

CLEVELAND BIOLABS INC
Form 424B5
October 18, 2012

The information in this preliminary prospectus supplement and the accompanying prospectus is not complete and may be changed. A registration statement relating to these securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and are not soliciting an offer to buy these securities in any state or jurisdiction where the offer or sale is not permitted.

**Filed Pursuant to Rule 424(b)(5)
Registration No. 333-167258**

Subject to Completion, dated October 18, 2012

**PROSPECTUS SUPPLEMENT
(To Prospectus dated June 17, 2010)**

Shares of Common Stock

Warrants to Purchase Shares of Common Stock

We are offering shares of our common stock and warrants to purchase up to shares of our common stock. We collectively refer to the shares of common stock and warrants offered hereby and the shares of common stock underlying the warrants as the securities.

The common stock and the warrants will be sold in units, with each unit consisting of one share of common stock and a warrant to purchase shares of our common stock. Each unit will be sold to investors in this offering at a negotiated price of \$ per unit. The warrants will be issued separately from the shares of common stock offered hereby, and may be transferred separately immediately upon issuance.

The warrants have an initial exercise price of \$ per whole share and will expire on the year anniversary of issuance. The exercise price of the warrants and the number of shares into which the warrants may be exercised are subject to adjustment in certain circumstances. See Description of Our Common Stock and Description of Our Warrants for more information on the securities offered hereby.

Our common stock is listed on the Nasdaq Capital Market under the symbol CBLI. On October 17, 2012, the last reported sale price of our common stock on the Nasdaq Capital Market was \$2.42 per share. The warrants are not and will not be listed for trading on the Nasdaq Capital Market, or any other securities exchange.

Investing in our securities involves a high degree of risk. See Risk Factors beginning on page S-6 in this prospectus supplement, Risk Factors beginning on page 2 of the accompanying prospectus and other information included and incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of the factors you should carefully consider before deciding to buy our securities.

	Per Unit	Total
Public offering price	\$	\$
Underwriting discounts and commissions ⁽¹⁾	\$	\$
Proceeds to us, before expenses	\$	\$

(1) We have agreed to reimburse the underwriters for certain of their expenses as described under Underwriting on page S-19 of this prospectus supplement.

We have granted the underwriters a 30-day option to purchase up to additional shares of common stock at a price of \$ per share and/or additional warrants to purchase up to shares of common stock at a price of \$ per warrant to cover over-allotments, if any.

Delivery of the units is expected to be made on or about , 2012. The underwriters are offering the units on a firm commitment basis, as set forth under Underwriting.

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

Sole Book-Running Manager

Oppenheimer & Co.

Co-Managers

Cantor Fitzgerald & Co.

Ladenburg Thalmann & Co. Inc.

The date of this prospectus supplement is , 2012

TABLE OF CONTENTS**TABLE OF CONTENTS**

	Page No.
Prospectus Supplement	
<u>About this Prospectus Supplement</u>	<u>S-ii</u>
<u>Prospectus Supplement Summary</u>	<u>S-1</u>
<u>Risk Factors</u>	<u>S-6</u>
<u>Special Note Regarding Forward-Looking Statements</u>	<u>S-9</u>
<u>Use of Proceeds</u>	<u>S-11</u>
<u>Price Range of Common Stock</u>	<u>S-12</u>
<u>Dividend Policy</u>	<u>S-12</u>
<u>Dilution</u>	<u>S-13</u>
<u>Description of Our Common Stock</u>	<u>S-15</u>
<u>Description of Our Warrants</u>	<u>S-16</u>
<u>Underwriting</u>	<u>S-19</u>
<u>Legal Matters</u>	<u>S-24</u>
<u>Experts</u>	<u>S-24</u>
<u>Incorporation of Certain Information by Reference</u>	<u>S-25</u>
<u>Where You Can Find More Information</u>	<u>S-25</u>
Prospectus	
<u>Prospectus Summary</u>	<u>1</u>
<u>Risk Factors</u>	<u>2</u>
<u>Special Note Regarding Forward-Looking Statements</u>	<u>3</u>
<u>Use of Proceeds</u>	<u>3</u>
<u>Selling Stockholders</u>	<u>3</u>
<u>Plan of Distribution</u>	<u>8</u>
<u>Description of Our Common Stock</u>	<u>10</u>
<u>Description of Our Warrants</u>	<u>12</u>
<u>Description of Our Units</u>	<u>13</u>
<u>Legal Matters</u>	<u>13</u>
<u>Experts</u>	<u>13</u>
<u>Incorporation of Certain Information by Reference</u>	<u>14</u>
<u>Where You Can Find More Information</u>	<u>14</u>

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus. Neither we nor the underwriters have authorized anyone to provide you with different information. Offers to sell and solicitations of offers to buy our securities are only being made in jurisdictions where offers and sales are permitted. Regardless of the time of delivery of this prospectus supplement or the accompanying prospectus or any sale of our securities hereunder, you should not assume that the information in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the date on the front of those documents or that any document incorporated by reference is accurate as of any date other than its filing date.

For investors outside of the United States, we have not taken any action that would permit this offering or possession or distribution of this prospectus supplement or the accompanying prospectus in any jurisdiction where action for that purpose is required. Persons outside the United States who come into possession of this prospectus supplement or the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus supplement and the accompanying prospectus outside of the United States.

S-i

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement is part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the SEC) using a shelf registration process. Under this shelf registration statement process, we are offering to sell our securities under this prospectus supplement and the accompanying prospectus. This prospectus supplement provides you with a specific description of the securities we are selling in this offering and the terms of this offering. This prospectus supplement also adds, updates and changes information contained in the accompanying prospectus. The accompanying prospectus gives more general information, some of which may not apply to this offering. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference the statement in the document having the later date modifies or supersedes the earlier statement. You should read both this prospectus supplement and the accompanying prospectus as well as additional information described under Incorporation of Certain Information by Reference of this prospectus supplement before investing in our securities.

For further information, we refer to the registration statement and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, including the exhibits to such documents. Statements contained in this prospectus supplement or the accompanying prospectus about the provisions or contents of any agreement or other document are summaries only. If the SEC's rules and regulations require that an agreement or document be filed as an exhibit to the registration statement or a document incorporated by reference in this prospectus supplement or the accompanying prospectus, please see that agreement or document for a complete description of these matters.

