	26,750	30,515	—	57,265
John Neis, Director (1)	2012	28,250	30,515	—	58,765
John E. Niederhuber, Director (1)	2012	28,250	30,515	—	58,765
Howard M. Schneider, Director (1)	2012	37,500	30,515	—	68,015
Michael F. Tweedle, Director (1)	2012	25,250	30,515	—	55,765

(1) As of December 31, 2012, outstanding options to purchase common stock held by directors were as follows: Dr. Hill 302,285; Dr. Mackie 200,000; Dr. Manuso 201,958; Mr. Neis 200,000; Dr. Niederhuber 200,000; Mr. Schneider 201,629; Dr. Tweedle 200,000.

(2) Director fees include all fees earned for director services including quarterly fees, meeting fees and committee chairman fees.

(3) The amounts shown in this column represent the aggregate grant-date fair value of the stock awards during the year , without regard to the portion of the award that vested during the respective year and was estimated using the Black-Scholes option-pricing model and the following assumptions: volatility of 109% ; a risk-free interest rate of 0.915%; expected life of 5.75 years and a dividend yield of 0%.

During 2012, we paid our non-employee directors a cash fee of $5,000 per quarter. The non-employee directors also received a fee of $1,500 for any board or committee meeting attended and $750 for each telephonic board or committee meeting in which the director participated. We also paid our chairman an additional annual fee in the amount of $15,000, our non-employee director who serves as the chair of the audit committee an additional annual fee of $10,000 and our non-employee directors who served as the chairman of the compensation and the nominating and corporate governance committees an additional annual fee of $5,000. We reimbursed directors for reasonable out-of-pocket expenses incurred in attending board and committee meetings and undertaking certain matters on our behalf. Directors who are our employees do not receive separate fees for their services as directors. There has been no change to cash fees payable to non-employee directors for 2013.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

At the close of business on January 25, 2013, there were 46,397,997 shares of our common stock outstanding. The following table provides information regarding beneficial ownership of our common stock as of January 25, 2013:

- 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 Novelos Therapeutics, Inc., One Gateway Center, Suite 504, Newton, Massachusetts 02458. 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 January 25, 2013.

Name and Address of Beneficial Owner	Outstanding	Right to Acquire	Total	Percentage
Venture Investors LLC (1) University Technology Park 505 S. Rosa Road; Suite 201 Madison, Wisconsin 53719	6,174,308	3,495,000	9,669,308	19.4
CLS Capital Holdings Limited (2) Bordeaux Court, Les Echelons St. Peter Port, Guernsey, GY13DR Channel Islands	3,819,201	3,583,334	7,402,535	14.8
Greenway Properties Inc. (3) 725 Heartland Trail, Suite 102 Madison, Wisconsin 53707	3,300,000	1,900,000	5,200,000	10.8
Jamey P. Weichert (4) c/o Novelos Therapeutics, Inc. 3301 Agriculture Drive Madison, Wisconsin 53716	4,706,730	118,082	4,824,812	10.4
Fidelity Management and Research Co. (5) 82 Devonshire Street Boston, Massachusetts 02109	2,500,000	2,500,000	5,000,000	10.2
Renova Industries Ltd. (6) 2nd Terrace West Centreville; P.O. Box N-7755 Nassau, Bahamas	2,000,000	3,000,000	5,000,000	10.1
Sabby Management, LLC (7) 10 Mountainview Road, Suite 205 Upper Saddle River, NJ 07458	2,500,000	1,250,000	3,750,000	7.9
Harry S. Palmin	3,576	350,222	353,798	*
Christopher J. Pazoles	-	173,485	173,485	*
J. Patrick Genn	70,653	172,914	243,567	*
Stephen A. Hill	-	189,785	189,785	*
Thomas Rockwell Mackie	116,121	125,000	241,121	*
James S. Manuso	-	126,958	126,958	*
John Neis (1) (2)	6,174,308	3,495,000	9,669,308	19.4
John E. Niederhuber	-	125,000	125,000	*
Howard M. Schneider	653	126,629	127,282	*
Michael F. Tweedle	-	125,000	125,000	*
All directors and officers as a group (13 persons)	11,072,041	5,388,082	16,460,123	31.8

(1) Ownership 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 six 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 the following warrants held by Venture Investors Early Stage Fund IV Limited: warrants to purchase 2,000,000 shares common stock at $0.75 per share, expiring on March 31, 2016, warrants to purchase 1,100,000 shares of common stock at $0.60 per share expiring on December 6, 2016 and warrants to purchase 270,000 shares of common stock at $1.25 per share expiring on June 13, 2017. Shares in the "Right to Acquire" column also include options to purchase 125,000 shares of common stock at exercise prices ranging from $0.45 to $1.40 per share, issued to Mr. Neis.

(2) Shares in the "Right to Acquire" column consist of warrants to purchase 3,333,334 shares of common stock at $0.60 per share expiring on December 6, 2016 and warrants to purchase 250,000 shares of common stock at $1.25 per share expiring on June 13, 2017. Interlock Director Ltd. has sole dispositive and voting power over shares held by CLS Capital Holdings Limited. Interlock Director Ltd. exercises such power through Michael Kupenga and a combination of two directors of Virtus Directors Limited. The Virtus directors consist of the following individuals: David Allison, Roderick Arthur, Nicholas Moss, Trevor Pinchemain, Stephen Kirk, Grada Hek, Martin LePage, Lesley Pinchemain, Cerisse Fisher, Pierre Renier and Jonathan Seymour.

(3) Shares in the "Outstanding" column include shares held by Jeffery Straubel. Jeffrey 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 warrants to purchase 1,000,000 shares common stock at $0.75 per share, expiring on March 31, 2016, warrants to purchase 600,000 shares of common stock at $0.60 per share expiring on December 6, 2016 and warrants to purchase 300,000 shares of common stock at $1.25 per share expiring on June 13, 2017.

(4) Dr. Weichert serves as a director and our Chief Scientific Officer. The shares beneficially owned by him have been included in the total of directors and officers as a group.

(5) Consists of shares held by Fidelity Select Portfolios: Biotechnology Portfolio and Fidelity Advisor Series VII: Fidelity Advisor. Dispositive and voting power for the shares is held by the Fidelity Funds Board of Trustees. Shares in the "Right to Acquire" column consist of warrants to purchase shares of common stock at $0.60 per share expiring on December 6, 2016.

(6) Dispositive and voting power for the shares is held by a majority vote of the board of directors of Renova Industries, Ltd. consisting of Carl Stadelhofer, Marco Montanari, and Oliver Chaponnier. Shares in the "Right to Acquire" column consist of warrants to purchase 2,000,000 shares of common stock at $1.00 per share expiring on January 31, 2013 and warrants to purchase 1,000,000 shares of common stock at $1.25 per share expiring on November 2, 2017.

(7) Consists of shares held by Sabby Healthcare Volatility Master Fund. Ltd. and Sabby Volatility Warrant Master Fund, Ltd. Shares in the "Right to Acquire" column include warrants to purchase shares of common stock at $1.25 per share expiring on June 13, 2017. The warrants beneficially owned by Sabby Management LLC 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 9.99% of our outstanding common stock, provided, however that this limitation may be revoked by the stockholder upon 61 days prior notice to us. No warrants to purchase common stock have been omitted from this table as a result of these provisions since the beneficial ownership does not exceed the specified limitation.

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 for referral 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 19% of our common stock.

Jamey Weichert, our Chief Scientific Officer and principal founder of Cellectar, and a director and shareholder of the Company, is a faculty member at the University of Wisconsin-Madison (U. Wisc.). During the year ended December 31, 2011, we made contributions totaling $206,500 to U. Wisc. for use towards unrestricted research activities. During the nine months ended September 30, 2012, we made contributions to UW totaling $206,500 for use towards unrestricted research activities and paid UW $144,044 for costs associated with clinical trial agreements. The Company made contributions to the UW of $125,000 during the nine months ended September 30, 2011.

Legacy Compounds – Transactions and Litigation

From its inception through 2010, Novelos was primarily engaged in the development of certain oxidized glutathione-based compounds for application as therapies for disease, particularly cancer. These compounds were originally developed in Russia. In June 2000, Novelos acquired commercial rights from the Russian company ("ZAO BAM") which owned the compounds and related Russian patents. In April 2005, Novelos acquired worldwide rights to the compounds (except for the Russian Federation) in connection with undertaking extensive development activities in an attempt to secure US Food and Drug Administration ("FDA") approval of the compounds as therapies. These development activities culminated in early 2010 in an unsuccessful Phase 3 clinical trial of an oxidized glutathione compound (NOV-002) as a therapy for non-small cell lung cancer. The principal equity owner of ZAO BAM, Mark Balazovsky, was a founder of Novelos and served as a director until November 2006. Pursuant to the April 2005 royalty and technology transfer agreement, Novelos is required to pay ZAO BAM royalties equal to 1.2% of net sales of oxidized glutathione products and $2,000,000 for each new oxidized glutathione drug following FDA approval of such drug. In the absence of royalty payments, Novelos is required to pay ZAO BAM 3% of all license revenues plus 9% of the amount by which Novelos' license revenues exceed its total expenses. In 2008, Novelos paid $15,000 to ZAO BAM representing 3% of payment under a foreign license agreement. Novelos is also obligated to pay Oxford Group, Ltd., or its assignees, a royalty in the amount of 0.8% of our net sales of oxidized glutathione-based products. Simyon Palmin, a founder of Novelos, a director until August 15, 2008 and the father of Harry Palmin, is president of Oxford Group. At this time, Novelos does not expect to devote any substantial resources to the further development of its oxidized glutathione compounds.

After the disclosure of the negative outcome of the Phase 3 clinical trial in 2010, ZAO BAM claimed that Novelos modified the chemical composition of NOV-002 without prior notice to or approval from ZAO BAM, constituting a material breach of the June 2000 technology and assignment agreement. In September 2010, Novelos filed a complaint in Massachusetts Superior Court seeking a declaratory judgment by the court that the June 2000 agreement has been entirely superseded by the April 2005 agreement and that the obligations of the June 2000 agreement have been performed and fully satisfied. ZAO BAM answered the complaint and alleged counterclaims. In August 2011, Novelos filed a motion for judgment on the pleadings as to the declaratory judgment count and all counts of ZAO BAM's amended counterclaims. On October 17, 2011, the court ruled in favor of Novelos on each of the declaratory judgment claims and dismissed all counts of ZAO BAM's counterclaim. Judgment in favor of Novelos was entered on October 20, 2011. On November 14, 2011 ZAO BAM filed a notice of appeal.

Director Independence

Each member of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee and seven of our nine directors meet the independence requirements of the Nasdaq Stock Market for membership on the committees on which he serves. The board of directors considered the information included in transactions with related parties as outlined above along with other information the board considered relevant, when considering the independence of each director. Harry S. Palmin and Jamey P. Weichert are not independent directors.

PLAN OF DISTRIBUTION

We are offering units consisting of up to 18,000,000 shares of common stock, Class A Warrants to purchase an additional 9,000,000 shares of common stock and Class B Warrants to purchase an additional 18,000,000 shares of common stock for $ per unit, each unit consisting of one share of common stock, a Class A Warrant to purchase one-half a share of common stock and a Class B Warrant to purchase one share of common stock for $ per unit, with aggregate gross proceeds of up to $. However, there is no minimum offering amount required as a condition to closing and we may sell significantly fewer units in the offering. The offering will terminate on , unless the offering is fully subscribed before that date or we decide to terminate the offering prior to that date.

In determining the offering price for the units and the exercise price of the warrants, we will consider a number of factors including, but not limited to, the current market price of our common stock, trading prices of our common stock over time, the illiquidity and volatility of our common stock, our current financial condition and the prospects for our future cash flows and earnings, and market and economic conditions at the time of the offering. Once the offering price is determined, the offering price for the units and the exercise price of the warrants will remain fixed for the duration of the offering.

Burrill, which we refer to as the placement agent, has entered into a placement agency agreement with us in which it has agreed to act as our placement agent in connection with the offering. The placement agent has engaged the Benchmark Company, LLC as sub-placement agent ("Benchmark") to assist with the offering. Among other things, the placement agent will assist us in identifying and evaluating prospective investors and approach prospective investors regarding the offering. The placement agent will assist us on a "reasonable best efforts" basis. The placement agent will have no obligation to buy any of the securities from us, nor is it required to arrange the purchase or sale of any specific number or dollar amount of securities. We will enter into a securities purchase agreement directly with each investor in connection with this offering, which will set forth the terms of the offering, as described in this prospectus, will include customary representations and warranties regarding the offering, the units to be issued and sold, and our business, and will contain customary conditions to closing and other customary terms. The placement agent agreement terminates upon the earlier of (1) the closing of the offering or (2) one hundred and twenty days after the effective date of the agreement provided, that if the registration statement is not declared effective by the Commission within 100 days of the date of the placement agent agreement and the offering is still being pursued by the Company, the term shall be extended to 16 business days after the effective date of the registration statement or such earlier date that the Company abandons the offering. The placement agent agreement further provides that the agreement may be terminated by Burrill at any time upon ten days' prior written notice.

This offering will be made only to persons who qualify as "institutional investors" under the securities laws of the state of their residence, or for entities, of their domicile, or to legal entities to whom offers and sales may be made without qualification or registration of this offering under the securities laws of their state of domicile. If we make offers or sell to investors in Wisconsin, they must qualify as "Accredited Investors" as that term is defined in Rule 501(a) of Regulation D under the Securities Act of 1933, as amended, and modified by Section 413 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

We have agreed to pay Burrill a placement fee equal to 7% of the aggregate gross proceeds to us from the sale of the securities in the offering and, subject to compliance with FINRA Rule 5110(f)(2)(D), a non-accountable expense allowance equal to 1% of the gross proceeds of this offering, provided that, out of such non-accountable expense allowance, we shall pay to Burrill an accountable expense allowance of up to $30,000. We have advanced the sum of $30,000 against the accountable expense allowance described in the preceding sentence, which pursuant to FINRA Rule 5110(f)(2)(C) shall be reimbursed to us in the event that the offering is terminated and to the extent the expenses have not been actually incurred. We estimate total expenses of this offering, excluding the placement agent fees, will be approximately $. The following table shows the per share and total fees we will pay to the placement agent assuming the sale of all of the units offered pursuant to this prospectus.

Per unit	$
Total	$

In addition to the cash fees set forth above, we have agreed to issue to the placement agent warrants to purchase up to an aggregate of 7% of the aggregate number of shares of common stock sold in this offering (excluding any shares of common stock issuable upon exercise of the warrants). The placement agent warrants shall have substantially the same terms as the warrants offered by this prospectus, except that the exercise price shall be 125% of the public offering price per unit, or $ per share, and the expiration date shall be five years from the effective date of the registration statement of which this prospectus forms a part. Pursuant to FINRA Rule 5110(f)(2)(H)(vi) and (vii), the placement agent warrants do not have anti-dilution protections. Pursuant to FINRA Rule 5110(g)(1), neither the placement agent warrants nor any shares of common stock issued upon exercise of the placement agent warrants may be sold, transferred, assigned, pledged, or hypothecated, or be subject to any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of such securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of this offering, except the transfer of any security: (i) by operation of law or by reason of reorganization, (ii) to any FINRA member firm participating in the offering and the officers and partners thereof, if all securities so transferred remain subject to the lock-up restriction described above for the remainder of the time period, (iii) if the aggregate amount of our securities held by the placement agent or related person does not exceed 1% of the securities being offered, (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund, or (v) the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction set forth above for the remainder of the time period. Because there is no minimum offering amount required as a condition to closing, the actual total proceeds received by us and total offering commissions and warrants issuable to the placement agent, if any, are not presently determinable and may be substantially less than the maximum amount set forth above. In addition to the cash fees and warrants set forth above, upon the completion of this offering and provided that the placement agent retains certain key employees, the placement agent shall receive a right of first refusal for 10 months following the effective date of this registration statement to act as placement agent or book-running underwriter on any offering of equity, equity-linked or debt securities by us and to receive at least 50% of the investment banking fees in such offering.

Burril has agreed to pay Benchmark 10% of the placement agent fee and 10% of the placement agent warrants for its services as sub-agent, out of the fees payable and warrants issuable by us to Burrill.

We have agreed to indemnify the placement agent against certain liabilities under the Securities Act of 1933, as amended. The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act and any commissions received by it and any profit realized on the sale of the securities by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. The placement agent would be required to comply with the requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, including without limitation, Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares of common stock and warrants to purchase shares of common stock by the placement agent. Under these rules and regulations, the placement agent many not (i) engage in any stabilization activity in connection with our securities; and (ii) bid for or purchase any of our securities or attempt to induce any person to purchase an of our securities, other than as permitted under Regulation M, until they have completed their participation in the distribution. The placement agent has informed us that it will not engage in overallotment, stabilizing transactions or syndicate covering transactions in connection with this offering.

DESCRIPTION OF SECURITIES

Under our amended and restated certificate of incorporation, our authorized capital stock consists of 150,000,000 shares of common stock, $0.00001 par value per share, and 7,000 shares of preferred stock, $0.00001 par value per share.

Our amended and restated certificate of incorporation authorizes us to issue shares of our preferred stock from time to time in one or more series without stockholder approval. No shares of preferred stock are 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 amended and restated certificate of incorporation prohibits us from granting preemptive rights to any of our stockholders. All outstanding shares are fully paid and non-assessable.

On June 30, 2011, the Company held a special meeting of stockholders. At the meeting, the stockholders approved, among other things, separate amendments to the certificate of incorporation that would effect a reverse split of the Company's common stock within a range of 1:2 to 1:10, and authorized the Company's board of directors to determine the ratio at which the reverse split will be effected by filing the appropriate amendment to the certificate of incorporation, or to determine not to proceed with the reverse split at all. The purpose of the proposed reverse split was to increase the price per share of the Company's common stock in order to exceed the minimum price per share required to secure a listing on a national securities exchange and was contemplated in connection with the Company's underwritten public offering that closed on December 6, 2011. The Company did not obtain the NASDAQ listing and did not effect the reverse split in

connection with the offering. While the Company may effect a reverse split at a later date, the Company has no immediate plans to proceed with the reverse split or a listing on a national securities exchange.

Class A and Class B Warrants to be Issued as Part of this Offering

The Warrants offered in this offering will be issued in a form filed as an exhibit to the registration statement of which this prospectus is a part. You should review a copy of the form of Class A and Class B Warrant for a complete description of the terms and conditions applicable to the Class A and Class B Warrants. The following is a brief summary of the Class A and Class B Warrants and is subject in all respects to the provisions contained in the form of warrant.

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

The exercise price and the number of shares underlying the Class A and Class B 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 any merger, consolidation, sale or other reorganization event in which our common stock is converted into or exchanged for securities, cash or other property or we consummate a sale of substantially all of our assets, then following such event, the holders of the Class A and Class B Warrants will be entitled to receive upon exercise of the Class A and Class B Warrants the kind and amount of securities, cash or other property which the holders would have received had they exercised the Class A and Class B Warrants immediately prior to such reorganization event.

No fractional shares of common stock will be issued in connection with the exercise of a Class A and Class B Warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the market value of a share of common stock. A Class A and Class B Warrant may be transferred by a holder, upon surrender of the Class A and Class B Warrant, properly endorsed (by the holder executing an assignment in the form attached to the Class A and Class B Warrant). The Class A and Class B Warrants will not be listed on any securities exchange or automated quotation system and we do not intend to arrange for any exchange or quotation system to list or quote the Class A and Class B Warrants.

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.

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 will be passed upon for us by Foley Hoag LLP, Boston, Massachusetts.

EXPERTS

The audited financial statements of Novelos Therapeutics, Inc. included in this prospectus and elsewhere in the registration statement have been so included in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing in giving said report.

GLOSSARY OF CERTAIN SCIENTIFIC TERMS

Akt - Akt (also known as Akt/PKB) is an important cell signaling enzyme (a serine/threonine protein kinase) that plays a key role in multiple cellular processes such as glucose metabolism, cell proliferation, apoptosis, transcription and cell migration.

Apoptosis - A highly regulated, normal cell process leading to programmed cell death by which organisms can eliminate damaged or aberrant cells. Apoptosis is often abnormally suppressed in cancer cells, contributing to their uncontrolled proliferation.

Caspases - Caspases are a family of enzymes (cysteine-aspartic proteases or cysteine-dependent aspartate-directed proteases) that play essential roles in apoptosis (programmed cell death), necrosis, and inflammation.

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 phophatidylinosotol 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.

FINANCIAL STATEMENTS

INDEX TO FINANCIAL STATEMENTS FOR NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders
Novelos Therapeutics, Inc.

We have audited the accompanying consolidated balance sheets of Novelos Therapeutics, Inc. and Subsidiary (a Development Stage Company) (a Delaware corporation) (the Company) as of December 31, 2011 and 2010, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2011 and the period from November 7, 2002 (date of inception) through December 31, 2011. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Novelos Therapeutics, Inc. and Subsidiary, as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the two years in the period ended December 31, 2011 and the period from November 7, 2002 (date of inception) through December 31, 2011, in conformity with accounting principles generally accepted in the United States of America.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred losses since its inception and, as of December 31, 2011, had an accumulated deficit of $31,480,426. These conditions, along with other matters as set forth in Note 1, raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ Grant Thornton LLP

Boston, Massachusetts
March 9, 2012

NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)
CONSOLIDATED BALANCE SHEETS

	September 30, 2012 (unaudited)	December 31, 2011 (audited)	December 31, 2010 (audited)
ASSETS			
CURRENT ASSETS:			
Cash and cash equivalents	$ 5,597,764	$ 5,505,960	$ 673,739
Restricted cash	55,000	55,000	555,000
Prepaid expenses and other current assets	335,979	254,967	51,042
Total current assets	5,988,743	5,815,927	1,279,781
FIXED ASSETS, NET	2,697,624	3,044,565	3,510,489
GOODWILL	1,675,462	1,675,462	—
OTHER ASSETS	27,222	27,222	11,872
TOTAL ASSETS	$ 10,389,051	$ 10,563,176	$ 4,802,142
LIABILITIES AND STOCKHOLDERS' EQUITY			
CURRENT LIABILITIES:			
Accounts payable and accrued liabilities	$ 712,808	$ 478,041	$ 392,881
Accrued interest	—	—	305,049
Derivative liability	21,628	23,305	—
Notes payable, current portion	—	—	204,802
Capital lease obligations, current portion	2,356	2,235	2,085
Total current liabilities	736,792	503,581	904,817
LONG-TERM LIABILITIES:			
Convertible debt	—	—	2,720,985
Notes payable, net of current portion	450,000	450,000	920,941
Deferred rent	133,209	124,381	115,311
Capital lease obligations, net of current portion	2,309	4,091	6,326
Total long-term liabilities	585,518	578,472	3,763,563
TOTAL LIABILITIES	1,322,310	1,082,053	4,668,380
COMMITMENTS AND CONTINGENCIES (Notes 13 and 14)			
STOCKHOLDERS' EQUITY:			
Preferred stock, $0.00001 par value; 7,000 shares authorized; none issued and outstanding as of September 30, 2012, December 31, 2011 and 2010	—	—	—
Common stock, $0.00001 par value; 150,000,000 shares authorized; 43,460,497, 36,907,824 and 12,820,102 shares issued and outstanding at September 30, 2012, December 31, 2011 and 2010, respectively	434	369	128
Additional paid-in capital	47,186,659	40,961,180	24,178,638
Deficit accumulated during the development stage	(38,120,352)	(31,480,426)	(24,045,004)
Total stockholders' equity	9,066,741	9,481,123	133,762
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 10,389,051	$ 10,563,176	$ 4,802,142

See report of independent registered public accounting firm and accompanying notes to the consolidated financial statements.

NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)
CONSOLIDATED STATEMENTS OF OPERATIONS

	Nine Months Ended September 30,		Year Ended December 31,		Cumulative Development-Stage Period from November 7, 2002 (date of inception) through December 31,
	2012 (unaudited)	2011 (unaudited)	2011 (audited)	2010 (audited)	2011 (audited)
COSTS AND EXPENSES:					
Research and development	$ 3,896,005	$ 2,445,429	$ 3,599,080	$ 2,984,207	$ 20,805,039
General and administrative	2,695,503	1,827,510	2,692,433	1,156,549	9,662,611
Merger costs	—	746,207	746,207	52,925	799,133
Total costs and expenses	6,591,508	5,019,146	7,037,720	4,193,681	31,266,783
LOSS FROM OPERATIONS	(6,591,508)	(5,019,146)	(7,037,720)	(4,193,681)	(31,266,783)
OTHER INCOME (EXPENSE):					
Grant income	—	44,479	44,479	200,000	244,479
Loss on derivative warrants	(42,178)	(66,820)	(12,158)	—	(12,158)
Interest expense, net	(6,240)	(428,015)	(430,023)	(566,156)	(447,125)
Other income (expense)	—	—	—	(426)	1,161
Total other expense, net	(48,418)	(450,356)	(397,702)	(366,582)	(213,643)
NET LOSS	(6,639,926)	(5,469,502)	(7,435,422)	(4,560,263)	(31,480,426)
DEEMED DIVIDEND ON WARRANTS	(543,359)	—	—	—	—
NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS	$ (7,183,285)	$ (5,469,502)	$ (7,435,422)	$ (4,560,263)	$ (31,480,426)
BASIC AND DILUTED NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS PER COMMON SHARE	$ (0.18)	$ (0.25)	$ (0.31)	$ (0.36)	$ (2.84)
SHARES USED IN COMPUTING BASIC AND DILUTED NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS PER COMMON SHARE	39,611,899	21,847,984	23,959,008	12,820,102	11,090,838

See report of independent registered public accounting firm and accompanying notes to the consolidated financial statements.

NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock		Additional	Deficit Accumulated During the	Total
	Shares	Par Amount	Paid-in Capital	Development Stage	Stockholders' Equity
BALANCE AT NOVEMBER 7, 2002	—	$ —	$ —	$ —	$ —
Issuance of common stock for cash	6,440,123	64	590,205	—	590,269
Issuance of common stock in exchange for professional services	101,220	1	9,107	—	9,108
Net loss	—	—	—	—	—
BALANCE AT DECEMBER 31, 2002	6,541,343	65	599,312	—	599,377
Issuance of common stock for cash, net of issuance costs	37,958	—	4,937	—	4,937
Issuance of common stock in exchange for licensed technology	203,483	2	80,410	—	80,412
Net loss	—	—	—	(295,790)	(295,790)
BALANCE AT DECEMBER 31, 2003	6,782,784	67	684,659	(295,790)	388,936
Net loss	—	—	—	(342,761)	(342,761)
BALANCE AT DECEMBER 31, 2004	6,782,784	67	684,659	(638,551)	46,175
Issuance of common stock for cash, net of issuance costs	610,664	6	835,862	—	835,868
Net loss	—	—	—	(481,837)	(481,837)
BALANCE AT DECEMBER 31, 2005	7,393,448	73	1,520,521	(1,120,388)	400,206
Issuance of common stock for cash, net of issuance costs	2,202,179	22	7,097,050	—	7,097,072
Common stock repurchased	(43,819)	—	(31,667)	—	(31,667)
Stock-based compensation	—	—	43,994	—	43,994
Net loss	—	—	—	(963,440)	(963,440)
BALANCE AT DECEMBER 31, 2006	9,551,808	95	8,629,898	(2,083,828)	6,546,165
Issuance of common stock for cash, net of issuance costs	60,250	1	249,999	—	250,000
Exercise of warrant to purchase common stock	75,045	1	249,999	—	250,000
Stock-based compensation	—	—	570,392	—	570,392
Net loss	—	—	—	(5,090,325)	(5,090,325)
BALANCE AT DECEMBER 31, 2007	9,687,103	97	9,700,288	(7,174,153)	2,526,232
Issuance of common stock for cash, net of issuance costs	3,132,999	31	12,931,531	—	12,931,562
Stock-based compensation	—	—	477,488	—	477,488
Net loss	—	—	—	(6,090,715)	(6,090,715)
BALANCE AT DECEMBER 31, 2008	12,820,102	128	23,109,307	(13,264,868)	9,844,567
Stock-based compensation	—	—	502,199	—	502,199
Net loss	—	—	—	(6,219,873)	(6,219,873)
BALANCE AT DECEMBER 31, 2009	12,820,102	128	23,611,506	(19,484,741)	4,126,893
Stock-based compensation	—	—	353,340	—	353,340
Intrinsic value of beneficial conversion feature associated with convertible debt issued in exchange for cash	—	—	213,792	—	213,792
Net loss	—	—	—	(4,560,263)	(4,560,263)
BALANCE AT DECEMBER 31, 2010	12,820,102	128	24,178,638	(24,045,004)	133,762
Issuance of common stock upon conversion of convertible notes	4,181,535	42	3,184,665	—	3,184,707
Issuance of common stock in a business combination	2,959,871	30	2,219,873	—	2,219,903
Cash paid in lieu of fractional shares in a business combination	(41)	—	(145)	—	(145)
Issuance of common stock and warrants, net of issuance costs	16,928,204	169	10,164,377	—	10,164,546
Intrinsic value of beneficial conversion feature associated with the conversion of convertible debt	—	—	257,973	—	257,973
Issuance of common stock upon the cashless exercise of warrants and reclassification of derivative liability to additional paid-in-capital	18,153	—	48,339	—	48,339
Stock-based compensation	—	—	907,460	—	907,460
Net loss	—	—	—	(7,435,422)	(7,435,422)
BALANCE AT DECEMBER 31, 2011	36,907,824	$ 369	$ 40,961,180	$ (31,480,426)	$ 9,481,123
Issuance of common stock upon cashless exercise of warrants and reclassification of derivative liability to additional paid-in-capital	981,073	10	43,845	—	43,855
Issuance of common stock upon exercise of warrants	150,800	1	150,799	—	150,800
Issuance of common stock in connection with registered offering, net of issuance costs	5,420,800	54	4,870,924	—	4,870,978
Stock-based compensation	—	—	1,159,911	—	1,159,911
Net loss	—	—	—	(6,639,926)	(6,639,926)
BALANCE AT SEPTEMBER 30, 2012 (UNAUDITED)	43,460,497	$ 434	$ 47,186,659	$ (38,120,352)	$ 9,066,741

See report of independent registered public accounting firm and accompanying notes to the consolidated financial statements

NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)
STATEMENTS OF CASH FLOWS

	Nine Months Ended September 30,		Year Ended December 31,		Cumulative Development-Stage Period from November 7, 2002 through December 31, 2011
	2012 (unaudited)	2011 (unaudited)	2011 (audited)	2010 (audited)	(audited)
Net loss	$ (6,639,926)	$ (5,469,502)	$ (7,435,422)	$ (4,560,263)	$ (31,480,426)
Adjustments to reconcile net loss to cash used in operating activities:					
Depreciation and amortization	384,083	439,587	584,841	580,114	2,416,038
Stock-based compensation	1,159,911	655,656	907,460	353,340	2,854,873
Intrinsic value of beneficial conversion feature associated with convertible debt	—	257,973	257,973	213,792	471,765
Issuance of stock for technology and services	—	—	—	—	89,520
Impairment of intangible assets	—	—	—	19,671	19,671
Loss on disposal of fixed assets	—	6,009	6,009	—	36,477
Loss on derivative warrants	42,178	66,820	12,158	—	12,158
Changes in:					
Prepaid expenses and other current assets	(81,012)	(224,548)	(175,883)	18,584	(238,797)
Accounts payable and accrued liabilities	234,767	(331,357)	(294,969)	(322,707)	97,912
Accrued interest	—	158,672	158,673	305,049	463,722
Deferred rent	8,828	6,083	9,070	9,973	124,381
Cash used in operating activities	(4,891,171)	(4,434,607)	(5,970,090)	(3,382,447)	(25,132,706)
CASH FLOWS FROM INVESTING ACTIVITIES:					
Cash acquired in a business combination	—	905,649	905,649	—	905,649
Purchases of fixed assets	(37,142)	(112,195)	(118,411)	(1,652)	(5,486,592)
Proceeds from sale of fixed assets	—	—	—	—	7,000
Purchases of short-term certificates of deposit	—	—	—	—	(5,500,730)
Proceeds from short-term certificates of deposit	—	—	—	—	5,500,730
Change in restricted cash	—	500,000	500,000	—	(55,000)
Payment for intangible assets	—	—	—	—	(19,671)
Cash provided by (used in) investing activities	(37,142)	1,293,454	1,287,238	(1,652)	(4,648,614)
CASH FLOWS FROM FINANCING ACTIVITIES:					
Proceeds from issuance of convertible notes	—	—	—	2,720,985	2,720,985
Proceeds from long-term obligations	—	—	—	450,000	1,677,945
Payments on long-term obligations	—	(675,743)	(675,743)	(190,789)	(1,227,944)
Payments on capital lease obligations	(1,661)	(1,549)	(2,085)	(1,944)	(4,648)
Proceeds from issuance of common stock, net of issuance costs	4,870,978	4,866,406	10,164,546	—	31,874,254
Proceeds from exercise of warrant	150,800	—	—	—	250,000
Repurchase of common stock	—	—	—	—	(31,667)
Cash paid in lieu of fractional shares in a business combination	—	(145)	(145)	—	(145)
Change in deferred issuance costs	—	(130,800)	28,500	99,461	28,500
Cash provided by (used in) financing activities	5,020,117	4,058,169	9,515,073	3,077,713	35,287,280
INCREASE (DECREASE) IN CASH AND EQUIVALENTS	91,804	917,016	4,832,221	(306,386)	5,505,960
CASH AND EQUIVALENTS AT BEGINNING OF PERIOD	5,505,960	673,739	673,739	980,125	—
CASH AND EQUIVALENTS AT END OF PERIOD	$ 5,597,764	$ 1,590,755	$ 5,505,960	$ 673,739	$ 5,505,960
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION					
Interest paid	$ —	$ 13,716	$ 13,716	$ 54,454	$ 208,689
Fair value of derivative warrants reclassified to additional paid-in capital upon cashless exercise	$ 43,855	$ 48,339	$ 48,339	$ —	$ 48,339
Issuance of common stock upon conversion of notes payable and accrued interest	$ —	$ 3,184,707	$ 3,184,707	$ —	$ 3,184,707
Fair value of assets acquired in exchange for securities in a business combination	$ —	$ 78,408	$ 78,408	$ —	$ 78,408
Fair value of liabilities assumed in exchange for securities in a business combination	$ —	$ (439,616)	$ (439,616)	$ —	$ (439,616)

Excess of purchase price over net assets acquired in a business combination	$ —	$ 1,675,462	$ 1,675,462	$ —	$ 1,675,462

See report of independent registered public accounting firm and accompanying notes to the consolidated financial statements.

NOVELOS THERAPEUTICS, INC.
(a Development Stage Company)
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(ALL INFORMATION AS OF AND FOR THE NINE MONTHS ENDED SEPTEMBER 30, 2012 AND 2011 IS UNAUDITED)

1. NATURE OF BUSINESS, ORGANIZATION AND GOING CONCERN

Novelos Therapeutics, Inc. ("Novelos" or the "Company") is a pharmaceutical company developing novel drugs for the treatment and diagnosis of cancer. On April 8, 2011, Novelos completed a business combination with Cellectar, Inc. ("Cellectar"), a privately held Wisconsin corporation that designed and developed products to detect, treat and monitor a wide variety of human cancers, and Cell Acquisition Corp. (the "Merger Subsidiary"), a Wisconsin corporation and a wholly owned subsidiary of Novelos. Pursuant to the transaction Cellectar was merged into the Merger Subsidiary (the "Acquisition", see Note 4). References in these financial statements and notes to "Cellectar" relate to the activities and financial information of Cellectar prior to the Acquisition, references to "Novelos" relate to the activities and financial information of Novelos prior to the Acquisition and references to "the Company" or "we" or "us" or "our" relate to the activities and obligations of the combined Company following the Acquisition.

Immediately prior to the Acquisition, Novelos completed a 1-for-153 reverse split of its common stock. Novelos then issued to the shareholders of Cellectar at that date 17,001,596 shares of its common stock as consideration for the Acquisition, representing a ratio of 0.8435 shares of Novelos common stock in exchange for one share of Cellectar common stock (the "Exchange Ratio") as set forth in the Agreement and Plan of Merger (the "Merger Agreement") dated April 8, 2011. The shares issued to Cellectar shareholders in the Acquisition constituted approximately 85% of Novelos' outstanding common stock after giving effect to the Acquisition. Upon the closing of the Acquisition, the Company completed the private placement of 6,846,537 shares of its common stock and warrants to purchase an additional 6,846,537 shares of its common stock for gross proceeds of approximately $5,135,000.

Accounting principles generally accepted in the United States require that a company whose security holders retain the majority voting interest in the combined business be treated as the acquirer for financial reporting purposes. Accordingly, the Acquisition was accounted for as a reverse acquisition whereby Cellectar, Inc. was treated as the acquirer for accounting and financial reporting purposes. The financial statements presented herein as of and for the twelve months ended December 31, 2010 represent the historical financial information of Cellectar, except for the capital structure which represents the historical amounts of Cellectar, retroactively adjusted to reflect the legal capital structure of Novelos by applying the Exchange Ratio. On April, 8, 2011, Cellectar was merged into the Merger Subsidiary a wholly owned subsidiary of Novelos; as such, the financial statements presented herein as of and for the twelve months ended December 31, 2011 include the historical results of Cellectar from January 1, 2011 through April 8, 2011, except for the capital structure which represents the historical amounts of Cellectar, retroactively adjusted to reflect the legal capital structure of Novelos by applying the Exchange Ratio, and include the consolidated results of the combined company from April 9, 2011 through December 31, 2011 and the financial statements presented herein as of and for the nine months ended September 30, 2011 include the historical results of Cellectar from January 1, 2011 through April 8, 2011, except for the capital structure which represents the historical amounts of Cellectar, retroactively adjusted to reflect the legal capital structure of Novelos by applying the Exchange Ratio, and include the consolidated results of the combined company from April 9, 2011 through September 30, 2011. The financial statements as of and for the nine months ended September 30, 2012 include the consolidated results of the combined company for that period. All per-share amounts and outstanding shares, including all common stock equivalents, and stock options, have been retroactively restated in these financial statements and notes for all periods presented to reflect the capital structure of Novelos by applying the Exchange Ratio. The cumulative capital activity from the date of inception (November 7, 2002) up to the closing of the Acquisition, as presented in the accompanying statement of stockholders' equity, equals 17,001,596 shares of common stock, which represents the equity interests the legal parent (Novelos) issued to effect the Acquisition. The number of authorized shares of common stock disclosed on the balance sheet (150,000,000) represents the number of authorized shares of Novelos common stock following the Acquisition. Additionally, on the accompanying balance sheet as of December 31, 2010 and statements of stockholders' equity for the period from inception (November 7, 2002) to December 31, 2010 the aggregate par value of the issued common stock was reduced to reflect the $0.00001 par value of Novelos common stock associated with the shares of Cellectar common stock adjusted for the Exchange Ratio and the difference was reclassified to additional paid-in capital.

As a result of the Acquisition, the Company has implemented a revised business plan focused on the development of the Cellectar compounds. Development of Novelos' other compounds (NOV-002 and NOV-205) has been suspended. The Company is conducting its operations from Cellectar's headquarters in Madison, Wisconsin and the Company's executive offices are in Newton, Massachusetts.

The Company is subject to a number of risks similar to those of other small pharmaceutical companies. Principal among these risks are dependence on key individuals, competition from substitute products and larger companies, the successful development and marketing of its products in a highly regulated environment and the need to obtain additional financing necessary to fund future operations.

The accompanying financial statements have been prepared on a basis that assumes that the Company will continue as a going concern and that contemplates the continuity of operations, realization of assets and the satisfaction of liabilities and commitments in the normal course of business. The Company has incurred losses since inception in devoting substantially all of its efforts toward research and development and has an accumulated deficit of $31,480,426 at December 31, 2011 and an accumulated deficit of $38,120,352 as of September 30, 2012. During the year ended December 31, 2011 and the nine months ended September 30, 2012, the Company generated a net loss of $7,435,422 and $6,639,926, respectively and the Company expects that it will continue to generate operating losses for the foreseeable future. The Company believes that its cash on hand at September 30, 2012, combined with the cash proceeds received from warrant exercises in October 2012 (see Note 19), is adequate to fund operations at budgeted levels through May 2013. On November 2, 2012, the Company completed a private placement of its common stock and warrants for total proceeds of $2,000,000. The proceeds from the private placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at the Company's Madison, WI location. The Company estimates that the project will cost a total of approximately $3,000,000, will take approximately one year to complete and will commence in late 2012, although the Company has not yet entered into contractual commitments with vendors. The Company may seek to obtain the additional capital required to complete the project from additional sales of common stock, proceeds from warrant exercise, and/or from equipment financing. The Company's ability to execute its operating plan beyond May 2013 depends on its ability to obtain additional funding via the sale of equity and/or debt securities, a strategic transaction or otherwise. The Company plans to continue to actively pursue financing alternatives, but there can be no assurance that it will obtain the necessary funding. The accompanying financial statements do not include any adjustments that might result from the outcome of this uncertainty.

The accompanying unaudited consolidated balance sheet as of September 30, 2012, the consolidated statements of operations for the nine months ended September 30, 2012 and 2011, and the consolidated statements of cash flows for the nine months ended September 30, 2012 and 2011 and the related interim information contained within the notes to the consolidated financial statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission ("SEC") for interim financial information. Accordingly, they do not include all of the information and the notes required by U.S. generally accepted accounting principles for complete financial statements. In the opinion of management, the unaudited interim consolidated financial statements reflect all adjustments, consisting of normal and recurring adjustments, necessary for the fair presentation of the Company's consolidated financial position at September 30, 2012 and consolidated results of its operations and its cash flows for the nine months ended September 30, 2012 and 2011. The results for the nine months ended September 30, 2012 are not necessarily indicative of future results.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying consolidated financial statements reflect the application of certain accounting policies, as described in this note and elsewhere in the accompanying notes to the consolidated financial statements. The consolidated financial statements as of and for the twelve months ended December 31, 2011 are presented on a consolidated basis to reflect the Acquisition described in Note 4.

Principles of Consolidation — The consolidated financial statements include the accounts of the Company and the accounts of its wholly-owned subsidiary. All intercompany accounts and transactions have been eliminated in consolidation.

Development Stage Company — The Company has been in the development stage since its inception. The primary activities since inception have been organizational activities, research and development and raising capital. No significant revenues have been generated from planned operations. As of September 30, 2012, December 31, 2011 and 2010, the Company remained in the development stage.

The summary unaudited condensed statement of operations for the cumulative development-stage period from November 7, 2002 (date of inception) through September 30, 2012 is as follows:

COSTS AND EXPENSES:	
Research and development	$ 24,701,044
General and administrative	12,358,114
Merger costs	799,133
Total costs and expenses	37,858,291
LOSS FROM OPERATIONS	(37,858,291)
OTHER EXPENSE, NET	(262,061)
NET LOSS	$(38,120,352)
DEEMED DIVIDEND ON WARRANTS	(543,359)
NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS	$(38,663,711)
BASIC AND DILUTED NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS PER COMMON SHARE	$ (2.92)
SHARES USED IN COMPUTING BASIC AND DILUTED NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS PER COMMON SHARE	13,238,063

The summary unaudited condensed statement of cash flow for the cumulative development-stage period from November 7, 2002 (date of inception) through September 30, 2012 is as follows:

Net loss	$(38,120,352)
Adjustments to reconcile net loss to cash used in operating activities	7,486,674
Changes in working capital	609,801
Cash used in operating activities	(30,023,877)
CASH FLOWS FROM INVESTING ACTIVITIES:	
Cash acquired in a business combination	905,649
Purchases of fixed assets, net of $7,000 proceeds from sale of fixed assets	(5,516,734)
Change in restricted cash	(55,000)
Payment for intangible assets	(19,671)
Cash used in investing activities	(4,685,756)
CASH FLOWS FROM FINANCING ACTIVITIES:	
Proceeds from issuance of common stock and warrants, net of issuance costs, repurchase of common stock, and cash paid in lieu of fractional shares in a business combination	37,114,220
Change in deferred issuance costs	28,500
Proceeds from issuance of long-term obligations and convertible notes	4,398,930
Payments on long-term obligations	(1,234,253)
Cash provided by financing activities	40,307,397
INCREASE IN CASH AND EQUIVALENTS	5,597,764
CASH AND EQUIVALENTS AT BEGINNING OF PERIOD	—
CASH AND EQUIVALENTS AT END OF PERIOD	$ 5,597,764
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION	
Interest paid	$ 208,689
Fair value of derivative warrants reclassified to additional paid-in capital upon cashless exercise	$ 92,194
Issuance of common stock upon the conversion of notes payable and accrued interest	$ 3,184,707
Fair value of assets acquired in exchange for securities in a business combination	$ 78,408
Fair value of liabilities assumed in exchange for securities in a business combination	$ (439,616)
Excess of purchase price over net assets acquired in a business combination	$ 1,675,462

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and judgments that may affect the reported amounts of assets, liabilities, revenue and expenses and disclosure of contingent assets and liabilities. On an on-going basis, management evaluates its estimates including those related to unbilled vendor amounts and share-based compensation. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ from those estimates under different assumptions or conditions. Changes in estimates are reflected in reported results in the period in which they become known.