S-ii

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT SUMMARY

This summary does not contain all of the information you should consider before buying our securities. We urge you to read carefully this entire prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus before making an investment decision. In this prospectus supplement, except as otherwise stated or the context otherwise requires, the terms Cleveland BioLabs and CBLI refer to Cleveland BioLabs, Inc., a Delaware corporation, but not its consolidated subsidiaries and company, we, us and our refer to Cleveland BioLabs, Inc. together with its consolidated subsidiaries. Except as otherwise stated or the context otherwise requires, common stock refers to the common stock, par value \$0.005 per share, of Cleveland BioLabs, Inc.

You should pay special attention to the Risk Factors section of this prospectus supplement, including the risk factors identified in Item 1A. Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2011 (as it may be updated in our quarterly reports on Form 10-Q and our other filings with the SEC), in determining whether an investment in our securities is appropriate for you.

Overview

We are a clinical-stage biotechnology company with a focus on oncology drug development. Our lead drug candidate, CBLB502, is being developed for dual indications for biodefense application as a radiation countermeasure under a U.S. Food and Drug Administration (FDA) regulation commonly referred to as the Animal Rule , and as a cancer treatment and an oncologic supportive care therapy under the FDA s traditional drug approval pathway. We anticipate that CBLB502, upon licensure as a radiation countermeasure, will be sold to the U.S. government for the national stockpile and other defense-related purposes, allied foreign governments and the nuclear energy industry, and upon licensure as a cancer treatment, will be sold to the public through traditional channels.

Since our inception, we have pursued the research, development and commercialization of products that have the potential to treat cancer, prevent and treat acute radiation syndrome and counteract the toxic effects of radio and chemotherapies for oncology patients. As of September 30, 2012, we had nine product candidates in our pipeline that are being developed directly by us and our majority-owned subsidiaries, Incuron, LLC (Incuron) and Panacela Labs, Inc. (Panacela).

In addition to CBLB502, our product pipeline includes: CBLB612, an inducer and mobilizer of hematopoietic stem cells; the Curaxin line of cancer treatment candidates being developed by Incuron, which specifically includes CBL0102, a nonproprietary molecule originally used to combat the effects of malaria, which we have identified as potentially having cancer treatment properties, and CBL0137, a new, proprietary molecule that leverages similar mechanisms of action in combating cancer; and five preclinical product candidates being developed by Panacela (Revercom, Mobilan, Arkil, and Antimycon for cancer treatment or oncology applications and Xenomycins for anti-infective applications).

Our Products and Technology

We have developed strategies to target the molecular mechanisms controlling apoptotic cell death for therapeutic benefit. These strategies take advantage of the fact that tumor and normal cells respond to apoptosis-inducing stresses differently due to tumor-specific defects in cellular signaling pathways such as inactivation of p53 (a pro-apoptosis regulator) and constitutive activation of NF-kB (a pro-survival regulator). We have designed two oppositely-directed

general therapeutic concepts:

Temporary and reversible suppression of apoptosis in normal cells to protect healthy tissues from stress-induced damage using compounds categorized as Protectans; and

Reactivation of apoptosis in tumor cells to eliminate cancer using compounds categorized as Curaxins.

Protectans, including our lead compounds CBLB502 and CBLB612, are engineered derivatives of natural apoptosis-suppressing factors produced by microbes that are part of the human microflora. The activity of these microbial products and the related Protectans derives from their ability to bind to and stimulate a particular class of cell surface receptors called Toll-like receptors (TLRs). TLRs are major components of the innate immune system that evolved to provide the body's first response to the invasion of various

S-1

TABLE OF CONTENTS

pathogens. Signaling through these TLRs leads to activation of the pro-survival NF-kB pathway. Activation of the NF-kB pathway drives expression of numerous genes, including those encoding inhibitors of apoptosis, scavengers of reactive oxygen species, anti-microbial proteins and cytokines. Our research has shown that Protectans prevent apoptosis in normal cells, yet have no effect on the death of tumor cells, which occurs through non-apoptotic mechanisms, because of differences in the cellular signaling pathways (including NF-kB) of tumor and normal cells.

The particular TLRs targeted by CBLB502 and CBLB612 (TLR5 and TLR2, respectively) are expressed on a unique subset of cell types and mobilize unique downstream pathways. Based on our research and studies, we believe this leads to biological effects that are highly desirable from a therapeutic standpoint. Our studies have shown that stimulation of these representatives of the TLR class of receptors is not accompanied by potentially dangerous acute inflammatory responses that are known to be induced by some other TLR and NF-kB activators. Although initially conceived of as suppressors of apoptosis, Protectans have exhibited the potential to act as multi-purpose therapeutic agents with a broader, multi-faceted mechanism of action involving modulation of immune response and multiple mechanisms of tissue regeneration. Thus, we believe Protectans may have a wide range of potential applications including reduction of the lethality of high dose radiation exposure (biodefense), amelioration of the negative side effects of radiation and chemotherapy, prevention of ischemia-induced tissue damage, stimulation of proliferation and mobilization of hematopoietic stem cells, and notably, induction of anti-tumor immune responses.

Curaxins, including our lead compounds CBL0102 and CBL0137, are small molecules that we believe have the potential to induce apoptosis in a broad range of human tumor cells and sensitize tumor cells to the apoptosis-inducing effects of other anti-cancer treatments, but have no effect on normal cells. Curaxins have been shown to have a mechanism of action involving modulation of the FACT (Facilitates Chromatin Transcription) complex. Curaxins sequester FACT such that it is not able to perform its normal function in opening up chromatin structure to allow transcription of certain genes. The gene expression programs that are blocked in Curaxin-treated cells include several that are known to be critical for tumor cell survival (e.g., HIF-1 α -, HSF1- and NF-kB-regulated genes) (Gasparian, et al. Curaxins: anti-cancer compounds that simultaneously suppress NF-kB and activate p53 by targeting FACT. Science Translational Medicine 2011 Aug 10; Volume 3, pp. 1-12). The multi-targeted nature of Curaxins suggests that they may be useful for treatment of many different types of cancer with greater efficacy and lower risk of development of drug resistance. In addition, since we believe that Curaxins will not cause DNA damage, we anticipate that Curaxins may potentially be safer than many conventional chemotherapeutics.