Cash and Cash Equivalents — All short-term investments purchased with maturities of three months or less are considered to be cash equivalents.

Restricted Cash — Restricted cash at September 30, 2012 and December 31, 2011 consists of a certificate of deposit required under the Company's lease agreement for its Madison, Wisconsin facility (see Note 13). Restricted cash at December 31, 2010 consists of a certificate of deposit required for collateral for a promissory note with a bank (see Note 8) and a certificate of deposit required under the Company's lease agreement for its Madison, Wisconsin facility (see Note 13).

Fixed Assets — Property and equipment are stated at cost. Depreciation on property and equipment is provided using the straight-line method over the estimated useful lives of the assets (5 years). Due to the significant value of leasehold improvements purchased during the initial 3-year lease term and the economic penalty for not extending the building lease, leasehold improvements are depreciated over 17 years (their estimated useful life), which represents the full term of the lease, including all extensions (Note 13).

Goodwill — Intangible assets at September 30, 2012 and December 31, 2011 consist of goodwill recorded in connection with the Acquisition. Goodwill is not amortized, but is required to be evaluated for impairment annually or whenever events or changes in circumstances suggest that the carrying value of an asset may not be recoverable. The Company evaluates goodwill for impairment annually in the fourth fiscal quarter and additionally on an interim basis if an event occurs or there is a change in circumstances, such as a decline in the Company's stock price or a material adverse change in the business climate, which would more likely than not reduce the fair value of the reporting unit below its carrying amount.

Impairment of Long-Lived Assets — Long-lived assets other than intangible assets consist of fixed assets, which we periodically evaluate for potential impairment. Whenever events or circumstances change, an assessment is made as to whether there has been an impairment in the value of long-lived assets by determining whether projected undiscounted cash flows generated by the applicable asset exceed its net book value as of the assessment date. During 2010, following a reduction in staff and suspension of research and manufacturing activities in order to reduce operating costs, it was determined that the trademarks previously capitalized as intangible assets had been impaired and the carrying value was reduced to zero.

Stock-Based Compensation — The Company uses the Black-Scholes option-pricing model to calculate the grant-date fair value of stock option awards. The resulting compensation expense, net of expected forfeitures, for awards that are not performance-based is recognized on a straight-line basis over the service period of the award, which is generally three years for stock options. For stock options with performance-based vesting provisions, recognition of compensation expense, net of expected forfeitures, commences if and when the achievement of the performance criteria is deemed probable. The compensation expense, net of expected forfeitures, for performance-based stock options is recognized over the relevant performance period. Non-employee stock-based compensation is accounted for in accordance with the guidance of FASB ASC Topic 505, *Equity*. As such, the Company recognizes expense based on the estimated fair value of options granted to non-employees over their vesting period, which is generally the period during which services are rendered and deemed completed by such non-employees.

Research and Development — Research and development costs are expensed as incurred.

Income Taxes — Income taxes are accounted for using the liability method of accounting. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial statement basis and tax basis of assets and liabilities and net operating loss and credit carryforwards using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are established when it is more likely than not that some portion of the deferred tax assets will not be realized. Management has provided a full valuation allowance against the Company's gross deferred tax asset. Tax positions taken or expected to be taken in the course of preparing tax returns are required to be evaluated to determine whether the tax positions are "more likely than not" to be sustained by the applicable tax authority. Tax positions deemed not to meet a more-likely-than-not threshold would be recorded as tax expense in the current year. There were no uncertain tax positions that require accrual to or disclosure in the financial statements as of September 30, 2012, December 31, 2011 and 2010.

Comprehensive Loss — There were no components of comprehensive loss other than net loss in all of the periods presented.

Grant Income — Cellectar received a cash grant of approximately $44,000 and $200,000 for the years ended December 31, 2011 and 2010, respectively, from the U.S. Internal Revenue Service as a qualifying therapeutic discovery project credit pursuant to the Patient Protection and Affordable Care Act. This grant has been recorded as a component of other income.

Fair Value of Financial Instruments — The guidance under FASB ASC Topic 825, *Financial Instruments* , requires disclosure of the fair value of certain financial instruments. Financial instruments in the accompanying financial statements consist of cash equivalents, accounts payable, convertible debt and long-term obligations. The carrying amount of cash equivalents, investments and accounts payable approximate their fair value due to their short-term nature. The estimated fair value of the convertible debt, determined on an as-converted basis including conversion of accumulated unpaid interest, was approximately $3,264,000 at December 31, 2010, respectively. There was no convertible debt outstanding at September 30, 2012 or December 31, 2011. The carrying value of long-term obligations, including the current portion, approximates fair value because the fixed interest rate approximates current market rates of interest available in the market.

Derivative Instruments – The Company generally does not use derivative instruments to hedge exposures to cash flow or market risks. However, certain warrants to purchase common stock that do not meet the requirements for classification as equity, in accordance with the Derivatives and Hedging Topic of the Financial Accounting Standards Board Accounting Standards Codification ("FASB ASC"), are classified as liabilities. In such instances, net-cash settlement is assumed for financial reporting purposes, even when the terms of the underlying contracts do not provide for a net-cash settlement. These warrants are considered derivative instruments because the agreements contain "down-round" provisions whereby the number of shares for which the warrants are exercisable and/or the exercise price of the warrants are subject to change in the event of certain issuances of stock at prices below the then-effective exercise price of the warrants. The number of shares issuable under such warrants was 27,310 and 77,729 at September 30, 2012 and December 31, 2011, respectively. The primary underlying risk exposure pertaining to the warrants is the change in fair value of the underlying common stock. Such financial instruments are initially recorded at fair value with subsequent changes in fair value recorded as a component of gain or loss on derivatives on the consolidated statements of operations in each reporting period. If these instruments subsequently meet the requirements for equity classification, the Company reclassifies the fair value to equity. At September 30, 2012 and December 31, 2011, these warrants represented the only outstanding derivative instruments issued or held by the Company. There were no outstanding derivative instruments at December 31, 2010.

Concentration of Credit Risk — Financial instruments that subject the Company to credit risk consist of cash and equivalents on deposit with financial institutions. The Company's excess cash as of September 30, 2012 and December 31, 2011 is on deposit in a non-interest-bearing transaction account that is fully covered by FDIC deposit insurance.

New Accounting Pronouncements — In January 2010, the FASB issued ASU No. 2010-06, *Improving Disclosures about Fair Value Measurements* , which requires additional disclosures about the amounts of and reasons for significant transfers in and out of Level 1 and Level 2 fair value measurements. This standard also clarifies existing disclosure requirements related to the level of disaggregation of fair value measurements for each class of assets and liabilities and disclosures about inputs and valuation techniques used to measure fair value for both recurring and non-recurring Level 2 and Level 3 measurements. Since this new accounting standard only required additional disclosure, the adoption of the standard in the first quarter of 2010 did not impact the accompanying financial statements. Additionally, effective for interim and annual periods beginning after December 15, 2010, this standard will require additional disclosure and require an entity to present disaggregated information about activity in Level 3 fair value measurements on a gross basis, rather than one net amount. The adoption of this accounting standard did not impact the accompanying financial statements.

In December 2010, the FASB issued ASU No. 2010-29, *Disclosures of Supplementary Pro Forma Information for Business Combinations* , which, if comparative financial statements are presented, requires the supplemental pro forma disclosure of revenue and earnings to be presented as if the business combination had occurred at the beginning of the comparable prior annual reporting period only. This standard also expands the supplemental pro forma disclosures required under FASB ASC Topic 850, *Business Combinations* , to include a description of the nature and amount of material nonrecurring pro forma adjustments directly attributable to the business combination in the reported pro forma revenue and earnings. This standard is effective for the Company for any business combinations completed after January 1, 2011. The Company adopted the provisions of this standard during the first quarter of 2011.

In May 2011, the FASB issued ASU No. 2011-04, *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. Generally Accepted Accounting Principles ("GAAP") and International Financial Reporting Standards ("IFRSs").* This standard updates accounting guidance to clarify the measurement of fair value to align the guidance and improve the comparability surrounding fair value measurement within GAAP and IFRSs. The standard also updates requirements for measuring fair value and expands the required disclosures. The standard does not require additional fair value measurements and was not intended to establish valuation standards or affect valuation practices outside of financial reporting. This standard will become effective for the Company on January 1, 2012. The adoption of this standard on January 1, 2012 did not have a material impact on the Company's financial statements or required disclosures.

In June 2011, the FASB issued ASU No. 2011-05, *Presentation of Comprehensive Income.* This standard eliminates the current option to report other comprehensive income and its components in the statement of changes in equity. The standard is intended to enhance comparability between entities that report under US GAAP and those that report under IFRS, and to provide a more consistent method of presenting non-owner transactions that affect an entity's equity. Under the ASU, an entity can elect to present items of net income and other comprehensive income in one continuous statement, referred to as the statement of comprehensive income, or in two separate, but consecutive, statements. Each component of net income and each component of other comprehensive income, together with totals for comprehensive income and its two parts, net income and other comprehensive income, would need to be displayed under either alternative. The statement(s) would need to be presented with equal prominence as the other primary financial statements. The ASU does not change items that constitute net income and other comprehensive income, when an item of other comprehensive income must be reclassified to net income or the earnings-per-share computation (which will continue to be based on net income). The new US GAAP requirements are effective for public entities as of the beginning of a fiscal year that begins after December 15, 2011 and interim and annual periods thereafter. Early adoption is permitted, but full retrospective application is required under the accounting standard. The adoption of this standard on January 1, 2012 did not have a material impact on the Company's financial statements or required disclosures.

In September 2011, the FASB issued ASU No. 2011-08, *Intangibles – Goodwill and Other (Topic 350) Testing Goodwill for Impairment.* This standard simplifies how an entity tests goodwill for impairment and allows an entity to first assess qualitative factors in determining whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step goodwill impairment test. This standard is effective for entities as of the beginning of a fiscal year that begins after December 15, 2011 and interim and annual periods thereafter. Early adoption is permitted. The adoption of this standard on January 1, 2012 did not have a material impact on the Company's financial statements or required disclosures.

In December 2011, the FASB issued ASU No. 2011-12, *Deferral of Effective Date for Amendments to the Presentation of Reclassifications of Items Out of Accumulated Other Comprehensive Income in ASU 2011-05,* which defers the requirement in ASU No. 2011-05 that companies present reclassification adjustments for each component of accumulated other comprehensive income. All other requirements of ASU No. 2011-05 remain unchanged.

In August 2012, the FASB issued ASU No. 2012-03, *Technical Amendments and Corrections to SEC Section.* This standard provides amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 114, Technical Amendments Pursuant to SEC Release No. 339-9250, and Corrections Related to FASB Accounting Standards Update 2010-22. The adoption of this standard did not have a material impact on the Company's financial statement or required disclosures.

In October 2012, the FASB issued ASU No. 2012-04, *Technical Improvements and Corrections*. This standard provides changes and clarification to the codification through reference corrections and source literature amendments. This standard is effective for entities as of the beginning of a fiscal year that begins after December 15, 2012. The Company does not expect that the adoption of this standard will have a material impact on the Company's financial statements or required disclosures.

Reclassifications — Certain prior-period amounts have been reclassified to conform to the current-period presentation.

3. FAIR VALUE

In accordance with Fair Value Measurements and Disclosures Topic of the FASB ASC 820, the Company groups its financial assets and financial liabilities generally measured at fair value in three levels, based on the markets in which the assets and liabilities are traded and the reliability of the assumptions used to determine fair value.

- Level 1: Input prices quoted in an active market for identical financial assets or liabilities.
- Level 2: Inputs other than prices quoted in Level 1, such as prices quoted for similar financial assets and liabilities in active markets, prices for identical assets and liabilities in markets that are not active or other inputs that are observable or can be corroborated by observable market data.
- Level 3: Input prices quoted that are significant to the fair value of the financial assets or liabilities which are not observable or supported by an active market.

Assets and liabilities measured at fair value on a recurring basis are summarized below:

	September 30, 2012			
	Level 1	Level 2	Level 3	Fair Value
Liabilities:				
Warrants	$ -	$ 21,628	$ -	$ 21,628

	December 31, 2011			
	Level 1	Level 2	Level 3	Fair Value
Liabilities:				
Warrants	$ -	$ 23,305	$ -	$ 23,305

	December 31, 2010			
	Level 1	Level 2	Level 3	Fair Value
Liabilities:				
Warrants	$ -	$ -	$ -	$ -

The Company uses the Black-Scholes option pricing model and assumptions that consider, among other variables, the fair value of the underlying stock, risk-free interest rate, volatility, expected life and dividend rates in estimating fair value for the warrants considered to be derivative instruments. Assumptions used are generally consistent with those disclosed for stock-based compensation (see Note 10).

4. ACQUISITION

Merger Agreement

On April 8, 2011, Novelos acquired Cellectar through a merger with and into the Merger Subsidiary, pursuant to the Merger Agreement entered into on that date. As a result of the Acquisition, the Merger Subsidiary, which was renamed Cellectar, Inc., owns all assets of and operates the business previously owned and operated by Cellectar.

In the Acquisition, the former stockholders of Cellectar received an aggregate number of shares of Novelos common stock constituting approximately 85% of the outstanding shares of Novelos common stock, after giving effect to the Acquisition but before giving effect to the concurrent private placement of Novelos securities described below. Prior to the Acquisition, Novelos amended and restated its certificate of incorporation and in connection therewith, among other things, effected a 1-for-153 reverse split of its common stock resulting in 2,959,871 shares of Novelos common stock outstanding. Novelos then issued 17,001,596 shares of Novelos common stock to the stockholders of Cellectar upon the effective date of the Acquisition. Warrants and options to purchase Novelos common stock that were outstanding prior to the Acquisition remained outstanding following the Acquisition. These consist of warrants to purchase a total of 315,164 shares of Novelos common stock with prices ranging from $16.07 to $191.25 and options to purchase a total of 49,159 shares of Novelos common stock with prices ranging from $1.53 to $1,072.53.

The financial advisor to Cellectar in the Acquisition, received a cash fee of $200,000 upon the completion of the Acquisition in consideration of their services. The financial advisor to Novelos in the Acquisition, received a cash fee of $250,000 upon the completion of the Acquisition in consideration of their services. These amounts were recorded as merger costs and expensed as incurred on the date of the Acquisition. In addition to the investment banking fees, the Company also incurred an additional $296,207 of merger-related legal and other costs during the year ended December 31, 2011 and $52,925 during the year ended December 31, 2010 which were included as a component of expense in the respective period.

The Acquisition was completed principally to leverage synergies between Novelos' strategic focus and experience in developing and funding the development of cancer drugs and Cellectar's portfolio of cancer-targeted compounds.

Purchase Accounting

The Acquisition was accounted for using the purchase method of accounting as a reverse acquisition. In a reverse acquisition, the post-acquisition net assets of the surviving combined company includes the historical cost basis of the net assets of the accounting acquirer (Cellectar) plus the fair value of the net assets of the accounting acquiree (Novelos). Further, under the purchase method, the purchase price is allocated to the assets acquired, liabilities assumed, and identifiable intangible assets based on their estimated fair values with the remaining excess purchase price over net assets acquired allocated to goodwill.

The fair value of the consideration transferred in the Acquisition was $2,219,903 and was calculated as the number of shares of common stock that Cellectar would have had to issue (adjusted for the Exchange Ratio) in order for Novelos shareholders to hold a 15% equity interest in the combined Company post-acquisition (but prior to the concurrent private placement), multiplied by the estimated fair value of the Company's common stock on the acquisition date. The estimated fair value of the Company's common stock was based on the offering price of the common stock sold in the private placement which was both completed concurrently with and conditioned upon the closing of the Acquisition. This price was determined to be the best indication of fair value on that date since the price was based on an arm's length negotiation with a group consisting of both new and existing investors that had been advised of the pending Acquisition and assumed similar liquidity risk as those investors holding the majority of shares being valued as purchase consideration.

The following table summarizes the Company's determination of fair values of the assets acquired and the liabilities as of the date of acquisition.

Consideration – issuance of securities	$ 2,219,903
Prepaid expenses and other assets	$ 71,892
Fixed assets	6,515
Accrued liabilities	(380,130)
Derivative liability	(59,485)
Goodwill	1,675,462
Total purchase price – net of cash acquired of $905,649	$ 1,314,254

The Company determined that the acquired Novelos legacy technology had no value as of the date of the acquisition.

Goodwill

Of the total purchase price of $2,219,903, $1,675,462 was allocated to goodwill. Goodwill represents the excess of the purchase price of an acquired business over the fair value of the underlying net tangible and intangible assets. The goodwill includes the value of the Novelos work force (management team). None of the goodwill associated with the Acquisition is deductible for income tax purposes.

There were no changes in goodwill during the year ended December 31, 2011, after the initial purchase accounting.

The Company is required to perform an annual impairment test related to goodwill which is performed in the fourth quarter of each year, or sooner if changes in circumstances suggest that the carrying value of an asset may not be recoverable. During the fourth quarter of 2011, the annual test was performed and it was determined that there had been no impairment to goodwill.

There were no changes in circumstances during the nine months ended September 30, 2012 that would suggest that the goodwill is not recoverable. There were no changes in goodwill during the nine months ended September 30, 2012.

5. FIXED ASSETS

Fixed assets consisted of the following at December 31:

	2011	2010
Office and laboratory equipment	$ 3,069,889	$ 2,984,375
Computer software	4,000	—
Leasehold improvements	2,324,672	2,317,597
Total fixed assets	5,398,561	5,301,972
Less accumulated depreciation and amortization	(2,353,996)	(1,791,483)
Fixed assets, net	$ 3,044,565	$ 3,510,489

For the years ended December 31, 2011 and 2010, the Company incurred approximately $585,000 and $580,000 of depreciation expense, respectively.

During the nine months ended September 30, 2012, the change to net fixed assets consisted of an increase of approximately $384,083 to accumulated depreciation and amortization and purchases of equipment totaling approximately $37,000.

6. LICENSE AGREEMENTS

2003 License Agreement with the University of Michigan

In September 2003, Cellectar entered into an exclusive license agreement (the "U. Mich. Agreement") with the Regents of the University of Michigan, ("U. Mich.") for the development, manufacture and marketing of products under several composition-of-matter patents in North America that expire at varying dates in 2016. The U. Mich. Agreement expires upon the expiration of the last covered patent. The Company is responsible for an annual license fee of $10,000 and is required to pay costs associated with the maintenance of the patents covered by the U. Mich. Agreement. Additionally, the Company is required to make milestone payments of $50,000 upon the filing of a New Drug Application ("NDA") for a licensed product intended for use in a therapeutic or diagnostic application (such milestone fees may be deferred and paid within 12 months of the first commercial sale of such products) 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, provided that 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. Agreement provides that the Company pay a royalty equal to 3% of net sales of any licensed products sold by the Company or its sublicensees for such licensed products, provided however if the sublicense fee payable to the Company 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. Agreement provides for a reduction in the royalties owed by up to 50% if the Company is required to pay royalties to any third parties related to the sale of the licensed products. If the Company receives any revenue in consideration of rights to the licensed technology that is not based on net sales, excluding any funded research and development, the Company is required to pay U. Mich. 10% of amounts received. U. Mich. may terminate the agreement if the Company ceases operations, if the Company fails to make any required payment under the agreement, or if the Company otherwise materially breaches the agreement, subject to the applicable notice and cure periods. To date, the Company has made all payments as they have become due, there have been no defaults under the U. Mich. Agreement, nor has the Company been notified of a default by U. Mich. The Company may terminate the agreement with six months' notice to U. Mich. and the return of licensed product and related data. The U. Mich. Agreement contained milestones that required certain development activities to be completed by specified dates. All such development milestones have either been completed or have been 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 Company paid approximately $600 and $300 to U. Mich. for the reimbursement of patent maintenance fees during the years ended December 31, 2011 and 2010, respectively. As of December 31, 2011 and 2010, all annual license fees have been paid in a timely manner.

In connection with the U. Mich. Agreement, during 2003 Cellectar paid approximately $54,000 of back patent costs and issued 203,483 shares of common stock to U. Michigan as partial consideration for the rights described above. The estimated fair-market value of the issuance was $80,412 and was recorded as a license cost and is included as a component of stockholders equity in the accompanying balance sheets.

License Agreement with Wisconsin Alumni Research Foundation

In January 2006, Cellectar entered into a license agreement (the "WARF Agreement") with the Wisconsin Alumni Research Foundation ("WARF") under which Cellectar received a license, with a right to grant sublicenses, to develop, manufacture, and market products with respect to certain patents. The WARF Agreement required an initial license fee of $8,800 and provided that Cellectar pay royalties equal to 0.3% of sales of any licensed products. Cellectar was also required to reimburse WARF for patent filing fees and related costs. During the year ended December 31, 2010 there were no costs related to the patents under the WARF Agreement. During 2010, the WARF Agreement was terminated.

Novelos License Agreements

During 2007, Novelos entered into a Collaboration Agreement with Lee's Pharmaceutical (HK) Ltd. ("Lee's Pharm") whereby Lee's Pharm obtained an exclusive license to develop, manufacture and commercialize NOV-002 and NOV-205 in China, Hong Kong, Taiwan and Macau (the "Chinese Territory"). Under the terms of the agreement the Company is entitled to receive up to $1,700,000 in future milestone payments upon the completion of development and marketing milestones by Lee's Pharm and to receive royalty payments of between 12-25% of net sales of NOV-205 and NOV-002, as applicable, in the Chinese Territory and receive royalty payments of 12-15% of net sales of NOV-205 in the Chinese Territory. The agreement expires upon the expiration of the last patent covering any of the licensed products, or twelve years from the date of the first commercial sale in China, whichever occurs later.

During 2009, Novelos entered into a collaboration agreement (the "Collaboration Agreement") with Mundipharma International Corporation Limited ("Mundipharma") to develop, manufacture and commercialize, on an exclusive basis, Licensed Products (as defined in the Collaboration Agreement), including NOV-002, in Europe (other than the Russian Territory), Asia (other than the Chinese Territory) and Australia (collectively referred to as the "Mundipharma Territory"). Mundipharma is an independent associated company of Purdue Pharma, L.P. ("Purdue"). The Collaboration Agreement provides for Mundipharma to pay the Company royalties and fixed milestone payments based on sales and commercial launches in the licensed territories. For countries in which patents are held, the Collaboration Agreement expires on a country-by-country basis within the Mundipharma Territory on the earlier of (1) expiration of the last applicable Novelos patent within the country or (2) the determination that any patents within the country are invalid, obvious or otherwise unenforceable. For countries in which no patents are held, the Collaboration Agreement expires the earlier of 15 years from its effective date or upon generic product competition in the country resulting in a 20% drop in Mundipharma's market share. The Company may terminate the Collaboration Agreement upon breach or default by Mundipharma. Mundipharma may terminate the Collaboration Agreement upon breach or default, filing of voluntary or involuntary bankruptcy by Novelos, the termination of certain agreements with companies associated with the originators of the licensed technology, or 30-day notice for no reason.

The Company has suspended development of the products covered by the collaboration agreements described above. The Company does not anticipate that the collaboration agreements will have a material effect on its future results of operations, cash flows, and financial position.

7. CONVERTIBLE DEBT

On January 25, 2010, Cellectar issued nine convertible promissory notes ("Convertible Notes") in an aggregate principal amount of $2,720,985. The Convertible Notes provided for interest of 12% compounded annually with a maturity date of the earlier of (i) the date on which Cellectar's cash reserves fall below $250,000 or (ii) January 20, 2011. Upon an event of default, as defined, the interest rate increased by 10% to 22%. The outstanding principal balance, together with any unpaid interest, was convertible immediately, by the lenders, into common stock of the Company at $0.82987 per share (giving effect to the Exchange Ratio). Furthermore, the Convertible Notes were subject to an automatic conversion feature equal to 70% of the per share price of a qualified financing, should the Company complete a qualified financing transaction which raises at least $20,000,000 in proceeds to the Company. Since the Convertible Notes were convertible into common stock at date of issuance at a per share price which was less than the estimated fair value of the Company's common stock at that date, the Convertible Notes contained a beneficial conversion feature ("BCF"). The estimated intrinsic value of the BCF of $213,792 was determined as the difference between the conversion price and the estimated fair value of Cellectar common stock on the date of issuance, multiplied by the 3,278,786 shares of common stock into which the Convertible Notes were convertible at issuance. This amount was recorded as a component of interest expense on the date of issuance. The estimated per-share fair value of Cellectar common stock was determined by management based on a number of factors including an independent valuation, which was determined to be the best indication of the fair value as of the issuance date of the Convertible Notes. Since the conversion price was subject to adjustment in the event of a qualified transaction, as defined, the Convertible Notes also contain a contingent beneficial conversion feature ("CBCF"). This contingency did not materialize; therefore no intrinsic value was allocated to the CBCF. As of December 31, 2011 and 2010, principal of $0 and $2,720,985 was outstanding, respectively, on the Convertible Notes.

As of December 31, 2010, the Convertible Notes were classified as a long-term obligation on the accompanying December 31, 2010 balance sheet as a result of the conversion of the short-term obligation through the issuance of equity securities in connection with the Acquisition.

On January 20, 2011, the Convertible Notes matured but remained unpaid. Following the maturity and default of the Convertible Notes, the holders of the Convertible Notes agreed that all of the outstanding Convertible Notes would be automatically converted simultaneous with the completion of an acquisition and financing (the "Conversion Time"), if completed. The amount of shares issued upon such conversion would be dependent on the amount of investment made by the note holders at the Conversion Time and were negotiated based on outstanding principal and projected accrued interest based on an assumed closing date for the acquisition and financing. Since the number of shares to be issued upon conversion could not be determined until the Conversion Time, the Convertible Notes contained a CBCF. On April 1, 2011, Cellectar's Board of Directors voted to accept the note holders consent to convert the Convertible Notes into 4,181,535 shares of common stock immediately prior to the Acquisition. On April 8, 2011, immediately prior to the Acquisition, the principal and unpaid interest on the Convertible Notes was converted into the agreed total of 4,181,535 shares of common stock. Upon conversion of the Convertible Notes, the Company reclassified the aggregate outstanding principal and interest totaling $3,184,707 to a component of additional paid-in capital. The revised conversion terms resulted in the issuance of an additional 343,963 shares of common stock over the 3,837,572 shares of common stock that would have been issued if the unpaid principal and accrued interest on the Convertible Notes had been converted on that date in accordance with their original terms at the stated conversion price. On the date of conversion, the Company determined that the value of these additional shares was $257,973, based on the $0.75 per share offering price of the common stock sold in the private placement completed concurrently with the Acquisition, which is the best indication of fair value on the date of conversion. Since the conversion was not completed until April 8, 2011, the value of the additional shares of $257,973 was recorded as a component of interest expense during the second quarter of 2011.

8. LONG-TERM NOTES PAYABLE

On January 11, 2008, Cellectar entered into a loan agreement with a bank to borrow up to $1,200,000. The borrowing, evidenced by a note (the "Bank Note"), bore interest at a rate of 7.01% per annum, could be prepaid without penalty and was payable in 48 monthly principal and interest payments of $20,520 with a balloon payment of any remaining unpaid principal and interest on March 28, 2012. In the event of default of payment, Cellectar would be required to pay a late charge equal to 5% of the delinquent payment and the interest rate on the unpaid principal would be increased by 3%. The Bank Note was collateralized by substantially all assets of Cellectar and a deposit account in the amount of $500,000. As of December 31, 2010, the cash collateral is classified as restricted cash in the accompanying balance sheet. On April 8, 2011, immediately prior to the Acquisition, Cellectar paid approximately $627,000 in full settlement of the Bank Note. The payment was made in order to avoid an event of default that would have occurred as a result of the change of control that occurred at the time of the Acquisition. As of December 31, 2011 and 2010, $0 and $470,941 are classified as a long-term note payable in the accompanying balance sheets, respectively.

On September 15, 2010, Cellectar entered into certain loan agreements with the Wisconsin Department of Commerce ("WDOC Notes") to borrow a total of $450,000. The WDOC Notes bear interest at 2% per annum beginning on the date of disbursement and allow for the deferral of interest and principal payments until April 30, 2015. In the event of default of payment, interest on the delinquent payment is payable at a rate equal to 12% per annum. Monthly payments of $20,665 for principal and interest shall commence on May 1, 2015 and continue for 23 equal installments with the final installment of any remaining unpaid principal and interest due on April 1, 2017. As of December 31, 2011 and 2010, $450,000 is classified as a long-term note payable in the accompanying balance sheets.

Long-term notes payable consists of the following as of December 31:

	2011	2010
Bank Note, 7.01% interest	$ —	$ 675,743
Wisconsin Department of Commerce, 2% interest	450,000	450,000
	450,000	1,125,743
Less current portion	—	(204,802)
Long-term note payable, net of current portion	$ 450,000	$ 920,941

As of December 31, 2011, long-term notes payable matures as follows:

Years ended December 31,	
2012	$ —
2013	—
2014	—
2015	119,957
2016	243,591
Thereafter	86,452
	$ 450,000

For the years ended December 31, 2011 and 2010, the Company incurred approximately $17,500 and $62,000 of interest expense related to these long-term notes payable.

No payments were made on long-term obligations in the nine months ended September 30, 2012. The Company incurred approximately $7,000 of interest expense related to the long-term notes payable.

As of September 30, 2012, the outstanding principal on the WDOC Notes of $450,000 is classified as long-term debt outstanding in the accompanying balance sheet.

9. STOCKHOLDERS' EQUITY

On January 1, 2008, Cellectar converted from a Wisconsin limited liability company to a Wisconsin corporation (the "Conversion"). Each issued and outstanding unit of equity in the limited liability company immediately prior to the Conversion was converted into one issued and outstanding share of Cellectar common stock and each unexercised unit option outstanding immediately prior to the Conversion was converted into an option to acquire the same number of shares of the corporation's common stock. For the purpose of presentation in these financial statements, all amounts and disclosures related to equity issuances prior to the Acquisition have been retroactively restated by applying the Exchange Ratio in order to reflect the capital structure of Novelos and therefore the issuance of Novelos common stock, rather than member units in the limited liability company or common stock of Cellectar, as applicable.

From inception until the Acquisition on April 8, 2011, Cellectar issued 12,559,218 shares of common stock for net proceeds of approximately $21,710,000.

April 2011 Private Placement

Concurrently with and conditioned upon the execution of the Merger Agreement, the Company entered into a securities purchase agreement with certain accredited investors under which the Company sold an aggregate of 6,846,537 units, each unit consisting of one share of its common stock and a warrant to purchase one share of its common stock, at a price of $0.75 per unit, for gross proceeds of approximately $5,135,000 (the "April Private Placement"). The warrants have an exercise price of $0.75 and expire on March 31, 2016. The warrant exercise price and/or the common stock issuable pursuant to such warrant will be subject to adjustment only for stock dividends, stock splits or similar capital reorganizations so that the rights of the warrant holders after such event will be equivalent to the rights of warrant holders prior to such event. The relative fair value of the warrants issued to the investors was $2,124,286 at issuance and has been included as a component of stockholders' equity. The Company uses the Black-Scholes option pricing model to value warrants and applies assumptions that consider, among other variables, the fair value of the underlying stock, risk-free interest rate, volatility, expected life and dividend rates in estimating fair value for the warrants. Assumptions used are generally consistent with those disclosed for stock-based compensation (see Note 10).

The securities purchase agreement includes certain registration requirements which were subsequently extended by the consent of purchasers holding a majority of shares of the Company's common stock issued in the April Private Placement, which holders constituted the requisite holders, as defined. The Company was required to file with the SEC a registration statement covering the resale of the shares of common stock and the shares of common stock underlying the warrants issued pursuant to the securities purchase agreement that are not otherwise saleable under an available exemption from registration requirements. The Company was also required to use commercially reasonable efforts to have the registration statement declared effective by July 28, 2012 and is required to keep the registration statement continuously effective under the Securities Act of 1933, as amended (the "Securities Act"), until the earlier of the date when all the registrable securities covered by the registration statement have been sold or such time as all the registrable securities covered by the registration statement can be sold under Rule 144 without any volume limitations. The Company filed a registration statement with the SEC on July 17, 2012 covering the resale of 4,000,000 shares of common stock pursuant to the registration requirements and this registration statement was declared effective on July 26, 2012.

The Company will be allowed to suspend the use of the registration statement for not more than 30 consecutive days on not more than two occasions in any 12-month period (the "Allowed Delay"). If the Company suspends the use of the registration for longer than the Allowed Delay, it may be required to pay to the purchasers liquidated damages equal to 1.5% per month (pro-rated on a daily basis for any period of less than a full month) of the aggregate purchase price of the units purchased until the use of the registration statement is no longer suspended, not to exceed 5% of the aggregate purchase price. The Company has also granted piggy-back registration rights with respect to any shares of common stock that it is required to exclude from the registration statement as a condition of its effectiveness, and has also agreed to file further registration statements with respect to any such shares six months after the effective date of the initial registration statement. As of December 31, 2011, and through the date of this filing, the Company has not concluded that it is probable that damages will become due; therefore, no accrual for damages has been recorded.

The Company paid to the placement agent for the financing a cash fee equal to $200,000 and issued warrants to purchase 192,931 shares of its common stock (having an exercise price of $0.75 and which expire March 31, 2016) in consideration for their advisory services with respect to the financing pursuant to the placement agency agreement. The placement agent is entitled to registration rights with respect to the shares of common stock issuable upon exercise of these warrants. The cash fee was recorded as a reduction of gross proceeds received. The estimated fair value of the warrants issued to the placement agent was $112,096 and was recorded as a component of stockholders' equity.

December 2011 Underwritten Offering

On December 6, 2011, the Company completed an underwritten public offering of 10,081,667 shares of its common stock and warrants to purchase up to an aggregate of 10,081,667 shares of its common stock at an exercise price of $0.60 per share, expiring on December 6, 2016, for gross proceeds of $6,049,000 and net proceeds of $5,298,140 after deducting transaction costs (the "Underwritten Offering"). The warrant exercise price and the common stock issuable pursuant to such warrant are subject to adjustment only for stock dividends, stock splits and similar capital reorganizations so that the rights of the warrant holders after such event will be equivalent to the rights of the warrant holders prior to such event. The relative fair value of the warrants issued to the investors was $2,350,320 at issuance and has been included as a component of stockholders' equity. The Company uses the Black-Scholes option pricing model to value warrants and applies assumptions that consider, among other variables, the fair value of the underlying stock, risk-free interest rate, volatility, expected life and dividend rates in estimating fair value for the warrants. Assumptions used are generally consistent with those disclosed for stock-based compensation (see Note 10). The Company paid the underwriter a cash fee of $302,000, which was recorded as a reduction of the gross proceeds received.

June 2012 Public Offering

On June 13, 2012, pursuant to securities purchase agreements entered into with investors on June 7, 2012, the Company completed a registered public offering of an aggregate of 5,420,800 shares of its common stock, warrants to purchase up to an aggregate of 5,420,800 at an exercise price of $1.00 per share, exercisable for 90 days from issuance (the "Class B Warrants"), and warrants to purchase up to an aggregate of 2,710,400 shares of its common stock at an exercise price of $1.25 per share, exercisable for five years from issuance, for total gross proceeds of $5,420,800 and net proceeds of $4,870,978 after deducting transaction costs (the "June Offering"). The warrant exercise price and the common stock issuable pursuant to such warrants are subject to adjustment only for stock dividends, stock splits and similar capital reorganizations, in which event the rights of the warrant holders would be adjusted as necessary so that they would be equivalent to the rights of the warrant holders prior to such event. The relative fair value of the warrants issued to the investors was $1,994,631 at issuance and has been included as a component of stockholders' equity. In the June Offering, the Company paid a cash fee of $379,456 and issued warrants to purchase 271,040 shares of its common stock at an exercise price of $1.25 per share expiring on June 13, 2017 to the placement agent. The cash fee was recorded as a reduction of the gross proceeds received. The estimated fair value of the warrants issued to the placement agent was $255,703 and was recorded as a component of stockholders' equity.

On September 10, 2012, the Company amended the terms of the Class B Warrants with investors who held warrants to purchase 5,255,000 shares of our common stock to extend the expiration date for the exercise of such warrants until October 11, 2012. An investor who held Class B Warrants to purchase 15,000 shares of our common stock did not elect to amend their agreement and such warrants expired on September 11, 2012. These warrants had been issued in connection with the June Offering, had an expiration date of September 11, 2012 and were exercisable at a price of $1.00 per share. The modification of the expiration date of the warrants resulted in a deemed dividend to warrant holders of $543,359 which was calculated as the difference between the fair value of the warrants immediately before and after the modification using the Black-Scholes option pricing model. The deemed dividend is reflected as an adjustment to net loss to arrive at net loss attributable to common stockholders in the nine months ended September 30, 2012. Since the Company had an accumulated deficit at the time of the modification, there was no impact to the components of stockholders' equity as a result of the recognition of the deemed dividend.

During the nine months ended September 30, 2012, Class B Warrants were exercised for an aggregate of 150,800 shares of common stock and the Company received aggregate cash proceeds of $150,800 in respect of those exercises. Subsequent to September 30, 2012, Class B Warrants were exercised for an aggregate of 937,500 shares of common stock and the Company received aggregate cash proceeds of $937,500. The balance of the Class B Warrants, exercisable for up to 4,317,500 shares of common stock, expired (see Note 19).

November Private Placement

See Note 19 for details regarding a private placement of common stock and warrants that was completed in November 2012.

Legacy Warrants

Outstanding warrants to purchase 315,164 shares of common stock, originally issued in connection with Novelos equity and debt financings from 2007 through 2010, remained outstanding subsequent to the Acquisition (Note 4).

Common Stock Warrants

The following table summarizes information with regard to outstanding warrants to purchase common stock as of December 31, 2011. There were no outstanding common stock purchase warrants as of December 31, 2010.

Offering	Number of Shares Issuable Upon Exercise of Outstanding Warrants		Exercise Price	Expiration Date
December 6, 2011 Underwritten Offering	10,081,667	$	0.60	December 6, 2016
April 8, 2011 Private Placement	7,039,468	$	0.75	March 31, 2016
Legacy warrants (1)	77,729	$	0.60	July 27, 2015
Legacy warrants	105,040	$	16.065	July 27, 2015
Legacy warrants	91,524	$	99.45-100.98	December 31, 2015
Legacy warrants	8,561	$	191.25	May 2, 2012
Total	17,403,989			

(1) The exercise prices of these warrants are subject to adjustment for "down-rounds" and have been accounted for as derivative instruments as described in Note 3.

On May 4, 2011, 18,153 shares of common stock were issued in connection with the cashless exercise of warrants to purchase 27,310 shares of common stock at $0.75 per share. The Company reclassified $48,339 from the derivative liability to additional paid-in capital upon the exercise of the warrants. In connection with the December 2011 Underwritten Offering, 5,000 warrants previously issued to the placement agent were cancelled.

The warrant activity during the nine months ended September 30, 2012 was as follows:

The Company issued 23,495 shares of common stock in connection with the cashless exercise of warrants to purchase50,419 shares of common stock at $0.60 per share expiring on July 27, 2015. The Company reclassified $43,855 from the derivative liability to additional paid-in capital upon the exercise of the warrants.

The Company issued 374,597 shares of common stock in connection with the cashless exercise of warrants to purchase 980,657 shares of common stock at $0.75 per share expiring on March 31, 2016.

The Company issued 582,981 shares of common stock in connection with the cashless exercise of warrants to purchase 833,333 shares of common stock. The warrants had an expiration date of December 6, 2016 and an exercise price of $0.60 per share.

The Company issued 150,800 shares of common stock related to the exercise of warrants to purchase 150,800 shares of common stock. The warrants had an expiration date of September 11, 2012 and an exercise price of $1.00 per share.

On May 7, 2012, warrants to purchase 8,561 shares of common stock at $191.25 expired unexercised. On September 11, 2012, warrants to purchase 15,000 shares of common stock at $1.00 per share expired unexercised.

As of September 30, 2012, 23,767,459 warrants remained outstanding.

Reserved Shares

The following shares were reserved for future issuance upon exercise of stock options and warrants or conversion of debt:

	Nine Months Ended September 30, (unaudited)		December 31,	
	2012	2011	2011	2010
Warrants	23,767,459	7,327,322	17,403,989	—
Stock options	4,675,754	3,632,638	4,827,638	769,189
Convertible notes	—	—	—	3,646,370
Total number of shares reserved for future issuance	28,443,213	10,959,960	22,231,627	4,415,559

10. STOCK-BASED COMPENSATION

Prior to the Acquisition, Cellectar's Board of Directors determined exercise prices and vesting periods on the date of grant, subject to the provisions of the 2006 Unit Option Plan and the 2008 Stock Incentive Plan (collectively, the "Cellectar Plans"). Options have been granted at or above the estimated fair-market value of the common stock at the grant date. Options granted pursuant to the 2006 Cellectar Plan and 2008 Plan generally would have become fully vested in the event of a business combination whereby the options are not assumed or replaced by the surviving company, as defined. On March 17, 2011, in contemplation of the Acquisition, Cellectar terminated the remaining options outstanding granted under the Cellectar Plans and the Cellectar Plans were terminated.

In connection with the Acquisition, the Company assumed options to purchase 49,159 shares of common stock at exercise prices ranging from $1.53 to $1,072.53.

2006 Novelos Stock Option Plan. Following the Acquisition, option grants to directors and employees will be made under the Novelos Therapeutics 2006 Stock Incentive Plan (the "Plan"). On May 18, 2011, the Board of Directors of the Company approved certain amendments to the Plan to, among other things, increase the aggregate number of shares of the Company's common stock reserved for issuance under the Plan (including any shares that have already been issued thereunder), to 7,000,000 and remove the 750,000 share annual individual limitation on grants under the Plan. On June 30, 2011, the Company's stockholders approved those amendments. On August 23, 2012, the Board of Directors adopted an amendment to the Plan to increase the aggregate number of common stock reserved for issuance under the Plan to 10,000,000, which was approved by the Company's stockholders on October 25, 2012 (see Note 19).

A total of 7,000,000 shares of common stock are reserved for issuance under the Plan for grants of incentive or nonqualified stock options, rights to purchase restricted and unrestricted shares of common stock, stock appreciation rights and performance share grants. A committee of the board of directors determines exercise prices, vesting periods and any performance requirements on the date of grant, subject to the provisions of the Plan. Options are granted at or above the fair market value of the common stock at the grant date and expire on the tenth anniversary of the grant date. Vesting periods are generally between one and four years. Options granted pursuant to the Plan generally will become fully vested upon a termination event occurring within one year following a change in control, as defined. A termination event is defined as either termination of employment or services other than for cause or constructive termination of employees or consultants resulting from a significant reduction in either the nature or scope of duties and responsibilities, a reduction in compensation or a required relocation. As of December 31, 2011, there are an aggregate of 2,281,112 shares available for future grants under the Plan.

Accounting for Stock-Based Compensation

The Company uses the Black-Scholes option-pricing model to calculate the grant-date fair value of stock option awards. The resulting compensation expense, net of expected forfeitures, for non-performance based awards is recognized on a straight-line basis over the service period of the award, which is generally three years for stock options. For stock options with performance-based vesting provisions, recognition of compensation expense, net of expected forfeitures, commences if and when the achievement of the performance criteria is deemed probable. The compensation expense, net of expected forfeitures, for performance-based stock options is recognized over the relevant performance period. Evaluation of the probability of meeting performance targets is evaluated at the end of each reporting period. Non-employee stock-based compensation is accounted for in accordance with the guidance of FASB ASC Topic 505, *Equity.* As such, the Company recognizes expense based on the estimated fair value of options granted to non-employees over their vesting period, which is generally the period during which services are rendered and deemed completed by such non-employees.

The following table summarizes amounts charged to expense for stock-based compensation related to employee and director stock option grants and stock-based compensation recorded in connection with stock options granted to non-employee consultants:

	Nine Months Ended September 30, (unaudited)		Year Ended December 31,		Cumulative Development-Stage Period from November 7, 2002 through December 31,
	2012	2011	2011	2010	2011
Employee and director stock option grants:					
Research and development	$ 234,816	$ 121,393	$ 190,172	$ 61,791	$ 488,558
General and administrative	747,808	349,781	570,884	291,549	2,148,187
	982,624	471,174	761,056	353,340	2,636,745
Non-employee consultant stock option grants:					
Research and development	85,265	46,851	36,157	—	36,157
General and administrative	92,022	137,631	110,247	—	181,971
	177,287	184,482	146,404	—	218,128
Total stock-based compensation	$ 1,159,911	$ 655,656	$ 907,460	$ 353,340	$ 2,854,873

On July 14, 2010, the expiration date of vested options held by a former employee was extended until July 8, 2015. The extension constituted a modification to the terms of the award and additional stock-based compensation was measured as the excess of the fair value of the modified award over the fair value of the original award immediately before the modification. Accordingly, incremental stock-based compensation expense of approximately $20,000 was recorded in connection with the modification.