Our original paradigm surrounding therapeutic modulation of apoptosis resulted in identification of lead compounds for both tissue protection and anti-cancer treatment. However, through our research and studies, we have discovered that the mechanisms of action of these compounds extend beyond regulation of apoptosis, resulting in potential applications outside of what was originally envisioned. Our basic science research efforts focus in part on discovering these potential applications. We currently have a number of anti-cancer and anti-infective compounds with diverse mechanisms of action in different early stages of development.

Financial Update

As of September 30, 2012, our total cash and cash equivalents and short-term investments were approximately \$12.2 million and \$7.0 million, respectively, for a combined total of \$19.2 million, of which \$15.1 million is reserved for use by our majority-owned subsidiaries.

Recent Developments

On June 4, 2012, we announced survival results for a randomized, blinded, placebo-controlled efficacy study of CBLB502 in 179 non-human primates conducted under Good Laboratory Practice with elements of Good Clinical Practice, as required by the FDA's Animal Rule. Animals in the study received a 70% lethal dose of total body irradiation followed by a single injection of a range of doses of CBLB502 or a placebo, in each case, 25 hours after irradiation. In addition to determination of 60-day survival, the study measured multiple pharmacodynamic parameters which we believe are essential for animal-to-human dose conversion. A minimal efficacious dose of CBLB502 was determined and doses above the minimal efficacious dose formed a plateau at approximately 75% survival, compared to 27.5% survival in the placebo treated group. These results demonstrated with a high degree of statistical significance ($p < 0.0001$ for the trend up to the 40 ug/kg

S-2

TABLE OF CONTENTS

dose and $p = 0.0021$ for the trend up to the 10 ug/kg dose) that a single administration of CBLB502 given 25 hours after TBI led to a nearly three-fold increase in overall survival in the subject animals.

On July 1, 2012, we entered into a service agreement with Tartis-Aging, Inc. (Tartis), a company that is indirectly majority owned by Andrei Gudkov, our director and chief scientific officer. Pursuant to this agreement, we will provide research services relating to, among other things, hematopoietic stem cells, histological analysis of tissues, general cell and molecular biology technologies and small molecule analytical chemistry. Tartis will pay us an aggregate of \$333,744 for such services. The term of the service agreement ends on December 31, 2012 and either party may terminate the agreement upon 30 days notice to the other party.

On July 30, 2012, we announced that BioLabs 612, LLC, our wholly owned Russian subsidiary, signed a contract valued at approximately \$4 million (based on the then current exchange rates) with the Ministry of Industry and Trade of the Russian Federation for development of CBLB612. The contract was issued under Russia's Pharma 2020 development initiative. The contract provides funding over a period of approximately three years, which will be used to support completion of preclinical studies, filing of an IND and Phase I and II clinical studies.

On September 10, 2012, we announced the receipt of an advice letter from the FDA indicating agreement with proposed pivotal animal efficacy studies for the development of CBLB502 as a radiation countermeasure. The FDA also accepted our non-human primate study discussed above as part of the pivotal program. On October 1, 2012, we announced that receipt of the End-of-Phase II meeting minutes and an advice letter from the FDA providing further clarification on the clinical study protocols for CBLB502 as a radiation countermeasure. The advice letter provided specific guidance on the structure of the remaining clinical studies, including two primary study outcomes: generation of additional biomarker information for dose conversion as an initial study focus and then subsequent generation of extended safety data using the projected efficacious dose defined by the initial dose conversion study. The letter also provided specific recommendations on several technical aspects of our proposed clinical protocol.

On October 2, 2012, we, along with Incuron, LLC, our joint venture with Bioprocess Capital Ventures, announced that CBL0102 had been granted orphan drug status by the FDA for treatment of hepatocellular carcinoma.

On October 4, 2012, we announced that we received a \$770,442 increase under our existing contract, initially awarded to us on January 10, 2011, with the Defense Threat Reduction Agency of the United States Department of Defense.

On October 10, 2012, we announced that the first patient was dosed in a Phase I trial of the oral formulation of CBL0137 in subjects with advanced solid tumors that are resistant or refractory to standard of care treatment. The trial is being conducted in the Russian Federation.

On October 18, 2012, we announced that we had submitted a proposal to the Biomedical Advanced Research and Development Authority of the Department of Health and Human Services (BARDA) for funding of the remaining development steps needed for FDA licensure of CBLB502 as a medical radiation countermeasure. The scope of the proposal is based on feedback recently received from the FDA regarding the pivotal animal efficacy and clinical programs and animal-to-human dose conversion. The new proposal is also intended to address the points noted by BARDA in connection with our previous CBLB502 proposal. There can be no assurance that BARDA will fund the proposal.

Corporate Information

Our principal executive offices are located at 73 High Street, Buffalo, New York 14203, and our telephone number is (716) 849-6810. Our corporate website is <http://www.cbiolabs.com>. The information contained in or accessible from our corporate website is not part of this prospectus supplement or the accompanying prospectus.

S-3

TABLE OF CONTENTS

THE OFFERING

Issuer

Cleveland BioLabs, Inc.

Common Stock offered by us

shares of common stock

Warrants offered by us

Series G Warrants to purchase shares of our common stock, subject to adjustment in certain circumstances. The Series G Warrants have an initial exercise price of \$ per whole share and will expire on the year anniversary of issuance. See Description of Our Warrants.

Common Stock outstanding after this offering

shares of common stock, or shares of common stock if all the warrants offered hereby are exercised

Over-allotment option

We have granted the underwriters a 30-day option to purchase up to additional shares of common stock and additional warrants to purchase up to shares of common stock to cover over-allotments, if any.

Use of proceeds

We estimate that the net proceeds from this offering, after deducting underwriting discounts and commissions and expenses payable by us, will be approximately \$, or approximately \$ if the underwriters exercise their over-allotment option in full. We intend to use the net proceeds from this offering for general corporate purposes, including, but not limited to, the funding of the continued development of our existing drug portfolio and general working capital. See Use of Proceeds.

Risk factors

See Risk Factors beginning on page S-6 of this prospectus supplement and page 2 of the accompanying prospectus and other information included and incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of the risks you should carefully consider before deciding to invest in our securities.

Lock-up

Subject to certain exceptions, we and our directors and officers have agreed with the underwriters not to sell, transfer or dispose of any shares of our common stock for a period of 90 days after the date of this prospectus supplement.