The Company granted 5,026,500 stock options to employees and non-employees during the twelve months ended December 31, 2011 under the Plan, of which 670,200 were performance-based awards. As of December 31, 2011, 335,100 of these performance-based awards were outstanding and 335,100 had been forfeited and as of September 30, 2012, 167,550 of these performance-based awards were outstanding and 502,650 had been expired. No compensation expense has been recognized related to the performance-based awards as the Company does not believe that it is probable that the performance targets will be met. The Company issued options to purchase a total of 200,000 shares of common stock to non-employees outside of any formalized plan, but 100,000 were forfeited as a result of the cancellation and replacement as described below. Exercise prices for all grants made in the during the twelve months ended December 31, 2011 were equal to the market value of the Company's common stock on the date of grant.

On May 18, 2011, the Company cancelled 100,000 options originally granted on April 25, 2011 with an exercise price of $3.00 per share and issued 100,000 replacement stock option awards with an exercise price of $1.40. The cancellation and replacement constituted a modification to the terms of the award and additional stock-based compensation was measured as the excess of the fair value of the modified award over the fair value of the original award immediately before the modification. Accordingly, incremental stock-based compensation expense of $4,494 was recorded in connection with the modification.

The Company granted 24,000 stock options to employees during the nine months ended September 30, 2012 under the Plan. The exercise price for the grants made during the nine months ended September 30, 2012 were equal to the market value of the Company's common stock on the date of grant.

Assumptions Used In Determining Fair Value

Valuation and amortization method. The fair value of each stock award is estimated on the grant date using the Black-Scholes option-pricing model. The estimated fair value of employee stock options is amortized to expense using the straight-line method over the vesting period. The estimated fair value of the non-employee options is amortized to expense over the period during which a non-employee is required to provide services for the award (usually the vesting period).

Volatility. Cellectar estimated volatility based on a review of volatility estimates of publicly held drug development companies in a similar stage of development. Subsequent to the Acquisition, the Company estimates volatility based on an average of (1) the Company's historical volatility since its common stock has been publicly traded and (2) review of volatility estimates of publicly held drug development companies with similar market capitalizations.

Risk-free interest rate. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant commensurate with the expected term assumption.

Expected term. The expected term of stock options granted is based on an estimate of when options will be exercised in the future. The Company applied the simplified method of estimating the expected term of the options, as described in the SEC's Staff Accounting Bulletins 107 and 110, as the Company has had a significant change in its business operations as result of the Acquisition and the historical experience is not indicative of the expected behavior in the future. The expected term, calculated under the simplified method, is applied to groups of stock options that have similar contractual terms. Using this method, the expected term is determined using the average of the vesting period and the contractual life of the stock options granted. The Company applied the simplified method to non-employees who have a truncation of term based on termination of service and utilizes the contractual life of the stock options granted for those non-employee grants which do not have a truncation of service.

Forfeitures. Stock-based compensation expense is recorded only for those awards that are expected to vest. FASB ASC Topic 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The term "forfeitures" is distinct from "cancellations" or "expirations" and represents only the unvested portion of the surrendered option. An annual forfeiture rate of 0% was applied to all unvested options as of December 31, 2010 as Cellectar had experienced very few forfeitures through 2009 and there was insufficient history to develop an accurate estimate of future forfeitures. An annual forfeiture rate of 0% was applied to all unvested options as of December 31, 2011 as the historical experience of forfeitures is not representative of expected future forfeiture rates as a result of the significant changes in the business operations as a result of the Acquisition. Additionally, the majority of the 2011 forfeitures were related to unmet milestones on performance-based options that are not representative of the expected future forfeiture rates for the Company's service-based awards. This analysis will be re-evaluated semi-annually and the forfeiture rate will be adjusted as necessary. Ultimately, the actual expense recognized over the vesting period will be for only those shares that vest.

The following table summarizes weighted-average values and assumptions used for options granted to employees, directors and consultants in the periods indicated:

	Nine Months Ended September 30, 2012	Nine Months Ended September 30, 2011	Twelve Months Ended December 31, 2011
Volatility	115%	110%	110 - 115%
Risk-free interest rate	0.925%	1.84%-3.17%	0.89% – 3.17%
Expected life (years)	6.0	5.5 – 6.25	5.5 – 6.25
Dividend	0%	0%	0%
Weighted-average exercise price	$ 1.00	$ 1.45	$ 1.16
Weighted-average grant-date fair value	$ 0.85	$ 1.22	$ 0.98

Stock Option Activity

A summary of stock option activity under stock option plans is as follows:

	Number of Shares Issuable Upon Exercise of Outstanding Options	Weighted Average Exercise Price	Weighted Average Remaining Contracted Term in Years	Aggregate Intrinsic Value
Outstanding at November 7, 2002	—			
Granted	922,654	$ 2.52		
Forfeited	(12,653)	$ 3.04		
Outstanding at January 1, 2009	910,001	$ 2.86		
Granted	90,929	$ 0.76		
Forfeited	(9,194)	$ 2.72		
Outstanding at December 31, 2009	991,736	$ 2.68		
Canceled	(222,547)	$ 2.63		
Outstanding at December 31, 2010	769,189	$ 2.69		
Canceled	(769,189)	$ 2.69		
Options acquired in connection with a business combination	49,159	$ 100.52		
Granted	5,226,500	$ 1.16		
Canceled	(9,992)	$ 115.16		
Forfeited	(438,029)	$ 2.44		
Outstanding at December 31, 2011	4,827,638	$ 1.82		
Granted	24,000	$ 1.00		
Forfeited	(175,884)	$ 1.36		
Outstanding at September 30, 2012 (unaudited)	4,675,754	$ 1.82		
Vested, December 31, 2010	743,450	$ 2.69	4.07	$ —
Unvested, December 31, 2010	25,739	$ 2.62	5.08	$ —
Exercisable at December 31, 2010	743,450	$ 2.69	4.07	$ —
Vested, December 31, 2011	636,634	$ 6.48	9.17	$ —
Unvested, December 31, 2011	4,191,004	$ 1.12	9.59	$ —
Exercisable at December 31, 2011	636,634	$ 6.48	9.17	$ —
Vested, September 30, 2012 (unaudited)	1,954,046	$ 2.92	8.69	$ 252,062
Unvested, September 30, 2012 (unaudited)	2,721,708	$ 1.06	8.87	$ 620,198
Exercisable at September 30, 2012 (unaudited)	1,954,046	$ 2.92	8.69	$ 252,062

There were no stock options granted during the twelve months ended December 31, 2010.

The aggregate intrinsic value of options outstanding is calculated based on the positive difference between the estimated per-share fair value of common stock at the end of the respective period and the exercise price of the underlying options. At December 31, 2011 and 2010, the estimated fair-market value of common stock was less than the exercise price of the underlying options, as such, the aggregate intrinsic value is $0. There have been no option exercises to date. Shares of common stock issued upon the exercise of options are from authorized but unissued shares.

The weighted-average grant-date fair value of options granted during the year ended December 31, 2011 and for the period from November 7, 2002 to December 31, 2011 was $0.98 and $1.28, respectively. There were no options granted during the year ended December 31, 2010. The total fair value of shares vested during December 31, 2011 and 2010 and for the period November 7, 2002 (date of inception) to December 31, 2011 was $756,400, $199,600 and $2,806,400, respectively. The weighted-average grant-date fair value of vested and unvested options outstanding at December 31, 2011 and 2010 was $1.31 and $0.89 and $2.01 and $1.91, respectively.

As of December 31, 2010, there was approximately $58,000 of total unrecognized compensation cost, all of which was attributable to unvested stock-based compensation arrangements related to employees, which was recognized in the twelve months ended December 31, 2011.

On March 4, 2011, in contemplation of the Acquisition and in accordance with terms of the applicable option agreements, Cellectar accelerated the vesting on all outstanding and unvested options at that date and notified all option holders that any unexercised options as of March 17, 2011 would then be terminated. On March 17, 2011, Cellectar terminated all outstanding options. The remaining unamortized compensation expense of $58,000 was recorded related to the acceleration of outstanding options in the quarter ended March 31, 2011. No additional compensation expense was recorded related to the acceleration of unvested shares as the acceleration did not represent a modification to the original terms of the options.

As of December 31, 2011, there was $2,956,117 of total unrecognized compensation cost related to unvested stock-based compensation arrangements. Of this total amount, the Company expects to recognize $1,321,168, $1,051,631, $507,630 and $75,688 during 2012, 2013, 2014 and 2015, respectively. The Company expects 3,855,904 in unvested options to vest in the future.

As of September 30, 2012, there was $2,007,878 of total unrecognized compensation cost related to unvested stock-based compensation arrangements. Of this total amount, the Company expects to recognize $332,937, $1,052,094, $512,204 and $110,643 during 2012, 2013, 2014 and 2015, respectively. The Company expects 2,554,158 in unvested options, excluding performance-based awards, to vest in the future. The weighted-average grant-date fair value of vested and unvested options outstanding at September 30, 2012 was $1.04 and $0.87, respectively.

11. INCOME TAXES

	2011	2010
Tax provision (benefit)		
Current		
Federal	$ —	$ —
State	—	—
Total current	—	—
Deferred		
Federal	(944,333)	(1,592,000)
State	(161,963)	(290,000)
Total deferred	(1,106,296)	(1,882,000)
Change in valuation	1,106,296	1,882,000
Total	$ —	$ —

Deferred tax assets consisted of the following at December 31:

	2011	2010
Deferred tax assets		
Federal net operating loss	$ 19,447,371	$ 6,116,804
Federal research and development tax credit carryforwards	1,956,146	390,600
State net operating loss	2,444,816	814,492
State research and development tax credit carryforwards	597,608	220,738
Capitalized research and development expenses	13,007,013	—
Capital loss carryforward (expires beginning in 2012)	340,000	—
Stock-based compensation expense	333,206	552,859
Intangible assets	555,198	—
Charitable contribution carryforwards	44,370	49,725
Accrued liabilities	35,314	25,327
Total deferred tax assets	38,761,042	8,170,545
Deferred tax liabilities		
Depreciable assets	(346,870)	(434,056)
Total deferred tax liabilities	(346,870)	(434,056)
Net deferred tax assets	38,414,172	7,736,489
Less valuation allowance	(38,414,172)	(7,736,489)
Total deferred tax assets	$ —	$ —

As of December 31, 2011, the Company had federal and state net operating loss carryforwards ("NOLs") of approximately $57,198,000 and $46,533,000 respectively, which expire beginning in 2031 and 2025, respectively. In addition, the Company has federal and state research and development and investment tax credits of approximately $1,956,000 and $905,000, respectively. The amount of NOLs which may be utilized annually in future periods will be limited pursuant to Section 382 of the Internal Revenue Code as a result of substantial changes in the Company's ownership that have occurred or that may occur in the future. The Company has not quantified the amount of such limitations.

Because of the Company's limited operating history, continuing losses and uncertainty associated with the utilization of the NOLs in the future, management has provided a full allowance against the gross deferred tax asset.

The Company did not have unrecognized tax benefits or accrued interest and penalties at any time during the years ended December 31, 2011 or 2010, and does not anticipate having unrecognized tax benefits over the next twelve months. The Company is subject to audit by the IRS and state taxing authorities for tax periods commencing January 1, 2008. Additionally, the Company may be subject to examination by the IRS for years beginning prior to January 1, 2008 as a result of its NOLs. However, any adjustment related to these periods would be limited to the amount of the NOL generated in the year(s) under examination.

For the nine months ended September 30, 2012, the federal and state NOLs increased by approximately $6,640,000 as a result of the loss recorded.

12. NET LOSS PER SHARE

Basic net loss per share is computed by dividing net loss by the weighted average number of shares of common stock outstanding during the period. Diluted net loss per share is computed by dividing net loss, as adjusted, by the sum of the weighted average number of shares of common stock and the dilutive potential common stock equivalents then outstanding. Potential common stock equivalents consist of stock options and convertible debt. Since there is a net loss attributable to common stockholders for the years ended December 31, 2011 and 2010, the inclusion of common stock equivalents in the computation for those periods would be antidilutive. Accordingly, basic and diluted net loss per share is the same for all periods presented.

The following potentially dilutive securities have been excluded from the computation of diluted net loss per share since their inclusion would be antidilutive:

	Nine Months Ended September 30, (unaudited)		Twelve Months Ended December 31,		Cumulative Development-Stage Period from November 7, 2002 (inception) through December 31,
	2012	2011	2011	2010	2011
Convertible debt	—	—	—	3,646,370	—
Warrants	23,767,459	7,327,322	17,403,989	—	17,403,989

Stock options	4,675,754	3,632,638	4,827,638	769,189	4,827,638

13. COMMITMENTS

Real Property Leases

On September 5, 2007, Cellectar entered into a 36-month lease for office and manufacturing space, commencing September 15, 2007. The lease provides for the option to extend the lease under its current terms for seven additional two-year terms. Rent is $8,050 per month for the first year and then escalates by 3% per year for the duration of the term including any lease extension terms. The lease also requires the payment of monthly rent of $1,140 for approximately 3,400 square feet of expansion space. The monthly rent for the expansion space is fixed until such time as the expansion space is occupied at which time the rent would increase to the current per square foot rate in effect under the original lease terms. The Company is responsible for certain building-related costs such as property taxes, insurance, and repairs and maintenance. Rent expense is recognized on a straight-line basis and accordingly the difference between the recorded rent expense and the actual cash payments has been recorded as deferred rent as of each balance sheet dates. Due to the significant value of leasehold improvements purchased during the initial 3-year lease term and the economic penalty for not extending the building lease, straight-line rent expense and the associated deferred rent has been calculated over 17 years, which represents the full term of the lease, including all extensions.

The Company is required to remove certain alterations, additions and improvements upon termination of the lease that altered a portion of the rentable space. In no event shall the cost of such removal, at commercially reasonable rates, paid by the Company exceed $55,000 (“Capped Amount”). Any amount in excess of the Capped Amount shall be the obligation of the landlord. The Company is required to maintain a certificate of deposit equal to the Capped Amount during the term of the lease, which amount is shown as restricted cash on the accompanying balance sheets.

The lease has been extended, in accordance with its terms, through September 14, 2014. Future minimum lease payments under this non-cancelable lease are approximately as follows:

Years ended December 31,	
2012	$ 126,000
2013	123,000
2014	94,000
2015	—
Thereafter	—
	$ 343,000

The Company also leases office space in Newton, MA, which has a term that is month-to-month and requires monthly rental payments of $5,300.

Rent expense was approximately $170,000 and $143,000 for the nine months ended September 30, 2012 and 2011, respectively and $197,000 and $159,000 for the years ended December 31, 2011 and 2010, respectively and approximately $1,141,000 from inception to December 31, 2011.

Equipment Lease

Certain equipment is leased under a capital lease. The lease agreement requires monthly principal and interest payments of $217 and expires on September 3, 2014. The outstanding obligation is being amortized using a 7% interest rate based on comparable borrowing rates.

The following table provides the estimated future minimum rental payments under all capital leases together with the present value of the net minimum lease payments as of December 31, 2011:

	Minimum lease payments	Less interest	Present value of net minimum lease payments
2012	$ 2,608	$ 373	$ 2,235
2013	2,608	211	2,397
2014	1,739	45	1,694
	$ 6,955	$ 629	$ 6,326

The equipment recorded under capitalized leases is included in fixed assets as of December 31:

	2011	2010
Office equipment	$ 10,973	$ 10,973
Less accumulated amortization	(5,123)	(2,928)
	$ 5,850	$ 8,045

14. CONTINGENCIES

Litigation

The Company is party to certain legal matters that existed with Novelos prior to the Acquisition. The following summarizes the status of those matters.

Class Action

A putative federal securities class action complaint was filed on March 5, 2010 in the United States District Court for the District of Massachusetts by an alleged shareholder of Novelos, on behalf of himself and all others who purchased or otherwise acquired Novelos common stock in the period between December 14, 2009 and February 24, 2010, against Novelos and its President and Chief Executive Officer, Harry S. Palmin. On October 1, 2010, the court appointed lead plaintiffs (Boris Urman and Ramona McDonald) and appointed lead plaintiffs' counsel. On October 22, 2010, an amended complaint was filed. The amended complaint claims, among other things, that Novelos violated Section 10(b) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder in connection with alleged misleading disclosures related to the progress of the Phase 3 clinical trial of NOV-002 for non-small cell lung cancer. On December 6, 2010, the defendants filed a motion to dismiss the complaint with prejudice. On January 20, 2011, the plaintiffs filed their opposition to our motion and on March 3, 2011, the defendants filed their response to the opposition. On June 23, 2011, the motion to dismiss was granted and the case was dismissed without prejudice. Because the dismissal was without prejudice, the plaintiffs could reinstitute the proceeding by filing an amended complaint. On August 5, 2011, the plaintiffs filed a second amended complaint realleging that the defendants violated Section 10(b) of the Exchange Act and Rule 10b-5 in connection with alleged misleading disclosures related to the Phase 3 clinical trial for NOV-002 in non-small cell lung cancer. On September 9, 2011, the defendants filed a motion to dismiss the second amended complaint. The plaintiffs' opposition to the motion was filed on October 14, 2011 and the defendants filed a reply brief on November 4, 2011. On June 11, 2012, the second amended complaint was dismissed with prejudice. The plaintiffs did not file a notice of appeal prior to the expiration of the deadline for such filing on July 13, 2012.

BAM Dispute

From its inception through 2010, Novelos was primarily engaged in the development of certain oxidized glutathione-based compounds for application as therapies for disease, particularly cancer. These compounds were originally developed in Russia and in June 2000, Novelos acquired commercial rights from the Russian company ("ZAO BAM") which owned the compounds and related Russian patents. In April 2005, Novelos acquired worldwide rights to the compounds (except for the Russian Federation) in connection with undertaking extensive development activities in an attempt to secure US Food and Drug Administration ("FDA") approval of the compounds as therapies. These development activities culminated in early 2010 in an unsuccessful Phase 3 clinical trial of an oxidized glutathione compound (NOV-002) as a therapy for non-small cell lung cancer. After the disclosure of the negative outcome of the Phase 3 clinical trial in 2010, ZAO BAM claimed that Novelos modified the chemical composition of NOV-002 without prior notice to or approval from ZAO BAM, constituting a material breach of the June 2000 technology and assignment agreement. In September 2010, Novelos filed a complaint in Massachusetts Superior Court seeking a declaratory judgment by the court that the June 2000 agreement has been entirely superseded by the April 2005 agreement and that the obligations of the June 2000 agreement have been performed and fully satisfied. ZAO BAM answered the complaint and alleged counterclaims. In August 2011, Novelos filed a motion for judgment on the pleadings as to the declaratory judgment count and all counts of ZAO BAM's amended counterclaims. On October 17, 2011, the court ruled in favor of Novelos on each of the declaratory judgment claims and dismissed all counts of ZAO BAM's counterclaim. Judgment in favor of Novelos was entered on October 20, 2011. On November 14, 2011 ZAO BAM filed a notice of appeal.

We do not anticipate that these litigation contingencies will have a material impact on the Company's future financial position, results of operations or cash flows.

15. EMPLOYEE RETIREMENT PLAN

On January 1, 2009, Cellectar adopted a Safe Harbor defined contribution plan under Section 401(k) of the Internal Revenue Code which covered eligible employees who meet minimum age requirements and allowed participants to contribute a portion of their annual compensation on a pre-tax basis. Cellectar contributed 3% of each participant's compensation. Contributions made for the year ended December 31, 2010 was $23,000. The plan was canceled effective August 30, 2010.

Following the Acquisition, the Company has a defined contribution plan under Section 401(k) of the Internal Revenue Code which allows eligible employees who meet minimum age requirements to contribute a portion of their annual compensation on a pre-tax basis. The Company has not made any matching contributions under this plan.

16. RELATED PARTY TRANSACTIONS

Jamey Weichert, the Company's Chief Scientific Officer and principal founder of Cellectar, and a director and shareholder of the Company, is a faculty member at the University of Wisconsin-Madison ("UW").

During the year ended December 31, 2011, the Company made contributions totaling $206,500 to UW, for use towards unrestricted research activities. No payments were made to UW during the year ended December 31, 2010.

During the nine months ended September 30, 2012, the Company made contributions to UW totaling $206,500 for use towards unrestricted research activities and paid UW $144,044 for costs associated with clinical trial agreements. The Company made contributions to the UW of $125,000 during the nine months ended September 30, 2011.

17. SUPPLEMENTAL PRO FORMA INFORMATION

The table below summarizes net loss for the periods shown as though the Acquisition occurred as of January 1, 2010:

	For the Twelve Months Ended December 31,	
	2011	2010
Net loss	$ (7,256,438)	$ (1,704,966)

The pro forma net loss has been adjusted for the following:

1) Elimination of $165,000, and $361,000 of interest expense for the twelve months ended December 31, 2011 and 2010, respectively; such amounts relate to interest accrued on the Convertible Notes which were converted immediately prior to the Acquisition (see Note 7) and the Bank Note which was paid in full settlement of the note immediately prior to the Acquisition (see Note 8).
2) Recognition of an additional beneficial conversion feature ("BCF") of $463,000 in the year ended December 31, 2010 and the elimination of BCF of $258,000 in the year ended December 31, 2011 in connection with the conversion of the Convertible Notes, which is assumed to have occurred on January 1, 2010 for the purpose of pro forma presentation (see Note 7).
3) Elimination of Acquisition costs incurred during the year ended December 31, 2011 and 2010, which are assumed to have been incurred prior to January 1, 2010 for the purpose of presentation in the pro forma statements of operations.
4) Elimination of $450,000 of investment banking fees incurred upon the consummation of the Acquisition on April 8, 2011 from the twelve months ended December 31, 2011.
5) Elimination of dividends and deemed dividends on Novelos' preferred convertible stock, which is assumed to have been exchanged for common stock at January 1, 2010 in order to reflect the post-acquisition capital structure for the purpose of pro forma presentation.
6) Elimination of Novelos historical revenue related to the amortization of deferred revenue that was determined to have no fair value in purchase accounting.
7) Elimination of liquidated damages accrued in 2010 related to Novelos' convertible preferred stock. The liquidated damages are assumed not to have accrued as the preferred stock is assumed to have been exchanged for common stock at January 1, 2010 in order to reflect the post-acquisition capital structure for the purpose of pro forma presentation.