See Underwriting.

Trading Market

Our common stock is listed on the Nasdaq Capital Market under the symbol CBLI. The warrants are not and will not be listed for trading on the Nasdaq Capital Market, or any other securities exchange.

Transfer Agent and Warrant Agent

Continental Stock Transfer & Trust Company

Unless otherwise stated, all information in this prospectus supplement is based on 35,934,809 shares of common stock outstanding as of October 15, 2012, assumes no exercise of the underwriters over-allotment option, and does not include the following:

4,816,012 shares of common stock issuable upon exercise of outstanding options at a weighted-average exercise price of \$4.74 per share.

The following shares of common stock issuable upon exercise of our outstanding warrants:

3,485,810 shares of common stock issuable upon exercise of our Series D warrants, which may be exercised at a price of \$1.60 per share.

S-4

TABLE OF CONTENTS

o 935,384 shares of common stock issuable upon exercise of our warrants issued in March 2010, which may be exercised at a price of \$4.00 per share.

o 1,468,125 shares of common stock issuable upon exercise of our Series F warrants, which may be exercised at a price of \$5.00 per share.

o 176,175 shares of common stock issuable upon exercise of warrants issued to the placement agent in connection with our offering in June 2011, which may be exercised at a price of \$5.00 per share.

o shares of common stock issuable upon exercise of the warrants to be issued in this offering.

50,000 shares of restricted common stock that we are obligated to issue under existing consulting arrangements. These shares will be issued without registration in reliance on the exemptions afforded by Section 4(2) of the Securities Act of 1933, as amended.

The shares of common stock issuable upon the exercise of our outstanding warrants and the exercise price in respect thereof are subject to adjustment in certain circumstances. Our Series D warrants and our warrants issued in March 2010 contain full-ratchet anti-dilution protection provisions upon the issuance of shares of our common stock at a price less than the applicable exercise price. If such a lower-priced issuance occurs, the exercise price of these warrants will be reduced to the price at which our common stock is issued or deemed to be issued.

S-5

TABLE OF CONTENTS

RISK FACTORS

An investment in our securities is highly speculative, involves a high degree of risk, and should be made only by investors who can afford a complete loss. You should carefully consider and evaluate all of the information included and incorporated by reference in this prospectus supplement and the accompanying prospectus, including the risk factors incorporated by reference from our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2011, as updated by our Quarterly Reports on Form 10-Q and our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act), filed after such Annual Report. Any of the risks we have described could materially and adversely affect our business, financial condition or operating results and could result in a partial or complete loss of your investment. Further, the risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not currently known to us, or that we currently believe are not material, could also materially and adversely affect our business, financial condition or operating results.

Risks Related to Our Common Stock

Since we have broad discretion in how we use the proceeds from this offering, we may use the proceeds in ways with which you disagree.

We have not allocated specific amounts of the net proceeds from this offering for any specific purpose. Accordingly, our management will have significant 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 in ways with which you would agree. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for the Company. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flow.

The investors in this offering will pay a substantially higher price than the book value of our common stock.

If you purchase shares of our common stock in this offering, you will incur an immediate and substantial dilution in net tangible book value. Our net tangible book value was \$0.03 per share as of June 30, 2012. Assuming the sale by us of all shares offered hereby (not including the warrant shares as discussed in Dilution) at a price to the public of \$ per unit, and after deducting the underwriting discounts and commissions and expenses payable by us, our adjusted net tangible book value as of June 30, 2012 would have been approximately \$ per share.

The price of our common stock may be volatile, which may in turn expose us to securities litigation.

The market price of our common stock has historically experienced and may continue to experience significant volatility. From January 2011 through September 30, 2012, the market price of our common stock, which is listed on the NASDAQ Capital Market, fluctuated from a high of \$9.60 per share in the first quarter of 2011 to a low of \$1.15 in the second quarter of 2012. The listing of our common stock on the NASDAQ Capital Market does not assure that a meaningful, consistent and liquid trading market will exist, and in recent years, the market has experienced extreme price and volume fluctuations that have particularly affected the market prices of many smaller companies like us. Our

common stock is thus subject to this volatility in addition to volatility caused by the occurrence of industry and company specific events. Factors that could cause fluctuations include, but are not limited to, the following:

our progress in developing and commercializing our products;
price and volume fluctuations in the overall stock market from time to time;
fluctuations in stock market prices and trading volumes of similar companies;
actual or anticipated changes in our earnings or fluctuations in our operating results or in the expectations of securities analysts;

S-6

TABLE OF CONTENTS

general economic conditions and trends;
major catastrophic events;
sales of large blocks of our stock;
departures of key personnel;

changes in the regulatory status of our product candidates, including results of our pre-clinical studies and clinical trials;

status of contract and funding negotiations relating to our product candidates;
events affecting The Cleveland Clinic, Roswell Park Center Institute or our other collaborators;

announcements of new products or technologies, commercial relationships or other events by us or our competitors;
regulatory developments in the United States and other countries;

failure of our common stock to be listed or quoted on the Nasdaq Capital Market, other national market system or any national stock exchange;

changes in accounting principles; and
discussion of us or our stock price by the financial and scientific press and in online investor communities.

In addition to the factors described above, the price of our common stock also could be affected by possible sales of our common stock by investors who view our warrants as a more attractive means of equity participation in our Company and by hedging or arbitrage activity involving our common stock as a result of our warrants. As a result of the volatility of our stock price, we could be subject to securities litigation, which could result in substantial costs and divert management's attention and company resources from our business.

Issuance of additional equity securities may adversely affect the market price of our common stock.

We are currently authorized to issue 80,000,000 shares of our common stock. As of October 15, 2012, we had 35,934,809 shares of common stock issued and outstanding, excluding shares issuable upon the exercise of our outstanding warrants and options, and we had no shares of preferred stock outstanding. As of October 15, 2012, we also had 6,065,495 warrants and 4,816,012 options outstanding, of which 4,331,512 options are currently fully vested or vest within the next 60 days.

To the extent that shares of common stock are issued or options and warrants are exercised, holders of our common stock will experience dilution. In addition, in the event of any future issuances of equity securities or securities convertible into or exchangeable for common stock, holders of our common stock may experience dilution.