18. PROPOSED REVERSE STOCK SPLIT

On June 30, 2011, the Company held a special meeting of stockholders. At the meeting, the stockholders approved, among other things, separate amendments to the certificate of incorporation that would effect a reverse split of the Company's common stock within a range of 1:2 to 1:10, and authorized the Company's board of directors to determine the ratio at which the reverse split will be effected by filing the appropriate amendment to the certificate of incorporation, or to determine not to proceed with the reverse split at all. The purpose of the proposed reverse split was to increase the price per share of the Company's common stock in order to exceed the minimum price per share required to secure a listing on a national securities exchange and was contemplated in connection with the Company's underwritten public offering that closed on December 6, 2011 (see Note 9). The Company did not obtain the NASDAQ listing and did not effect the reverse split in connection with the offering. While the Company may effect a reverse split at a later date, the Company has no immediate plans to proceed with the reverse split or a listing on a national securities exchange.

19. SUBSEQUENT EVENTS

November Private Placement

On November 2, 2012, the Company completed a private placement of 2,000,000 shares of its common stock, warrants to purchase up to an aggregate of 2,000,000 shares of common stock at an exercise price of $1.00 per share, exercisable for 90 days from issuance, and warrants to purchase up to an aggregate of 1,000,000 shares of its common stock at an exercise price of $1.25 per share, exercisable for five years from issuance, for total gross proceeds of $2,000,000 (the "November Private Placement"). The warrant exercise price and the common stock issuable pursuant to such warrants are subject to adjustment only for stock dividends, stock spilts and similar capital reorganizations, in which event the rights of the warrant holders would be adjusted as necessary so that they would be equivalent to the rights of the warrant holders prior to such event. The proceeds from the November Private Placement are designated for use towards the construction of a clinical-stage manufacturing facility for I-124-CLR1404 (LIGHT) at the Company's Madison, WI location. The Company estimates that the project will cost a total of approximately $3,000,000 and, will take approximately one year to complete. The Company anticipates that construction will commence in late 2012, although the Company has not yet entered into contractual commitments with vendors. The Company may seek to obtain the additional capital required to complete the project from additional sales of common stock, proceeds from warrant exercises, or from equipment financing.

Warrant Exercises and Expirations

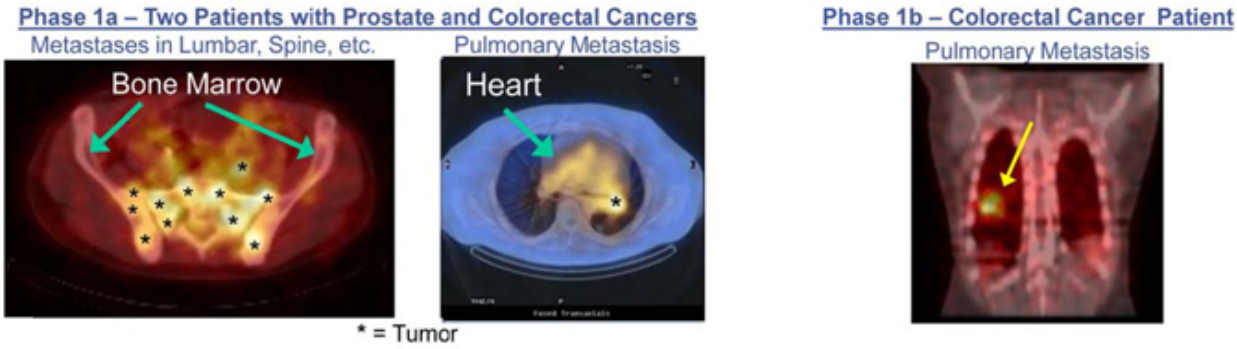
During October 2012, warrants were exercised for an aggregate of 937,500 shares of common stock underlying the warrants and the Company received cash proceeds of $937,500. The warrants were issued in June 2012, had an amended expiration date of October 11, 2012 and an exercise price of $1.00 per share.

On October 11, 2012, warrants to purchase 4,317,500 shares of common stock at $1.00 per share expired unexercised.

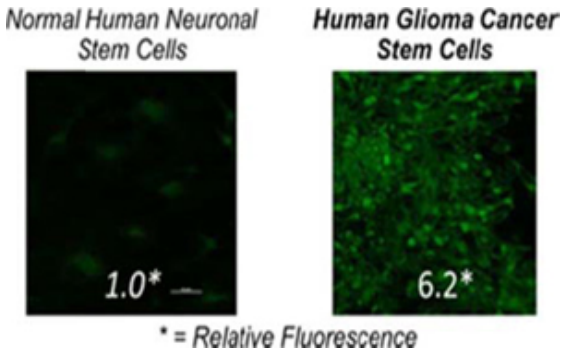
Stockholder Meeting

On October 25, 2012, the Company held a special meeting in lieu of annual meeting of stockholders. At the meeting, the stockholders reelected Thomas Rockwell Mackie, James S. Manuso and John E. Niederhuber as Class I directors and approved an amendment to the 2006 Stock incentive Plan to increase the number of shares of common stock issuable thereunder from 7,000,000 to 10,000,000.

In Humans, **HOT** Targets Cancerous Tumors - Not Normal Tissue or Bone Marrow
(SPECT/CT imaging of HOT in Phase 1a and 1b clinical trials)



HOT Selectively Targets Cancer Stem Cells
(Fluorescence photomicrographs; Green = uptake of fluorescent-labeled PLE)



cGMP Radiopharmaceutical Manufacturing Facility at Our Headquarters in Madison, WI

The images provided above are for illustrative purposes only and may not be indicative of all results.

The above illustrations do not refer to products approved by the FDA.

Novelos has not received any revenue from the sale of its products.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table provides information regarding the various actual and anticipated expenses (other than placement agent fees) payable by us in connection with the issuance and distribution of the securities being registered hereby. All amounts shown are estimates except the Securities and Exchange Commission registration fee.

Nature of Expense	Amount
SEC registration fee	$ 4,604
Accounting fees and expenses	20,000
Legal fees and expenses	75,000
Transfer agent's fees and expenses	3,000
Printing and related fees	15,000
Miscellaneous	5,000
Total	$ 122,604

Item 14. Indemnification of Directors and Officers

Section 102(b)(7) of the Delaware General Corporation Law allows us to adopt a charter provision eliminating or limiting the personal liability of directors to us or our stockholders for breach of fiduciary duty as directors, but the provision may not eliminate or limit the liability of directors for (a) any breach of the director's duty of loyalty to us or our stockholders, (b) any acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) unlawful payments of dividends or unlawful stock repurchases or redemptions under Section 174 of the Delaware General Corporation Law or (d) any transaction from which the director derived an improper personal benefit. Article Seventh of our charter provides that none of our directors shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, subject to the limitations imposed by Section 102(b)(7). Article Seventh also provides that no amendment to or repeal of Article Seventh shall apply to or have any effect on the liability or the alleged liability of any director with respect to any acts or omissions of such director occurring prior to such amendment or repeal. A principal effect of Article Seventh is to eliminate or limit the potential liability of our directors for monetary damages arising from breaches of their duty of care, unless the breach involves one of the four exceptions described in (a) through (d) above.

Section 145 of the Delaware General Corporation Law provides, in general, that a corporation incorporated under the laws of the State of Delaware, such as us, may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than a derivative action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. In the case of a derivative action, a Delaware corporation may indemnify any such person against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification will be made in respect of any claim, issue or matter as to which such person will have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery of the State of Delaware or any other court in which such action was brought determines such person is fairly and reasonably entitled to indemnity for such expenses.

Article Eighth of our amended and restated certificate of incorporation and Section 5.1 of our bylaws provide that we will indemnify our directors, officers, employees and agents to the extent and in the manner permitted by the provisions of the Delaware General Corporation Law, as amended from time to time, subject to any permissible expansion or limitation of such indemnification, as may be set forth in any shareholders' or directors' resolution or by contract.

Item 15. Recent Sales of Unregistered Securities

In the last three years we have sold the following securities in reliance on, unless otherwise indicated, the exemption under Section 4(2) of the Securities Act of 1933, as amended, as transactions not involving any public offering. All share and per share amounts have been adjusted to give effect to the 1-for-153 reverse stock split that occurred immediately prior to the Acquisition.

2012

From October 1, 2012 through present:

On November 2, 2012, pursuant to a securities purchase agreement dated November 1, 2012 with an institutional investor, we issued 2,000,000 shares of our common stock, warrants to purchase up to an aggregate of 2,000,000 shares of our common stock at an exercise price of $1.00 per share, exercisable for 90 days from issuance, and warrants to purchase up to an aggregate of 1,000,000 shares of our common stock at an exercise price of $1.25 per share, exercisable for five years from issuance, for total gross proceeds of $2,000,000.

From July 1, 2012 through September 30, 2012:

On September 13, 2012, we issued 123,697 shares of common stock pursuant to the cashless exercise of warrants to purchase 406,451 shares of common stock. The warrants had an expiration date of March 31, 2016 and an exercise price of $0.75 per share.

From April 1, 2012 through June 30, 2012:

On May 18, 2012, we issued 13,210 shares of common stock upon the cashless exercise of warrants to purchase 23,109 shares of common stock. The warrants had an expiration date of July 27, 2015 and an exercise price of $0.60 per share.

On May 3, 2012, we issued 181,745 shares of common stock upon the cashless exercise of warrants to purchase 333,333 shares of common stock. The warrants had an expiration date of March 31, 2016 and an exercise price of $0.75 per share.

On April 30, 2012, we issued 25,000 shares of common stock upon the cashless exercise of warrants to purchase 40,783 shares of common stock. The warrants had an expiration date of March 31, 2016 and an exercise price of $0.75 per share.

On April 26, 2012, we issued 582,981 shares of common stock upon the cashless exercise of warrants to purchase 833,333 shares of common stock. The warrants had an expiration date of December 6, 2016 and an exercise price of $0.60 per share.

From January 1, 2012 through March 31, 2012:

On March 28, 2012, we issued 10,285 shares of our common stock upon the cashless exercise of warrants to purchase 27,310 shares of common stock. The warrants had an expiration date of July 27, 2015 and an exercise price of $0.60 per share.

On March 28, 2012, we issued 44,155 shares of our common stock upon the cashless exercise of warrants to purchase 200,000 shares of common stock. The warrants had an expiration date of March 31, 2016 and an exercise price of $0.75 per share.

2011

From July 1, 2011 through December 31, 2011:

None.

From April 1, 2011 through June 30, 2011:

On April 8, 2011, we issued an aggregate of 17,001,596 shares of our common stock as merger consideration to the former shareholders of Cellectar.

Concurrently with the Acquisition, on April 8, 2011, we entered into a Securities Purchase Agreement with certain accredited investors under which we sold an aggregate of 6,846,537 units, each unit consisting of one share of our common stock and a warrant to purchase one share of our common stock, at a price of $0.75 per unit for gross proceeds of $5,134,903. The warrants have an exercise price of $0.75 and expire on March 31, 2016. We also issued a warrant to purchase 192,931 shares of our common stock for $0.75, expiring March 31, 2016, to the placement agent in the financing.

On May 3, 2011, we issued 18,153 shares of our common stock in connection with the cashless exercise of warrants to purchase 27,310 shares of common stock at $0.75 per share.

From January 1, 2011 through March 31, 2011:

None.

2010

From October 1, 2010 through December 31, 2010:

On November 30, 2010, we issued 2,228,338 shares of common stock in exchange for all outstanding shares of Series E preferred stock and all outstanding shares of Series C preferred stock. The issuance was made pursuant to an exchange agreement between the Company and all holders of its preferred stock.

From July 1, 2010 through September 30, 2010:

On July 27, 2010, we issued five-year warrants (the Incentive Warrants) to our preferred stockholders for the purchase of up to an aggregate of 105,042 shares of common stock at an exercise price of $16.07 per share pursuant to a consent and waiver dated July 6, 2010, as amended on July 21, 2010. The Incentive Warrants were issued in connection with an offering registered under the Securities Act of 1933, as amended, of an aggregate of 140,056 shares of its common stock and five-year warrants to purchase up to an aggregate of 105,042 shares of its common stock, for gross proceeds of $1,500,000.

From April 1, 2010 through June 30, 2010:

None.

From January 1, 2010 through March 31, 2010:

- We issued 76,769 shares of our common stock upon conversion of approximately 140 shares of our Series E preferred stock, having an aggregate stated value of approximately $7,000,000, and accumulated undeclared dividends thereon.

- We issued 47,000 shares of our common stock upon the cashless exercise of warrants to purchase 77,551 shares of common stock. The warrants had an expiration date of December 31, 2015 and an exercise price of $99.45 per share.

- We issued 1,480 shares of our common stock upon the cashless exercise of warrants to purchase 2,075 shares of common stock. The warrants had an expiration date of August 9, 2010 and an exercise price of $99.45 per share.

- We issued 229 shares of our common stock upon the cashless exercise of warrants to purchase 490 shares of common stock. The warrants had an expiration date of May 2, 2012 and an exercise price of $191.25 per share.

- We issued 2,395 shares of our common stock upon the cashless exercise of warrants to purchase 6,480 shares of common stock. The warrants had an expiration date of March 7, 2011 and an exercise price of $263.16 per share.

- We issued 313 shares of our common stock upon the cashless exercise of warrants to purchase 544 shares of common stock. The warrants had an expiration date of May 2, 2012 and an exercise price of $191.25 per share.

- We issued 2,058 shares of our common stock upon the cashless exercise of warrants to purchase 2,614 shares of common stock. The warrants had an expiration date of April 1, 2010 and an exercise price of $95.62 per share.

Item 16. Exhibits and Financial Statement Schedules

Exhibit No.	Description	Filed with this Form S-1	Incorporated by Reference		
			Form	Filing Date	Exhibit No.
2.1	Agreement and Plan of Merger by and among Novelos Therapeutics, Inc., Cell Acquisition Corp. and Cellectar, 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	Amended and Restated By-laws		8-K	June 1, 2011	3.1
4.1	Form of common stock certificate		S-1/A	November 9, 2011	4.1
4.2	Form of Warrant		S-1	November 20, 2002	4.2
4.3	Form of Placement Agent Warrant	X			
5.1	Legal Opinion of Foley Hoag LLP	X			
10.1	Employment Agreement with Harry S. Palmin dated January 31, 2006		8-K	February 6, 2006	99.1
10.2	Second Amendment to Employment Agreement between the Company and Harry Palmin		8-K	June 1, 2011	10.1
10.3	2000 Stock Option and Incentive Plan		SB-2	November 16, 2005	10.2
10.4	Form of 2004 non-plan non-qualified stock option		SB-2	November 16, 2005	10.3
10.5	Form of non-plan non-qualified stock option used from February to May 2005		SB-2	November 16, 2005	10.4
10.6	Form of non-plan non-qualified stock option used after May 2005		SB-2	November 16, 2005	10.5
10.7	Consideration and new technology agreement dated April 1, 2005 with ZAO BAM		10-QSB	August 15, 2005	10.2
10.8	2006 Stock Incentive Plan, as amended		8-K	October 26, 2012	10.1
10.9	Form of Incentive Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.1
10.10	Form of Non-Statutory Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.2
10.11	Form of Common Stock Purchase Warrant dated May 2, 2007 issued pursuant to the Agreement to Exchange and Consent dated May 2, 2007		10-QSB	May 8, 2007	4.2
10.12	Collaboration Agreement dated February 11, 2009*		10-K	March 30, 2009	10.39
10.13	Common Stock Purchase Warrant dated February 11, 2009		8-K	February 18, 2009	4.2

10.16	Form of Placement Agent Agreement Between the Company and Rodman and Renshaw, LLC	S-1A	June 25, 2010	10.50
10.17	Written 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	10.52
10.18	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
10.19	Form of Securities Purchase Agreement dated July 21, 2010	8-K	July 22, 2010	10.1
10.20	Amendment to Consent and Waiver of Holders of Series C Convertible Preferred Stock and Series E Convertible Preferred Stock dated July 21, 2010	8-K	July 22, 2010	10.2
10.21	Exchange Agreement dated November 30, 2010 between the Company and the holders of Series C Convertible Preferred Stock and Series E Convertible Preferred Stock	8-K	November 30, 2010	10.1
10.22	Form of Common Stock Purchase Warrant dated April 8, 2011	8-K	April 11, 2011	4.3
10.23	Securities Purchase Agreement dated April 8, 2011	8-K	April 11, 2011	10.1
10.24	Placement Agency Agreement dated April 1, 2011	8-K	April 11, 2011	99.1
10.25	License Agreement between Cellectar, 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
10.26	Lease Agreement between Cellectar, LLC and McAllen Properties LLC, as amended and extended to date	S-1	July 1, 2011	10.32
10.27	Loan Agreement between the Wisconsin Department of Commerce and Cellectar, Inc. dated September 15, 2010	S-1	July 1, 2011	10.33
10.28	General Business Security Agreement dated September 15, 2010	S-1	July 1, 2011	10.34
10.29	Underwriting Agreement dated December 1, 2011 between the Company and Rodman and Renshaw, LLC	8-K	December 7, 2011	1.1
10.30	Form of Warrant dated December 6, 2011	S-1/A	November 9, 2011	4.2
10.31	Placement Agent Agreement dated April 9, 2012 between the Company and Rodman and Renshaw, LLC	S-1	April 9, 2012	10.31

10.32	Form of Securities Purchase Agreement dated June 7, 2012		8-K	June 11, 2012	10.1
10.33	Amendment Agreement dated May 11, 2012 between the Company and Rodman and Renshaw, LLC		S-1/A	May 14, 2012	10.33
10.34	Form of Common Stock Purchase Warrant dated June 13, 2012		8-K	June 11, 2012	4.1
10.35	Form of Amendment to Class B Stock Purchase Warrant		8-K	September 12, 2012	10.1
10.36	Securities Purchase Agreement dated November 1, 2012 between the Company and Renova Industries Ltd.		10-Q	November 6, 2012	10.2
10.37	Amended and Restated Placement Agent Agreement dated January 8, 2013 between the Company and Burrill LLC	X			
10.38	Form of Securities Purchase Agreement		S-1	November 20, 2012	10.38
21.1	List of Subsidiaries		10-K	March 9, 2012	21.1
23.1	Consent of Foley Hoag LLP (included in Exhibit 5.1)	X			
23.2	Consent of Grant Thornton LLP	X			
24.1	Powers of Attorney (included on signature page)		S-1	November 20, 2012	24.1
101	Interactive Data Files	X			

* Portions of this exhibit have been omitted pursuant to a confidential treatment order.

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.

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

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. 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.

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Newton, Commonwealth of Massachusetts, on January 31, 2013.

NOVELOS THERAPEUTICS, INC.

By: /s/ Harry S. Palmin
Harry S. Palmin
President and Chief Executive Officer

SIGNATURES

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

Signature	Title	Date
/s/ Harry S. Palmin Harry S. Palmin	Chief Executive Officer and Director (*principal executive officer*)	January 31, 2013
/s/ Joanne M. Protano Joanne M. Protano	Chief Financial Officer (*principal financial officer and principal accounting officer)*	January 31, 2013
/s/ * Stephen A. Hill	Chairman of the Board of Directors	January 31, 2013
/s/ * T. Rockwell Mackie	Director	January 31, 2013
/s/ * James S. Manuso	Director	January 31, 2013
/s/ * John Neis	Director	January 31, 2013
/s/ * John E. Niederhuber	Director	January 31, 2013
/s/ * Howard M. Schneider	Director	January 31, 2013
/s/ * Michael F. Tweedle	Director	January 31, 2013
/s/ * Jamey P. Weichert	Director	January 31, 2013

* /s/ Harry S. Palmin as attorney-in-fact.

EXHIBIT INDEX

Exhibit No.	Description	Filed with this Form S-1	Incorporated by Reference		
			Form	Filing Date	Exhibit No.
2.1	Agreement and Plan of Merger by and among Novelos Therapeutics, Inc., Cell Acquisition Corp. and Cellectar, 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	Amended and Restated By-laws		8-K	June 1, 2011	3.1
4.1	Form of common stock certificate		S-1/A	November 9, 2011	4.1
4.2	Form of Warrant		S-1	November 20, 2012	4.2
4.3	Form of Placement Agent Warrant	X			
5.1	Legal Opinion of Foley Hoag LLP	X			
10.1	Employment Agreement with Harry S. Palmin dated January 31, 2006		8-K	February 6, 2006	99.1
10.2	Second Amendment to Employment Agreement between the Company and Harry Palmin		8-K	June 1, 2011	10.1
10.3	2000 Stock Option and Incentive Plan		SB-2	November 16, 2005	10.2
10.4	Form of 2004 non-plan non-qualified stock option		SB-2	November 16, 2005	10.3
10.5	Form of non-plan non-qualified stock option used from February to May 2005		SB-2	November 16, 2005	10.4
10.6	Form of non-plan non-qualified stock option used after May 2005		SB-2	November 16, 2005	10.5
10.7	Consideration and new technology agreement dated April 1, 2005 with ZAO BAM		10-QSB	August 15, 2005	10.2
10.8	2006 Stock Incentive Plan, as amended		8-K	October 26, 2012	10.1
10.9	Form of Incentive Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.1
10.10	Form of Non-Statutory Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan		8-K	December 15, 2006	10.2
10.11	Form of Common Stock Purchase Warrant dated May 2, 2007 issued pursuant to the Agreement to Exchange and Consent dated May 2, 2007		10-QSB	May 8, 2007	4.2

10.12	Collaboration Agreement dated February 11, 2009*	10-K	March 30, 2009	10.39
10.13	Common Stock Purchase Warrant dated February 11, 2009	8-K	February 18, 2009	4.2
10.16	Form of Placement Agent Agreement Between the Company and Rodman and Renshaw, LLC	S-1A	June 25, 2010	10.50
10.17	Written 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	10.52
10.18	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
10.19	Form of Securities Purchase Agreement dated July 21, 2010	8-K	July 22, 2010	10.1
10.20	Amendment to Consent and Waiver of Holders of Series C Convertible Preferred Stock and Series E Convertible Preferred Stock dated July 21, 2010	8-K	July 22, 2010	10.2
10.21	Exchange Agreement dated November 30, 2010 between the Company and the holders of Series C Convertible Preferred Stock and Series E Convertible Preferred Stock	8-K	November 30, 2010	10.1
10.22	Form of Common Stock Purchase Warrant dated April 8, 2011	8-K	April 11, 2011	4.3
10.23	Securities Purchase Agreement dated April 8, 2011	8-K	April 11, 2011	10.1
10.24	Placement Agency Agreement dated April 1, 2011	8-K	April 11, 2011	99.1
10.25	License Agreement between Cellectar, 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
10.26	Lease Agreement between Cellectar, LLC and McAllen Properties LLC, as amended and extended to date	S-1	July 1, 2011	10.32
10.27	Loan Agreement between the Wisconsin Department of Commerce and Cellectar, Inc. dated September 15, 2010	S-1	July 1, 2011	10.33

10.28	General Business Security Agreement dated September 15, 2010		S-1	July 1, 2011	10.34
10.29	Underwriting Agreement dated December 1, 2011 between the Company and Rodman and Renshaw, LLC		8-K	December 7, 2011	1.1
10.30	Form of Warrant dated December 6, 2011		S-1/A	November 9, 2011	4.2
10.31	Placement Agent Agreement dated April 9, 2012 between the Company and Rodman and Renshaw, LLC		S-1	April 9, 2012	10.31
10.32	Form of Securities Purchase Agreement		8-K	June 11, 2012	10.1
10.33	Amendment Agreement dated May 11, 2012 between the Company and Rodman and Renshaw, LLC		S-1/A	May 14, 2012	10.33
10.34	Form of Common Stock Purchase Warrant dated June 13, 2012		8-K	June 11, 2012	4.1
10.35	Form of Amendment to Class B Stock Purchase Warrant		8-K	September 12, 2012	10.1
10.36	Securities Purchase Agreement between the Company and Renova Industries Ltd.		10-Q	November 6, 2012	10.2
10.37	Amendment and Restated Placement Agent Agreement dated January 8, 2013 between the Company and Burrill LLC	X			
10.38	Form of Securities Purchase Agreement		S-1	November 20, 2012	10.38
21.1	List of Subsidiaries		10-K	March 9, 2012	21.1
23.1	Consent of Foley Hoag LLP (included in Exhibit 5.1)	X			
23.2	Consent of Grant Thornton LLP	X			
24.1	Powers of Attorney (included on signature page)		S-1	November 20, 2012	24.1
101	Interactive Data Files	X			

* Portions of this exhibit have been omitted pursuant to a confidential treatment order.

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO THE COMPANY. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

COMMON STOCK PURCHASE WARRANT

Warrant Shares: _____ Initial Exercise Date: July ___, 2013

THIS 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 the date hereof (the "Initial Exercise Date") and on or prior to the close of business on January __, 2018 (five (5) years from the effective date of the Company's registration statement on Form S-1, SEC File No. 333-185053) (the "Termination Date") but not thereafter, to subscribe for and purchase from Novelos Therapeutics, Inc., a Delaware corporation (the "Company"), up to _____ shares (as subject to adjustment hereunder, the "Warrant Shares") of the common stock, par value $0.00001 per share, of the Company (the "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). This Warrant is issued by the Company as of the date hereof pursuant to (i) Section 1(A)(2) of the Amended and Restated Engagement Agreement, dated January 8, 2013, between the Company and Burrill, LLC and (ii) Section 4(2) of the Securities Act and Rule 506 promulgated thereunder

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the "Purchase Agreement"), dated January __, 2013, among the Company and the purchasers signatory thereto.

Section 2. Exercise.

a) 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 of the Notice of Exercise Form annexed hereto. Within three (3) Trading Days following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the shares specified in the applicable Notice of Exercise 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 required in connection with the applicable Notice of Exercise. 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 Form 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. "Trading Day" and "Trading Market" shall have the meaning ascribed to such terms in the Purchase Agreement.**

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be **$____ [125% of public offering price per unit]**, 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 VWAP on the Trading Day immediately preceding the date on which Holder elects to exercise this Warrant by means of a "cashless exercise," as set forth in the applicable Notice of Exercise;

(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.

"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 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 Company and reasonably acceptable to the Holder, the fees and expenses of which shall be paid by the Company.

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall use best efforts to cause the Warrant Shares purchased hereunder to be transmitted by the Company's transfer agent to the Holder by crediting the account of the Holder's prime broker 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 the Holder is not then an Affiliate of the Company, and otherwise by physical delivery to the address specified by the Holder in the Notice of Exercise by the date that is three (3) Trading Days after the latest of (A) the delivery to the Company of the Notice of Exercise, (B) surrender of this Warrant (if required) and (C) payment of the aggregate Exercise Price as set forth above (including by cashless exercise, if permitted) (such date, the "Warrant Share Delivery Date"). The Warrant Shares shall be deemed to have been issued, and Holder or any other person so designated to be named therein shall be deemed to have become a holder of record of such shares for all purposes, as of the date the Warrant has been exercised, with payment to the Company of the Exercise Price (or by cashless exercise, if permitted) and all taxes required to be paid by the Holder, if any, pursuant to Section 2(d)(vi) prior to the issuance of such shares, having been paid.

"Affiliate" means, with respect to any Person, any other Person which directly or indirectly Controls, is Controlled by, or is under common Control with, such Person.

"Control" means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

"Person" means an individual, corporation, partnership, limited liability company, trust, business trust, association, joint stock company, joint venture, sole proprietorship, unincorporated organization, governmental authority or any other form of entity not specifically listed herein.

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 Company's 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. In addition to any other rights available to the Holder, if the Company fails to cause the Company's transfer agent to transmit to the Holder the Warrant Shares 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, the Company 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 Exercise Price or round up 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 such 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 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 of the Company's transfer agent fees required for same-day processing of any Notice of Exercise.

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), 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 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 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. 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 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 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 Securities and Exchange 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 Company's 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 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 not less than 61 days' prior 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 such increase or decrease will not be effective until the 61st 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.

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) 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. 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(d) pursuant to written agreements 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). 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.

c) 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.

d) Notice to Holder.

i. Adjustments. Whenever the Exercise Price or the number or type of securities for which this Warrant is exercisable are adjusted pursuant to any provision of this Section 3, the Company shall promptly mail to the Holder a notice setting forth such adjusted Exercise Price or such number or type securities, as applicable, 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 mailed to the Holder at its last 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 mail such notice or any defect therein or in the mailing 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 its subsidiaries, the Company shall simultaneously file such notice with the Securities and Exchange 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. Neither this Warrant nor any Warrant Shares issued upon exercise of this Warrant shall be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of the offering pursuant to which this Warrant is being issued, except the transfer of any security:

i. by operation of law or by reason of reorganization of the Company;

ii. to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction in this Section 4(a) for the remainder of the time period;

iii. if the aggregate amount of securities of the Company held by the Holder or related person do not exceed 1% of the securities being offered;

iv. that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or

v. the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction in this Section 4(a) for the remainder of the time period.

Subject to the foregoing restriction, any applicable securities laws and the conditions set forth in Section 4(d), this Warrant and all rights hereunder 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 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. 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, 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 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 issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company 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.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant or the sale of Warrant Shares, the transfer of this Warrant or the Warrant Shares, as applicable, shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer or sale, that the Holder provide to the Company an opinion of counsel selected by the Holder and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer or sale does not require registration of such transferred security under the Securities Act.

e) Representations by the Holder. The Holder, by the acceptance hereof, represents and warrants that (a) it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act and (b) at the time the Holder was offered this Warrant, it was, and as of the date hereof it is, and on each date on which it exercises this Warrants, it will either be an "accredited investor" as defined in Rule 501(a) under the Securities Act or a "qualified institutional buyer" as defined in Rule 144A(a) under the Securities Act.

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).

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 Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Trading 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 executing stock certificates to execute and issue 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) Governing Law; Jurisdiction. This Warrant shall be governed by, and construed in accordance with, the internal laws of the State of New York, without reference to the choice of law provisions thereof. The Company and, by accepting this Warrant, the Holder, each irrevocably submits to the exclusive jurisdiction of the courts of the State of New York located in New York County and the United States District Court for the Southern District of New York for the purpose of any suit, action, proceeding or judgment relating to or arising out of this Warrant and the transactions contemplated hereby. Service of process in connection with any such suit, action or proceeding may be served on each party hereto anywhere in the world by the same methods as are specified for the giving of notices under this Warrant. The Company and, by accepting this Warrant, the Holder, each irrevocably consents to the jurisdiction of any such court in any such suit, action or proceeding and to the laying of venue in such court. The Company and, by accepting this Warrant, the Holder, each irrevocably waives any objection to the laying of venue of any such suit, action or proceeding brought in such courts and irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum. **THE COMPANY AND THE HOLDER HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING RELATING TO OR ARISING OUT OF THIS WARRANT AND THE TRANSACTIONS CONTEMPLATED HEREBY**.

f) 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. Without limiting any other provision of this Warrant, 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.

g) Notices. Unless otherwise provided, any notice required or permitted under this Warrant shall be given in writing and shall be deemed effectively given as hereinafter described (i) if given by personal delivery, then such notice shall be deemed given upon such delivery, (ii) if given by telex or facsimile, then such notice shall be deemed given upon receipt of confirmation of complete transmittal, (iii) if given by mail, then such notice shall be deemed given upon the earlier of (A) receipt of such notice by the recipient or (B) three days after such notice is deposited in first class mail, postage prepaid, and (iv) if given by an internationally recognized overnight air courier, then such notice shall be deemed given one day after delivery to such carrier. All notices shall be addressed as follows: if to the Holder, at its address as set forth in the Company's books and records and, if to the Company, at Novelos Therapeutics, Inc., One Gateway Center, Suite 504, Newton, MA 02458, Attention: Chief Executive Officer, Fax: (617) 964-6331, or at such other address as the Holder or the Company, as applicable, may designate by ten days' advance written notice to the other.

h) 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.

i) 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.

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

k) 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.

l) 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.

****

(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.

NOVELOS THERAPEUTICS, INC.

By: _____
Name: Harry S. Palmin
Title: President and CEO

NOTICE OF EXERCISE

TO: NOVELOS THERAPEUTICS, 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: _____

ASSIGNMENT FORM

(To assign the foregoing warrant, execute
this form and supply required information.
Do not use this form to exercise the warrant.)

FOR VALUE RECEIVED, [____] all of or [_____] shares of the foregoing Warrant and all rights evidenced thereby are hereby assigned to

_____ whose address is

_____.

_____

Dated: _____, _____

Holder's Signature: _____

Holder's Address: _____

_____

Signature Guaranteed: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatsoever, and must be guaranteed by a bank or trust company. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

EXHIBIT 5.1

Foley Hoag
LLP
Seaport West
155 Seaport
Boulevard
Boston, MA
02210-2600

617 832 1000
main
617 832 7000
fax

January 31, 2013

Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, Massachusetts 02458

Re: S-1 Registration Statement

Ladies and Gentlemen:

We have acted as counsel to Novelos Therapeutics, Inc., a Delaware corporation (the "Company"), in connection with the filing of a Registration Statement on Form S-1, Registration No. 333-185053 (as amended or supplemented to date, the "Registration Statement"), under the Securities Act of 1933, as amended (the "Securities Act"). The Registration Statement covers the proposed public offering of units consisting of up to 18,000,000 shares of the Company's common stock, $0.00001 par value per share ("Common Stock") to be issued directly (such shares of Common Stock, the "Shares"), warrants (the "Warrants") representing rights to purchase an additional 27,000,000 shares of Common Stock (the "Warrant Shares"), and the issuance of the Warrant Shares upon exercise of the Warrants. The Shares, the Warrants and the Warrant Shares are collectively referred to herein as the "Securities".

In rendering the opinions set forth below, we have assumed that (i) all information contained in all documents reviewed by us is true and correct; (ii) all signatures on all documents examined by us are genuine; (iii) all documents submitted to us as originals are authentic, and all documents submitted to us as copies conform to the originals of those documents; (iv) each natural person signing any document reviewed by us had the legal capacity to do so; and (v) the certificates or other documents representing the Securities will be duly executed and delivered.

We express no opinion as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware (including applicable provisions of the Delaware Constitution and reported judicial decisions interpreting such Law and such Constitution), the laws of The Commonwealth of Massachusetts and the federal laws of the United States of America.

We have examined the Registration Statement, including the exhibits thereto, and such other documents, corporate records, and instruments and have examined such laws and regulations as we have deemed necessary for purposes of rendering the opinions set forth herein. Based upon such examination and subject to the further provisions hereof, we are of the following opinion:

1. The Shares, when issued, sold and delivered in the manner and for the consideration set forth in the Registration Statement, will be validly issued, fully paid and non-assessable.

2. The Warrants, when duly executed and delivered by the Company in the manner and for the consideration set forth in the Registration Statement, will constitute valid and legally binding obligations of the Company.

3. The Warrant Shares, if and when issued, paid for and delivered in compliance with the terms of the applicable Warrants and pursuant to which the Warrant Shares are to be issued and in compliance with the terms of the Company's Certificate of Incorporation as in effect from time to time, will be validly issued, fully paid and nonassessable.

The foregoing opinions are qualified to the extent that the enforceability of any document, instrument or the Securities may be limited by or subject to bankruptcy, insolvency, fraudulent transfer or conveyance, reorganization, moratorium or other similar laws relating to or affecting creditors' rights generally, and general equitable or public policy principles.

In providing this opinion, we have relied as to certain matters on information obtained from public officials and officers of the Company.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and the reference to us under the caption "Legal Matters" in the prospectus included in the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Securities and Exchange Commission promulgated thereunder.

This opinion letter is given to you solely for use in connection with the offer and sale of the Securities while the Registration Statement is in effect and is not to be relied upon for any other purpose. Our opinion is expressly limited to the matters set forth above, and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company, the Securities or the Registration Statement.

Very truly yours,

FOLEY HOAG llp

By: /s/ Paul Bork
A Partner

January 8, 2013

CONFIDENTIAL

Harry Palmin
Chief Executive Officer & President
Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, MA 02458

Dear Mr. Palmin:

This amended and restated letter (the "Agreement") constitutes the agreement between Burrill LLC ("Burrill" or the "Placement Agent") and Novelos Therapeutics, Inc, (the "Company"), that Burrill shall serve as the exclusive placement agent for the Company, on a "reasonable best efforts" basis, in connection with the proposed placement (the "Placement") of registered securities (the "Securities") of the Company, including shares (the "Shares") of the Company's common stock, par value $0.00001 per share (the "Common Stock") and warrants to purchase shares of Common Stock (the "Warrants"). The terms of such Placement and the Securities shall be mutually agreed upon by the Company and the purchasers (each, a "Purchaser" and collectively, the "Purchasers") and nothing herein constitutes that Burrill would have the power or authority to bind the Company or any Purchaser or an obligation for the Company to issue any Securities or complete the Placement. This Agreement, the Subscription Agreements (as defined below) and the Warrants shall be collectively referred to herein as the "Transaction Documents." The date of the closing of the Placement shall be referred to herein as the "Closing Date." The Company expressly acknowledges and agrees that the execution of this Agreement does not constitute a commitment by Burrill to purchase the Securities and does not ensure the successful placement of the Securities or any portion thereof or the success of Burrill with respect to securing any other financing on behalf of the Company.

SECTION 1. COMPENSATION AND OTHER FEES.

As compensation for the services provided by Burrill hereunder, the Company agrees to pay to Burrill:

(A) The fees set forth below with respect to the Placement:

1. A cash fee payable immediately upon the closing of the Placement and equal to 7% of the aggregate gross proceeds raised in the Placement. Burrill may allocate up to 35% of the cash fee to co-placement agents or advisors.

2. Such number of warrants (the "Burrill Warrants") to Burrill or its designees at the Closing to purchase shares of Common Stock equal to 7% of the aggregate number of Shares sold in the Placement, The Burrill Warrants shall have the same terms as the longer-dated warrants (if any) issued to the Purchasers in the Placement except that the exercise price shall be 125% of the public offering price per unit and the expiration date shall be five years from the effective date of the registration statement referred to in Section 2(A) below. The Burrill Warrants shall not have antidilution protections and shall not be transferable for six months from the date of the Placement, except as permitted by FINRA Rule 5110, and further, the number of Shares underlying the Burrill Warrants shall be reduced if necessary to comply with FINRA rules or regulations. The issuance of the shares underlying the Burrill Warrants will be registered on the Registration Statement. Neither the Burrill Warrants nor any warrant shares issued upon exercise of the Burrill Warrants shall be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of such securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of the offering pursuant to which the Burrill Warrants are being issued, except the transfer of any security:

i. by operation of law or by reason of reorganization of the Company;

ii. to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction in this Section 1(A)(2) for the remainder of the time period;

iii. if the aggregate amount of securities of the Company held by the holder or related person do not exceed 1% of the securities being offered in the Placement;

iv. that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or

v. the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction in this Section 1(A)(2) for the remainder of the time period.

(B) The Company also agrees to pay to Burrill a non-accountable expense allowance equal to 1% of the aggregate gross proceeds raised in the Placement (provided, however, that such expense cap in no way limits or impairs the indemnification and contribution provisions of this Agreement), provided that the Company has agreed to pay to Burrill an accountable expense allowance of up to $30,000. Such non-accountable expense allowance shall be payable immediately upon (but only in the event of) the closing of the Placement. The Company has previously advanced Burrill the sum of $30,000 as an advance against Burrill's accountable expense allowance, provided however, pursuant to Rule 5110(f)(2)(C), Burrill shall reimburse the Company for any amount of the advance not actually incurred as an expense. If the Placement is completed, the accountable expense allowance described herein shall be paid from said 1% non-accountable expense allowance.

SECTION 2. REGISTRATION STATEMENT.

The Company represents and warrants to, and agrees with, the Placement Agent that:

(A) The Company will file with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-1 under the Securities Act of 1933, as amended (the "Securities Act") as soon as practicable after the execution of this Agreement. The Company will use commercially reasonable efforts to cause the registration statement to become effective pursuant to Rule 430A, and will file with the Commission pursuant to Rules 430A and 424(b) under the Securities Act, and the rules and regulations (the "Rules and Regulations") of the Commission promulgated thereunder, a final prospectus included in such registration statement relating to the placement of the Securities and the plan of distribution thereof and will advise the Placement Agent of all further information (financial and other) with respect to the Company required to be set forth therein. Such registration statement, including the exhibits thereto, as amended as of its effective date and as of the Closing, is hereinafter called the "Registration Statement"; such prospectus in the form in which it appears in the Registration Statement is hereinafter called the "Base Prospectus"; and the amended or supplemented form of prospectus, in the form in which it will be filed with the Commission pursuant to Rules 430A and 424(b) (including the Base Prospectus as so amended or supplemented) is hereinafter called the "Prospectus Supplement." Any reference in this Agreement to the Registration Statement, the Base Prospectus or the Prospectus Supplement shall be deemed to refer to and include the documents incorporated by reference therein (the "Incorporated Documents") pursuant to Item 12 of Form S-1 which were filed under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), on or before the date of this Agreement, or the issue date of the Base Prospectus or the Prospectus Supplement, as the case may be; and any reference in this Agreement to the terms "amend," "amendment" or "supplement" with respect to the Registration Statement, the Base Prospectus or the Prospectus Supplement shall be deemed to refer to and include the filing of any document under the Exchange Act after the date of this Agreement, or the issue date of the Base Prospectus or the Prospectus Supplement, as the case may be, deemed to be incorporated therein by reference. All references in this Agreement to financial statements and schedules and other information that is "contained," "included," "described," "referenced," "set forth" or "stated" in the Registration Statement, the Base Prospectus or the Prospectus Supplement (and all other references of like import) shall be deemed to mean and include all such financial statements and schedules and other information that is or is deemed to be incorporated by reference in the Registration Statement, the Base Prospectus or the Prospectus Supplement, as the case may be. Notwithstanding anything to the contrary herein, the Company may abandon the Placement and withdraw the Registration Statement at any time prior to the execution by the Company of the Subscription Agreements (as defined below) for any reason or for no reason in its sole discretion without any liability to the Placement Agent, other than the reimbursement of outside legal expenses provided in Section 1(B).

(B) The Registration Statement (and any further documents to be filed with the Commission), at the time it becomes effective, will contain all exhibits and schedules as required by the Securities Act. The Registration Statement, at the time it becomes effective, will comply in all material respects with the Securities Act and the Exchange Act and the applicable Rules and Regulations and will not and, as amended or supplemented, 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 Base Prospectus, and the Prospectus Supplement, each as of its respective date, will comply in all material respects with the Securities Act and the Exchange Act and the applicable Rules and Regulations. Each of the Base Prospectus and the Prospectus Supplement, as amended or supplemented, will not contain as of the respective dates 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 Incorporated Documents, if any, 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 Incorporated Documents incorporated by reference in the Base 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 Base 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. 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 Base Prospectus, or Prospectus Supplement, or to be filed as exhibits or schedules to the Registration Statement, that will not have been described or filed as required.

(C) The Company will not, without the prior consent of the Placement Agent, prepare, use or refer to, any free writing prospectus.

(D) The Company will as promptly as practicable deliver, to the Placement Agent 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 Base Prospectus, and the Prospectus Supplement, as amended or supplemented, in such quantities and at such places as the Placement Agent 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 Shares other than the Base Prospectus, the Prospectus Supplement, the Registration Statement, copies of the documents incorporated by reference therein and any other materials permitted by the Securities Act.

(E) The Company shall cooperate with the Placement Agent in making the filing required by FINRA Rule 5110, including the payment of the filing fee required by FINRA thereunder; and shall cooperate in making all Blue Sky filings Burrill and the Company shall agree upon, and the Company shall directly pay all filing fees required in connection therewith and the reasonable fees of Ellenoff Grossman & Schole as Blue Sky counsel to Burrill.

SECTION 3. REPRESENTATIONS AND WARRANTIES. The Company hereby represents and warrants to the Placement Agent that, except as set forth under the corresponding section of the Disclosure Schedules, which shall be deemed a part hereof, or except as specifically disclosed in the SEC Reports (as defined below) or the Registration Statement:

(A) Organization and Qualification. All of the direct and indirect subsidiaries (individually, a "Subsidiary") of the Company are set forth on Schedule 3(A). The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any "Liens" (which for purposes of this Agreement shall mean a lien, charge, security interest, encumbrance, right of first refusal, preemptive right or other restriction), and all 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. Each of the Company and the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization (as applicable), 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 or 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, has not had and could not reasonably be expected to result in (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 (any of (i), (ii) or (iii), a "Material Adverse Effect") and no "Proceeding" (which for purposes of this Agreement shall mean any action, claim, suit, investigation or proceeding (including, without limitation, an investigation or partial proceeding, such as a deposition), whether commenced or threatened) has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(B) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the Placement and otherwise to carry out its obligations hereunder and under the Transaction Documents. Prior to the execution and delivery of each of the Transaction Documents by the Company and the consummation by it of the transactions contemplated thereby will be duly authorized by all necessary action on the part of the Company and no further action will be required by the Company, its board of directors or its stockholders in connection therewith other than in connection with the Required Approvals (as defined in subsection 3(D) below). Each Transaction Document 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 applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally and (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies or by principles of public policy.