Our outstanding warrants contain provisions that, in certain circumstances, could result in the number of shares of common stock issuable upon the exercise of such warrants to increase and/or the exercise price of such warrants to decrease. See Prospectus Supplement Summary The Offering for a discussion of the impact of this offering to our outstanding warrants.

Moreover, our board of directors is authorized to issue preferred stock without any action on the part of our stockholders. Our board of directors also has the power, without stockholder approval, to set the terms of any such preferred stock that may be issued, including voting rights, conversion rights, dividend rights, preferences over our common stock with respect to dividends or if we liquidate, dissolve or wind up our business and other terms. If we issue preferred stock in the future that has preference over our common stock with respect to the payment of dividends or upon our liquidation, dissolution or winding up, or if we issue preferred stock with voting rights that dilute the voting power of our common stock, the market price of our common stock could decrease. Any provision permitting the conversion of any such preferred stock into our common stock could result in significant dilution to the holders of our common stock.

TABLE OF CONTENTS

We also consider from time to time various strategic alternatives that could involve issuances of additional common stock, including but not limited to acquisitions and business combinations, but do not currently have any definitive plans to enter into any of these transactions.

We have no plans to pay dividends on our common stock, and you may not receive funds without selling your common stock.

We have not declared or paid any cash dividends on our common stock, nor do we expect to pay any cash dividends on our common stock for the foreseeable future. We currently intend to retain any additional future earnings to finance our operations and growth and for future stock repurchases and, therefore, we have no plans to pay cash dividends on our common stock at this time. Any future determination to pay cash dividends on our common stock will be at the discretion of our board of directors and will be dependent on our earnings, financial condition, operating results, capital requirements, any contractual restrictions, regulatory and other restrictions on the payment of dividends by our subsidiaries to us, and other factors that our board of directors deems relevant.

Accordingly, you may have to sell some or all of your common stock in order to generate cash from your investment. You may not receive a gain on your investment when you sell our common stock and may lose the entire amount of your investment.

Provisions in our charter documents and Delaware law may inhibit a takeover or impact operational control of our company, which could adversely affect the value of our common stock.

Our certificate of incorporation and bylaws, as well as Delaware corporate law, contain provisions that could delay or prevent a change of control or changes in our management that a stockholder might consider favorable. These provisions include, among others, prohibiting stockholder action by written consent, advance notice for raising business or making nominations at meetings of stockholders and the issuance of preferred stock with rights that may be senior to those of our common stock without stockholder approval. These provisions would apply even if a takeover offer may be considered beneficial by some of our stockholders. If a change of control or change in management is delayed or prevented, the market price of our common stock could decline.

Risks Related to Our Warrants

There is no public market for the warrants to purchase common stock being offered 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 of the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited.

Holders of our warrants will have no rights as a common stockholder until such holders exercise their warrants and acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to the shares of our common stock underlying such warrants. Upon exercise of your warrants, you will be entitled to

We have no plans to pay dividends on our common stock, and you may not receive funds without selling your common stock.

exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

S-8

TABLE OF CONTENTS

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement or the accompanying prospectus contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, Section 21E of the Exchange Act, and the Private Securities Litigation Reform Act of 1995 and other federal securities laws. These forward-looking statements include information about possible or assumed future results of our business, financial condition, liquidity, results of operations, plans and objectives. The words may, should, expect, anticipate, intend, plan, continue, project, estimate and similar expressions used in this prospectus supplement, the accompanying prospectus or incorporated in this prospectus supplement or the accompanying prospectus by reference that do not relate to historical facts are intended to identify forward-looking statements. These statements are only predictions. You should not place undue reliance on these forward-looking statements.

Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors. These factors include, among others:

our history of operating losses and the potential for future losses, which may lead us to not be able to continue as a going concern;

our need for substantial additional financing to meet our business objectives;

the substantial resources needed for research and development and the related expenses, which are subject to uncertainty;

our ability to successfully and timely develop our product candidates and the risks inherent in the early stages of drug development and in conducting clinical trials;

our collaborative relationships and the financial risks related thereto;

our reliance on third-party contract manufacturers to manufacture a satisfactory product in a timely manner;

our ability to obtain regulatory approval in a timely manner or at all;

the potential for the loss of funding from our government grants and contracts and our ability to win additional funding under such grants and contracts;

the non-controlling interest holders in our subsidiaries, which are not operated solely for our benefit;

the ability to obtain protection for, and control the protection of, our intellectual property;

our ability to comply with our obligations under license agreements;

the risks relating to conducting business in emerging markets such as the Russian Federation;

the potential for significant product liability claims; and

our ability to comply with various safety, environmental and other governmental regulations.

The forward-looking statements are based on management's beliefs, plans, expectations and assumptions and on information available to us as of the time such statements were made. These beliefs, plans, expectations and assumptions can change as a result of many possible events or factors, not all of which are known to us. Neither we nor any other person assumes responsibility for the accuracy or completeness of these statements. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements.

The forward-looking statements in this prospectus supplement, the accompanying prospectus or incorporated in this prospectus supplement or the accompanying prospectus by reference are not representations or guarantees of future performance and involve certain risks, uncertainties and assumptions. Such risks, uncertainties and assumptions include, but are not limited to, any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a),

13(c), 14 or 15(d) of the Exchange Act. Many of such factors are beyond our control and are difficult to predict. As a result, our future actions, financial position and results

S-9

TABLE OF CONTENTS

of operations could differ materially from those expressed in any forward-looking statements made by us. Readers are therefore cautioned not to place undue reliance on forward-looking statements. We also do not intend to publicly update any forward-looking statements that may be made from time to time by us or on our behalf, whether as a result of new information, future events or otherwise.

S-10

TABLE OF CONTENTS

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately \$ million (or approximately \$ million if the underwriters' over-allotment option is exercised in full) after deducting underwriting discounts and commissions and estimated offering expenses payable by us. This amount does not include the proceeds which we may receive in connection with the exercise of the warrants.

We intend to use the net proceeds from this offering for general corporate purposes, including, but not limited to, the funding of the continued development of our existing drug portfolio and general working capital.

Pending application of such proceeds, we expect to invest the proceeds in short-term, interest-bearing, investment-grade marketable securities or money market obligations.

We cannot estimate precisely the allocation of the net proceeds from this offering among these uses. The amounts and timing of the expenditures may vary significantly, depending on numerous factors, including the amount of cash, if any, generated internally from operations and the terms and availability of financing arrangements, as well as the amount of cash used in our operations. Our management will have broad discretion in the application of the net proceeds of this offering. We reserve the right to change the use of proceeds as a result of certain contingencies such as competitive or economic developments and other factors.

S-11

TABLE OF CONTENTS**PRICE RANGE OF COMMON STOCK**

Our shares of common stock are listed on the Nasdaq Capital Market under the symbol CBLI .

The following table sets forth, for the periods indicated, the high and low sales prices of our common stock, as reported on the Nasdaq Capital Market.

Calendar Quarter	High	Low
2012		
First quarter	\$ 4.06	\$ 2.45
Second quarter	\$ 2.57	\$ 1.15
Third quarter	\$ 2.95	\$ 1.31
Fourth Quarter (through October 17, 2012)	\$ 2.76	\$ 2.34
2011		
First quarter	\$ 9.60	\$ 6.35
Second quarter	\$ 8.46	\$ 3.17
Third quarter	\$ 3.46	\$ 2.10
Fourth quarter	\$ 3.29	\$ 2.30
2010		
First quarter	\$ 5.01	\$ 3.30
Second quarter	\$ 4.14	\$ 2.80
Third quarter	\$ 5.75	\$ 2.99
Fourth quarter	\$ 7.35	\$ 5.06

On October 17, 2012, the last reported sale price of our common stock on the Nasdaq Capital Market was \$2.42 per share.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock. We intend to retain any future earnings to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future. Any dividends paid will be solely at the discretion of our board of directors.

TABLE OF CONTENTS**DILUTION**

Our net tangible book value as of June 30, 2012, was approximately \$1.2 million, or approximately \$0.03 per share of common stock based on 35,836,240 shares of common stock outstanding as of such date. Net tangible book value per share is calculated by subtracting our total liabilities and noncontrolling interest in stockholders' equity from our total tangible assets, and dividing this amount by the number of shares of common stock outstanding. Unless otherwise noted, all information contained in this dilution section assumes that the underwriters do not exercise their over-allotment option.

After giving effect to the sale of _____ shares of common stock offered in this offering (not including the warrant shares as discussed below) at a public offering price of \$ _____ per unit and after deducting underwriting discounts and commissions and estimated offering expenses, our net tangible book value as of June 30, 2012 would have been \$ _____ million, or \$ _____ per share of common stock. This amount represents an immediate increase in net tangible book value to existing stockholders of \$ _____ per share and an immediate dilution in net tangible book value of \$ _____ per share to purchasers of our shares of common stock in this offering, as illustrated in the following table (without giving effect to the over-allotment option granted to the underwriters):

Offering price per unit		\$
Net tangible book value per share as of June 30, 2012	\$ 0.03	
Increase per share after the offering	\$	
Net tangible book value per share after this offering		\$
Dilution per share to the new investors		\$

If the underwriters' over-allotment option is exercised in full, our as adjusted net tangible book value per share after giving effect to this offering would be \$ _____ per share, representing an increase in net tangible book value per share to existing stockholders of approximately \$ _____ per share, and the dilution in our as adjusted net tangible book value per share to investors in this offering would be \$ _____ per share.

The discussion and tables above are based on 35,836,240 shares outstanding as of June 30, 2012 and excludes as of that date:

4,716,012 shares of common stock issuable upon exercise of outstanding options at a weighted-average exercise price of \$4.81 per share.

The following shares of common stock issuable upon exercise of our outstanding warrants:

• 3,485,810 shares of common stock issuable upon exercise of our Series D warrants, which may be exercised at a price of \$1.60 per share.

• 935,384 shares of common stock issuable upon exercise of our warrants issued in March 2010, which may be exercised at a price of \$4.00 per share.

• 1,468,125 shares of common stock issuable upon exercise of our Series F warrants, which may be exercised at a price of \$5.00 per share.

• 176,175 shares of common stock issuable upon exercise of warrants issued to the placement agent in connection with our offering in June 2011, which may be exercised at a price of \$5.00 per share.

• _____ shares of common stock issuable upon exercise of the warrants to be issued in this offering.

50,000 shares of restricted common stock that we are obligated to issue under existing consulting arrangements. These shares will be issued without registration in reliance on the exemptions afforded by Section 4(2) of the Securities Act of 1933, as amended.

The shares of common stock issuable upon the exercise of our outstanding warrants and the exercise price in respect thereof are subject to adjustment in certain circumstances. Our Series D warrants and our warrants issued in March 2010 contain full-ratchet anti-dilution protection provisions upon the issuance of

S-13

TABLE OF CONTENTS

shares of our common stock at a price less than the applicable exercise price. If such a lower-priced issuance occurs, the exercise price of these warrants will be reduced to the price at which our common stock is issued or deemed to be issued.

To the extent that outstanding options or warrants outstanding as of June 30, 2012 have been or may be exercised, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

S-14

TABLE OF CONTENTS

DESCRIPTION OF OUR COMMON STOCK

The material terms and provisions of our common stock and each other class of our securities which may qualify or limit the rights and privileges of our common stock are described under the captions Description of Our Common Stock starting on page 10 of the accompanying prospectus.

S-15

TABLE OF CONTENTS

DESCRIPTION OF OUR WARRANTS

The following description of the warrants offered hereby is a summary. It summarizes only those aspects of the warrants that we believe will be most important to your decision to invest in the warrants. You should keep in mind, however, that it is the terms in the warrant, and not this summary that define your rights as a holder of the warrants. There may be other provisions in the warrant that are also important to you. You should read the form of warrant for a full description of the terms of the warrants.

General

The warrants to be issued in this offering represent the right to purchase up to _____ shares of common stock at an initial exercise price of \$ _____ per whole share. Each warrant may be exercised at any time and from time to time on or after _____, 2012 and through and including _____, _____.

Exercise

Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain rescission, compensation and buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third trading day after delivery to us of the exercise notice. With respect to the rescission rights, the holder has the right to rescind the exercise. The buy-in rights apply if after such third trading day the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, we will:

pay cash to the holder in an amount equal to the excess (if any) of the buy-in price over the product of (A) such number of shares of common stock, times (B) the price at which the sell order giving rise to holder's purchase obligation was executed; and

at the election of holder, either (A) reinstate the portion of the warrant as to such number of shares of common stock, or (B) deliver to holder a certificate or certificates representing such number of shares of common stock.