(C) No Conflicts. The execution, delivery and performance of the Transaction Documents by the Company, the issuance and sale of the Securities and the consummation by the Company of the other transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's certificate of incorporation or bylaws , 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.

(D) 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" (defined as 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, including, without limitation, any Trading Market) in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than such filings as are required to be made under applicable Federal and state securities laws (collectively, the "Required Approvals").

(E) Issuance of the Securities; Registration. At the time the Company executes and delivers the Subscription Agreements, (i) the Shares will be duly authorized and, when issued and paid for in accordance with the applicable 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, (ii) the Warrants will be duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be issued free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents, and (iii) the shares of Common Stock issuable upon exercise of the Warrants will be duly authorized and reserved for issuance and, when issued in accordance with the Warrants upon payment of the exercise price therefor, will be validly issued, fully paid and non-assessable. The Company shall not execute the Subscription Agreements until the Registration Statement is effective and available for the issuance of the Securities thereunder and the Company will promptly notify the Placement Agent in the event it receives any notice that the Commission does not intend to declare the registration statement effective. The "Plan of Distribution" section under the Registration Statement permits the issuance and sale of the Securities hereunder. Upon receipt of the Securities, the Purchasers will have good and marketable title to such Securities, the Shares will be freely tradable on the OTCQX (the "Trading Market"), and the shares of Common Stock issuable upon exercise of the Warrants, when so issued, will be freely tradable on the OTCQX or such other trading market on which the Common Stock is then listed or quoted, subject, in each case, to any restrictions imposed by a Purchaser.

(F) Capitalization. The capitalization of the Company is as shall be set forth in the Registration Statement. The Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the exercise of employee stock options under the Company's stock option plans and pursuant to the conversion or exercise of securities exercisable, exchangeable or convertible into Common Stock ("Common Stock Equivalents"). No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except as a result of the purchase and sale of the Securities, there are no outstanding options, warrants, script rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents. The issuance and sale of the Securities will not obligate the Company to issue shares of Common Stock or other securities to any Person (other than the Purchasers) and will not result in a right of any holder of Company securities to adjust the exercise, conversion, exchange or reset price under such securities. All of the outstanding shares of capital stock of the Company are validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. No further approval or authorization of any stockholder, the Board of Directors of the Company or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

(G) SEC Reports; Financial Statements. The Company has complied in all material respects with requirements to file all reports, schedules, forms, statements and other documents required to be filed by it under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, being collectively referred to herein as 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 complied in all material respects with the requirements of the Securities Act and the Exchange Act and the rules and regulations of the Commission promulgated thereunder, 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 SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements 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.

(H) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in the SEC Reports, (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 required to be 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 and (v) the Company has not issued any equity securities to any officer, director or "Affiliate" (defined as 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 144 under the Securities Act), except pursuant to existing Company stock option plans. 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 or as set forth on Schedule 3(H), no event, liability or development has occurred or exists with respect to the Company or its Subsidiaries or their respective business, properties, operations or financial condition, that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made that has not been publicly disclosed 1 Trading Day prior to the date that this representation is made.

(I) Litigation. 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. Except as set forth in the SEC Reports, 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 or former 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. 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, 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. No executive officer, to the knowledge of the Company, 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, 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 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.

(J) Labor Relations. No material 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.

(K) 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 order of any court, arbitrator or governmental body, or (iii) is or has been in violation of any statute, rule or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws applicable to its business and all such laws that affect the environment, except in each case as could not have a Material Adverse Effect.

(L) 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 SEC Reports, except where the failure to possess such permits could not have or reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(M) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them that is material to the business of the Company and the Subsidiaries and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for 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 Liens for the payment of federal, state or other taxes, 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 of which the Company and the Subsidiaries are in compliance.

(N) Patents and Trademarks. 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 similar intellectual property rights necessary or material for use in connection with their respective businesses as described in the SEC Reports and which the failure to so have could have a Material Adverse Effect (collectively, the "Intellectual Property Rights"). Neither the Company nor any Subsidiary has received a notice (written or otherwise) that the Intellectual Property Rights used by the Company or any Subsidiary violates or infringes upon the rights of any third party. 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 of others. 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.

(O) 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 at least equal to the aggregate subscription amount under the Transaction Documents. To the best knowledge of the Company, such insurance contracts and policies are accurate and complete. Neither the Company nor any Subsidiary has 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.

(P) Transactions With Affiliates and Employees. Except as set forth in the SEC Reports, none of the officers or directors of the Company and, to the knowledge of the Company, none of the employees of the Company 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, 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 or partner, other than (i) for payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) for other employee benefits, including stock option agreements under any stock option plan of the Company.

(Q) Sarbanes-Oxley. The Company is in material compliance with all provisions of the Sarbanes-Oxley Act of 2002 which are applicable to it as of the date hereof and of the closing date of the Placement.

(R) Certain Fees. Except as otherwise provided in this Agreement, no brokerage or finder's fees or commissions are or will be payable by 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. The Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.

(S) Trading Market Rules. The issuance and sale of the Securities hereunder does not contravene the rules and regulations of the Trading Market.

(T) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be or 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 subject to the Investment Company Act.

(U) Registration Rights. Except as set forth in the SEC Reports, no Person has any right to cause the Company to effect the registration under the Securities Act of any securities of the Company.

(V) Listing and Maintenance Requirements. The Company's Common Stock is not registered pursuant to Section 12(b) or 12(g) of the Exchange Act. Except as set forth in this Section 3(V), (i) 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, and (ii) the Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements.

(W) Application of Takeover Protections. The Company and its 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 to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company's issuance of the Securities and the Purchasers' ownership of the Securities.

(X) Solvency. Based on the 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 (assuming the maximum number of Securities are sold in the Placement), (i) the Company's fair saleable value of its 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 and (ii) the Company's assets do not constitute unreasonably small capital to carry on its business for the current fiscal year 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, and projected capital requirements and capital availability thereof.;. 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 Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. The SEC Reports set forth as of the dates thereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" shall mean (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 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. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(Y) 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 each Subsidiary has filed all necessary federal, state and foreign income and franchise tax returns and has paid or accrued all taxes shown as due thereon, and the Company has no knowledge of a tax deficiency which has been asserted or threatened against the Company or any Subsidiary.

(Z) Foreign Corrupt Practices. Neither the Company, nor to the knowledge of the Company, any agent or other person acting on behalf of the Company, 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 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 the Foreign Corrupt Practices Act of 1977, as amended.

(AA) Accountants. The Company's accountants are named in the Prospectus Supplement. To the knowledge of the Company, such accountants, who the Company expects will express their opinion with respect to the financial statements to be included in the Company's next Annual Report on Form 10-K, are a registered public accounting firm as required by the Securities Act.

(BB) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or, paid any compensation for soliciting purchases of, any of the Securities (other than for the Placement Agent's placement of the Securities), or (iii) paid or agreed to pay to any person any compensation for soliciting another to purchase any other securities of the Company.

(CC) Approvals. The issuance and quotation on the Trading Market of the Common Stock requires no further approvals, including but not limited to, the approval of shareholders.

(DD) FINRA Affiliations. There are no affiliations with any FINRA member firm among the Company's officers, directors or, to the knowledge of the Company, any five percent (5%) or greater stockholder of the Company, except as set forth in the Base Prospectus.

SECTION 4. ENGAGEMENT TERM.

(A) Burrill's engagement hereunder will be from the date of this Agreement until the earlier of (1) the closing of the Placement or (2) or a period of one hundred twenty (120) days after the date of this Agreement (the "Term"); provided, that if the Registration Statement is not declared effective by the Commission within 100 days of the date of this Agreement and the Placement is still being pursued by the Company, the Term shall be extended to 16 Business Days after the effective date of the Registration Statement or such earlier date that the Company abandons the offering. The engagement may be terminated prior to the end of the Term by Burrill at any time upon 10 days' written notice. The engagement will automatically terminate at the end of the Term. Notwithstanding anything to the contrary contained herein, the provisions in this Agreement concerning indemnification and contribution will survive any expiration or termination of this Agreement. Upon any termination of this Agreement, the Company's obligation to pay Burrill any fees actually earned on closing of the Placement and otherwise payable under Section 1(A), shall survive any expiration or termination of this Agreement, as permitted by FINRA Rule 5110(f)(2)(D). Upon any termination of this Agreement, the Company's obligation to reimburse Burrill for out of pocket accountable expenses actually incurred by Burrill and reimbursable upon closing of the Placement pursuant to Section 1(B), if any are otherwise due under Section 1(B) hereof, will survive any expiration or termination of this Agreement, as permitted by FINRA Rule 5110(f)(2)(D).

(B) Provided the placement is completed, for a period of ten months following the effective date of the Registration Statement, and provided that both Kira Sheinerman and Elemer Piros remain employed at Burrill in the same or similar capacities as at the effective date of this Agreement, Burrill shall have the right of first refusal to act as the Company's co-lead placement agent or joint book-running underwriter for any offering of equity, equity-linked or debt securities, such that Burrill would receive at least 50% of the investment banking fees associated with any such offering should they exercise their right of first refusal. Burrill shall have a period of 10 Business Days following notice from the Company of its intention to sell any such securities, to determine whether Burrill will so act. If Burrill exercises its right, the Company and Burrill shall enter into a further placement agency or underwriting agreement on customary terms and conditions. Burrill shall not have more than one opportunity to either waive or terminate such right of first refusal in consideration of any payment or fee by the Company, as required by FINRA Rule 5110(f)(2)(F)(ii).

SECTION 5. BURRILL INFORMATION. The Company agrees that any information or advice rendered by Burrill in connection with this engagement is for the confidential use of the Company only in their evaluation of the Placement and, except as otherwise required by law, the Company will not disclose or otherwise refer to the advice or information in any manner without Burrill's prior written consent.

SECTION 6. NO FIDUCIARY RELATIONSHIP. This Agreement does not create, and shall not be construed as creating rights enforceable by any person or entity not a party hereto, except those entitled hereto by virtue of the indemnification provisions hereof. The Company acknowledges and agrees that Burrill is not and shall not be construed as a fiduciary of the Company and shall have no duties or liabilities to the equity holders or the creditors of the Company or any other person by virtue of this Agreement or the retention of Burrill hereunder, all of which are hereby expressly waived.

SECTION 7. CLOSING. The obligations of the Placement Agent and the Purchasers, and the closing of the sale of the Securities hereunder are subject to the accuracy, when made and on the Closing Date, of the representations and warranties on the part of the Company and its Subsidiaries contained herein, to the accuracy of the statements of the Company and its Subsidiaries made in any certificates pursuant to the provisions hereof, to the performance by the Company and its Subsidiaries of their obligations hereunder, and to each of the following additional terms and conditions:

(A) No stop order suspending the effectiveness of the Registration Statement shall have been issued and no proceedings for that purpose shall have been initiated or threatened by the Commission, and any request for additional information on the part of the Commission (to be included in the Registration Statement, the Base Prospectus or the Prospectus Supplement or otherwise) shall have been complied with to the reasonable satisfaction of the Placement Agent.

(B) The Placement Agent shall not have discovered and disclosed to the Company on or prior to the Closing Date that the Registration Statement, the Base Prospectus or the Prospectus Supplement or any amendment or supplement thereto contains an untrue statement of a fact which, in the opinion of counsel for the Placement Agent, is material or omits to state any fact which, in the opinion of such counsel, is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(C) All corporate proceedings and other legal matters incident to the authorization, form, execution, delivery and validity of each of this Agreement, the Securities, the Registration Statement, the Base Prospectus and the Prospectus Supplement and all other legal matters relating to this Agreement and the transactions contemplated hereby shall be reasonably satisfactory in all material respects to counsel for the Placement Agent, and the Company shall have furnished to such counsel all documents and information that they may reasonably request to enable them to pass upon such matters.

(D) The Placement Agent shall have received from outside counsel to the Company (i) such counsel's written opinion, addressed to the Placement Agent and the Purchasers dated as of the Closing Date delivered in connection with the closing of the Placement, in form and substance reasonably satisfactory to the Placement Agent and (ii) such counsel's "negative assurance" letter delivered to the Placement Agent in connection with the closing of the Placement.

(E) The Placement Agent shall have received from the Company's independent public accountants a "cold comfort letter" in customary form, disclosing no material exceptions.

(F) The Company and the Placement Agent shall have entered into an escrow agreement with a commercial bank or trust company reasonably satisfactory to both parties pursuant to which the Purchasers shall deposit their subscription funds in an escrow account and the Company and the Placement Agent shall jointly authorize the disbursement of the funds from the escrow account. The Company shall pay the reasonable fees of the escrow agent.

(G) Neither the Company nor any of its Subsidiaries shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Base Prospectus, any loss or interference with its business from fire, explosion, flood, terrorist act or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth in or contemplated by the Base Prospectus and (ii) since such date there shall not have been any change in the capital stock or long-term debt of the Company or any of its Subsidiaries or any change, or any development involving a prospective change, in or affecting the business, general affairs, management, financial position, stockholders' equity, results of operations or prospects of the Company and its Subsidiaries, otherwise than as set forth in or contemplated by the Base Prospectus, the effect of which, in any such case described in clause (i) or (ii), is, in the judgment of the Placement Agent, so material and adverse as to make it impracticable or inadvisable to proceed with the sale or delivery of the Securities on the terms and in the manner contemplated by the Base Prospectus and the Prospectus Supplement.

(H) The Company is a reporting company pursuant to Section 15(d) of the Exchange Act and, as of the Closing Date, the Common Stock is, and upon the closing of the Placement the Shares will be, admitted and authorized for quotation on the Trading Market, and satisfactory evidence of such actions shall have been provided to the Placement Agent upon request. The Company shall have taken no action designed to, or likely to have the effect of terminating the Company's reporting obligations under the Exchange Act or delisting or suspending from quotation the Common Stock from the Trading Market, nor has the Company received any information suggesting that the Commission or the Trading Market is contemplating such termination.

(I) Subsequent to the execution and delivery of this Agreement, there shall not have occurred any of the following: (i) trading in securities generally on the New York Stock Exchange, the Nasdaq National Market or the NYSE MKT or in the over-the-counter markets, or trading in any securities of the Company on any exchange or in the over-the-counter markets, shall have been suspended or minimum or maximum prices or maximum ranges for prices shall have been established on any such exchange or such market by the Commission, by such exchange or by any other regulatory body or governmental authority having jurisdiction, (ii) a banking moratorium shall have been declared by federal or state authorities or a material disruption has occurred in commercial banking or securities settlement or clearance services in the United States, (iii) the United States shall have become engaged in hostilities in which it is not currently engaged, the subject of an act of terrorism, there shall have been an escalation in hostilities involving the United States, or there shall have been a declaration of a national emergency or war by the United States, or (iv) there shall have occurred any other calamity or crisis or any change in general economic, political or financial conditions in the United States or elsewhere, if the effect of any such event in clause (iii) or (iv) makes it, in the sole judgment of the Placement Agent, impracticable or inadvisable to proceed with the sale or delivery of the Securities on the terms and in the manner contemplated by the Base Prospectus and the Prospectus Supplement.

(J) No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any governmental agency or body which would, as of the Closing Date, prevent the issuance or sale of the Securities or materially and adversely affect or potentially and adversely affect the business or operations of the Company; and no injunction, restraining order or order of any other nature by any federal or state court of competent jurisdiction shall have been issued as of the Closing Date which would prevent the issuance or sale of the Securities or materially and adversely affect or potentially and adversely affect the business or operations of the Company.

(K) The Company shall have entered into subscription agreements with each of the Purchasers (each, a "Subscription Agreement") and such agreements shall be in full force and effect and shall contain representations and warranties of the Company as agreed between the Company and the Purchasers.

(L) FINRA shall have raised no objection to the fairness and reasonableness of the terms and arrangements of this Agreement. In addition, the Company shall, if requested by the Placement Agent, make or authorize Placement Agent's counsel to make on the Company's behalf, an Issuer Filing with FINRA pursuant to FINRA Rule 5110 with respect to the Registration Statement and pay all filing fees required in connection therewith.

(M) Prior to the Closing Date, the Company shall have furnished to the Placement Agent such further information, certificates and documents as the Placement Agent may reasonably request.

All opinions, letters, evidence and certificates mentioned above or elsewhere in this Agreement shall be deemed to be in compliance with the provisions hereof only if they are in form and substance reasonably satisfactory to counsel for the Placement Agent.

SECTION 8. INDEMNIFICATION. (A) To the extent permitted by law, the Company will indemnify Burrill and its stockholders, directors, officers, employees and controlling persons (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) against all losses, claims, damages, expenses and liabilities, as the same are incurred (including the reasonable fees and expenses of counsel), relating to or arising out of its activities hereunder or pursuant to this engagement letter, except to the extent that any losses, claims, damages, expenses or liabilities (or actions in respect thereof) are found in a final judgment (not subject to appeal) by a court of law to have resulted primarily and directly from Burrill's willful misconduct or gross negligence in performing the services described herein.

(B) Promptly after receipt by Burrill of notice of any claim or the commencement of any action or proceeding with respect to which Burrill is entitled to indemnity hereunder, Burrill will notify the Company in writing of such claim or of the commencement of such action or proceeding, but failure to so notify the Company shall not relieve the Company from any obligation it may have hereunder, except and only to the extent such failure results in the forfeiture by the Company of substantial rights and defenses. If the Company so elects or is requested by Burrill, the Company will assume the defense of such action or proceeding and will employ counsel reasonably satisfactory to Burrill and will pay the fees and expenses of such counsel. Notwithstanding the preceding sentence, Burrill will be entitled to employ counsel separate from counsel for the Company and from any other party in such action if counsel for Burrill reasonably determines that it would be inappropriate under the applicable rules of professional responsibility for the same counsel to represent both the Company and Burrill. In such event, the reasonable fees and disbursements of no more than one such separate counsel will be paid by the Company. The Company will have the exclusive right to settle the claim or proceeding provided that the Company will not settle any such claim, action or proceeding without the prior written consent of Burrill, which will not be unreasonably withheld.

(C) The Company agrees to notify Burrill promptly of the assertion against it or any other person of any claim or the commencement of any action or proceeding relating to a transaction contemplated by this engagement letter.

(D) If for any reason the foregoing indemnity is unavailable to Burrill or insufficient to hold Burrill harmless, then the Company shall contribute to the amount paid or payable by Burrill as a result of such losses, claims, damages or liabilities in such proportion as is appropriate to reflect not only the relative benefits received by the Company on the one hand and Burrill on the other, but also the relative fault of the Company on the one hand and Burrill on the other that resulted in such losses, claims, damages or liabilities, as well as any relevant equitable considerations. The amounts paid or payable by a party in respect of losses, claims, damages and liabilities referred to above shall be deemed to include any legal or other fees and expenses incurred in defending any litigation, proceeding or other action or claim. Notwithstanding the provisions hereof, Burrill's share of the liability hereunder shall not be in excess of the amount of fees actually received, or to be received, by Burrill under this engagement letter (excluding any amounts received as reimbursement of expenses incurred by Burrill).

(E) These indemnification provisions shall remain in full force and effect whether or not the transaction contemplated by this engagement letter is completed and shall survive the termination of this engagement letter, and shall be in addition to any liability that the Company might otherwise have to any indemnified party under this engagement letter or otherwise.

SECTION 9. GOVERNING LAW. This Agreement will be governed by, and construed in accordance with, the laws of the State of New York applicable to agreements made and to be performed entirely in such State. This Agreement may not be assigned by either party without the prior written consent of the other party. This Agreement shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns. Any right to trial by jury with respect to any dispute arising under this Agreement or any transaction or conduct in connection herewith is waived. Any dispute arising under this Agreement may be brought into the courts of the State of New York or into the Federal Court located in New York, New York and, by execution and delivery of this Agreement, the Company hereby accepts for itself and in respect of its property, generally and unconditionally, the jurisdiction of aforesaid courts. Each party hereto hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by delivering a copy thereof via 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 manner permitted by law. If either party shall commence an action or proceeding to enforce any provisions of a Transaction Document, 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 with the investigation, preparation and prosecution of such action or proceeding.

SECTION 10. ENTIRE AGREEMENT/MISC. This Agreement embodies the entire agreement and understanding between the parties hereto, and supersedes all prior agreements and understandings, relating to the subject matter hereof, including the letter agreement between us dated November 19, 2012. If any provision of this Agreement is determined to be invalid or unenforceable in any respect, such determination will not affect such provision in any other respect or any other provision of this Agreement, which will remain in full force and effect. This Agreement may not be amended or otherwise modified or waived except by an instrument in writing signed by both Burrill and the Company. The representations, warranties, agreements and covenants contained herein shall survive the closing of the Placement and delivery and/or exercise of the Securities, as applicable. 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 the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or a .pdf format 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.

SECTION 11. 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 specified on the signature pages attached hereto prior to 6:30 p.m. (New York City time) on a business day, (b) the next business day after the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number on the signature pages attached hereto on a day that is not a business day or later than 6:30 p.m. (New York City time) on any business day, (c) the business 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 hereto.

Please confirm that the foregoing correctly sets forth our agreement by signing and returning to Burrill a copy of this Agreement.

Very truly yours,

BURRILL LLC

By: /s/ Stephen A. Hurly
Name: Stephen A. Hurly
Title: Chief Executive Officer

Address for notice:
Burrill LLC
One Embarcadero Center
Suite 2700
San Francisco, CA 94111
Fax 415-591-5401
Attention: Victor A. Hebert
Chief Legal Officer

Accepted and Agreed to as of
the date first written above:

NOVELOS THERAPEUTICS, INC

By: /s/ Harry Palmin
Name: Harry Palmin
Title: Chief Executive Officer & President

Exhibit 23.2

Consent of Independent Registered Public Accounting Firm

We have issued our report dated March 9, 2012, with respect to the financial statements of Novelos Therapeutics, Inc. contained in the Registration Statement and Prospectus. We consent to the use of the aforementioned report in the Registration Statement and Prospectus, and to the use of our name as it appears under the caption "Experts."

/s/ GRANT THORNTON LLP

Chicago, Illinois
January 31, 2013