In addition, the warrant holders are entitled to a cashless exercise option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares of common stock underlying the warrants. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares with respect to which the warrant is being exercised, the volume weighted average price per share of our common stock on the trading date immediately prior to the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Delivery of Shares Upon Exercise

Upon the holder's exercise of a warrant, we will promptly, but in no event later than three trading days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant. In addition, we will, if the holder provides the necessary information to us, issue and deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

S-16

TABLE OF CONTENTS

Certain Adjustments

The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of the following events:

Stock Dividends and Splits

If, at any time while the warrant is outstanding, we (i) pay a stock dividend or otherwise make a distribution on shares of common stock or any other equity or equity equivalent securities payable in shares of common stock, (ii) subdivide outstanding shares of common stock into a larger number of shares, (iii) combine outstanding shares of common stock into a smaller number of shares, or (iv) issue by reclassification of common stock any shares of capital stock, then in each such case the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock 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 the warrant shall remain unchanged.

Subsequent Rights Offerings

If, at any time while the warrant is outstanding, we issue rights, options or warrants to all holders of our common stock entitling them to purchase our common stock at a price per share less than the volume weighted average price on the record date for determining the stockholders who are entitled to such rights, options or warrants, then the exercise price shall be multiplied by a fraction, of which the denominator shall be the number of shares of common stock outstanding on the date of issuance of such rights or warrants plus the number of additional shares of common stock offered for subscription or purchase, and of which the numerator shall be the number of shares of common stock outstanding on the date of issuance of such rights or warrants plus the number of shares which the aggregate offering price of the total number of shares so offered would purchase at such volume weighted average price.

Pro Rata Distributions

If, at any time while the warrant is outstanding, we distribute evidence of our indebtedness or assets or rights or warrants to purchase any security other than our common stock to all holders of our common stock (distribution), then the exercise price will adjust pursuant to a volume weighted average price based ratio that takes into account the then per share fair market value of the portion of the distribution applicable to one outstanding share of the Common Stock.

Fundamental Transactions

If, at any time while the warrant is outstanding, we (i) consolidate or merge with or into another person or entity, (ii) sell all or substantially all of our assets, (iii) are subject to or complete a tender or exchange offer pursuant to which holders of our common stock are permitted to tender or exchange their shares for other securities, cash or property, or (iv) effect any reclassification of our common stock or any compulsory share exchange pursuant to which our common stock is converted into or exchanged for other securities, cash or property (each, a Fundamental Transaction), then the holders shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (Alternate Consideration). Any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall issue a new warrant evidencing such holder's right

to exercise its warrants into Alternate Consideration.

In the event of certain Fundamental Transactions, the holders of the warrants will be entitled to receive, in lieu of our common stock and at the holders' option, cash in an amount equal to the value of the remaining unexercised portion of the warrant on the date of the transaction determined using a Black-Scholes option pricing model with, among other variables, an expected volatility equal to the 100 day historical price volatility obtained from Bloomberg L.P. as of the trading day immediately prior to the public announcement of the Fundamental Transaction.

S-17

TABLE OF CONTENTS

Notice of Corporate Action

We will provide notice to holders of the warrants to provide such holders with an opportunity to exercise their warrants and hold common stock in order to participate in or vote on the following corporate events if we (i) declare a dividend on the common stock, (ii) declare a special nonrecurring cash dividend on or a redemption of the common stock, (iii) 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, (iv) require the approval of any stockholders in connection with any reclassification of the common stock, any consolidation or merger to which we are a party, any sale or transfer of all or substantially all of our assets, any compulsory share exchange whereby the common stock is converted into other securities, cash or property, or (v) authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company.

Limitations on Exercise

The number of warrant shares that may be acquired by the holder upon any exercise of the warrant shall be limited to the extent necessary to ensure that, following such exercise, the total number of shares of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act, does not exceed 4.99% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise), which we refer to as the Beneficial Ownership Limitation. The holder may elect to change the Beneficial Ownership Limitation from 4.99% to 9.99% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise) upon 61 days' prior written notice.

Waivers and Amendments

The warrants may be modified or amended and the provisions therein may be waived with the written consent of the Company and holders holding warrants at least equal to 67% of the warrant shares issuable upon exercise of all then outstanding warrants.

Additional Provisions

The above summary of certain terms and provisions of the warrants is qualified in its entirety by reference to the detailed provisions of the warrants, the form of which will be filed as an exhibit to a current report on Form 8-K that will be incorporated herein by reference. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a stockholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

TABLE OF CONTENTS**UNDERWRITING**

We have entered into an underwriting agreement with Oppenheimer & Co. Inc. acting as representative of the underwriters.

The underwriting agreement provides for the purchase of a specific number of units comprised of shares of common stock and warrants to purchase common stock by each of the underwriters. The underwriters' obligations are several, which means that each underwriter is required to purchase a specified number of units, but is not responsible for the commitment of any other underwriter to purchase units. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase the number of units set forth opposite its name below:

Underwriter	Number of Units
Oppenheimer & Co. Inc.	
Cantor Fitzgerald & Co.	
Ladenburg Thalmann & Co. Inc.	
Total	

The underwriters have agreed to purchase all of the units offered by this prospectus supplement (other than those covered by the over-allotment option described below) if any are purchased.

The shares of common stock and the warrants to purchase common stock offered hereby should be ready for delivery on or about _____, 2012 against payment in immediately available funds. The underwriters are offering the units subject to various conditions and may reject all or part of any order. The representative has advised us that the underwriters propose to offer the units directly to the public at the public offering price that appears on the cover page of this prospectus supplement. In addition, the representative may offer some of the units to other securities dealers at such price less a concession of \$ _____ per unit. After the units are released for sale to the public, the representative may change the offering price and other selling terms at various times.

We have granted the underwriters an over-allotment option. This option, which is exercisable for up to 30 days after the date of this prospectus supplement, permits the underwriters to purchase a maximum of _____ additional units consisting of up to _____ shares of common stock at a price of \$ _____ per share and/or warrants to purchase up to _____ shares of common stock at a price of \$ _____ per warrant from us to cover over-allotments. The underwriters have severally agreed that, to the extent the over-allotment option is exercised, they will each purchase a number of additional units proportionate to the underwriter's initial amount reflected in the table above and will offer such units on the same terms as those on which the units are being offered.

The following table provides information regarding the gross proceeds to us, the amount of the discount to be paid to the underwriters by us, before expenses, and the net proceeds to us, before expenses:

	Per Unit	Total Without Exercise of Over-Allotment Option	Total With Full Exercise of Over-Allotment Option
Public offering price	\$	\$	\$
Underwriting discount	\$	\$	\$

Proceeds, before expenses, to us \$ \$ \$

We estimate that our total expenses of the offering, excluding the underwriting discount, will be approximately \$250,000, which includes \$100,000 that we have agreed to reimburse the underwriters for the fees incurred by them in connection with the offering.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

We and our officers and directors have agreed to a 90-day lock up with respect to shares of common stock that they beneficially own, including securities that are convertible into shares of common stock and securities that are exchangeable or exercisable for shares of common stock. This means that, subject to certain

S-19

TABLE OF CONTENTS

exceptions, for a period of 90 days following the date of this prospectus supplement, we and such persons may not offer, sell, pledge or otherwise dispose of these securities without the prior written consent of Oppenheimer & Co. Inc.

Rules of the SEC may limit the ability of the underwriters to bid for or purchase shares before the distribution of the shares is completed. However, the underwriters may engage in the following activities in accordance with the rules:

Stabilizing transactions The representative may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.

Over-allotments and syndicate covering transactions The underwriters may sell more shares of our common stock in connection with this offering than the number of shares than they have committed to purchase. This over-allotment creates a short position for the underwriters. This short sales position may involve either covered short sales or naked short sales. Covered short sales are short sales made in an amount not greater than the underwriters' over-allotment option to purchase additional shares in this offering described above. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in this offering.

Penalty bids If the representative purchases shares in the open market in a stabilizing transaction or syndicate covering transaction, it may reclaim a selling concession from the underwriters and selling group members who sold those shares as part of this offering.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages resales of the shares.

Neither we nor the underwriters makes any representation or prediction as to the effect that the transactions described above may have on the price of the shares. These transactions may occur on the Nasdaq Capital Market or otherwise.

If such transactions are commenced, they may be discontinued without notice at any time.

Electronic Delivery of Prospectus Supplement: A prospectus supplement in electronic format may be delivered to potential investors by one or more of the underwriters participating in this offering. The prospectus supplement in electronic format will be identical to the paper version of such prospectus supplement. Other than the prospectus supplement in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part.

Notice to Non-U.S. Investors

The offering is exclusively conducted under applicable private placement exemptions and therefore it has not been and will not be notified to, and this document or any other offering material relating to the units has not been and will not be approved by, the Belgian Banking, Finance and Insurance Commission (Commission bancaire, financière et des assurances/Commissie voor het Bank, Financier en Assurantiewezen). Any representation to the contrary is unlawful.

TABLE OF CONTENTS

The underwriters have undertaken not to offer, sell, resell, transfer or deliver directly or indirectly, any units, or to take any steps relating/ancillary thereto, and not to distribute or publish this document or any other material relating to the units or to the offering in a manner which would be construed as: (a) a public offering under the Belgian Royal Decree of 7 July 1999 on the public character of financial transactions; or (b) an offering of securities to the public under Directive 2003/71/EC which triggers an obligation to publish a prospectus in Belgium. Any action contrary to these restrictions will cause the recipient and the issuer to be in violation of the Belgian securities laws.

Neither this prospectus supplement nor any other offering material relating to the units has been submitted to the clearance procedures of the Autorité des marchés financiers in France. The units have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus supplement nor any other offering material relating to the units has been or will be: (a) released, issued, distributed or caused to be released, issued or distributed to the public in France; or (b) used in connection with any offer for subscription or sale of the units to the public in France. Such offers, sales and distributions will be made in France only: (i) to qualified investors (investisseurs qualifiés) and/or to a restricted circle of investors (cercle restreint d'investisseurs), in each case investing for their own account, all as defined in and in accordance with Articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code monétaire et financier; (ii) to investment services providers authorized to engage in portfolio management on behalf of third parties; or (iii) in a transaction that, in accordance with article L.411-2-II-1^o-or-2^o-or 3^o of the French Code monétaire et financier and Article 211-2 of the General Regulations (Règlement Général) of the Autorité des marchés financiers, does not constitute a public offer (appel public à l'épargne). Such units may be resold only in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code monétaire et financier.

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State) an offer to the public of any units which are the subject of the offering contemplated by this prospectus supplement may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any units may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- (a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;
- to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year;
- (b)(2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;
- (c) by the underwriters to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the underwriters for any such offer; or
- (d) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of securities shall result in a requirement for the publication by the issuer or the underwriters of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer to the public in relation to any units in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any units to be offered so as to enable an investor to decide to purchase any units, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

TABLE OF CONTENTS

The underwriters have represented, warranted and agreed that:

- it has only communicated or caused to be communicated and will only communicate or cause to be communicated any invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000 (the FSMA)) received by it in connection with the issue or sale of any units in circumstances in which section 21(1) of the FSMA does not apply to the issuer; and
- (a) it has complied with and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the units in, from or otherwise involving the United Kingdom.

In the State of Israel, the units offered hereby may not be offered to any person or entity other than the following:

- (a) a fund for joint investments in trust (i.e., mutual fund), as such term is defined in the Law for Joint Investments in Trust, 5754-1994, or a management company of such a fund;
- (b) a provident fund as defined in Section 47(a)(2) of the Income Tax Ordinance of the State of Israel, or a management company of such a fund;
- (c) an insurer, as defined in the Law for Oversight of Insurance Transactions, 5741-1981, (d) a banking entity or satellite entity, as such terms are defined in the Banking Law (Licensing), 5741-1981, other than a joint services company, acting for their own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;
- (d) a company that is licensed as a portfolio manager, as such term is defined in Section 8(b) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;
- (e) a company that is licensed as an investment advisor, as such term is defined in Section 7(c) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account;
- (f) a company that is a member of the Tel Aviv Stock Exchange, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;
- (g) an underwriter fulfilling the conditions of Section 56(c) of the Securities Law, 5728-1968;
- (h) a venture capital fund (defined as an entity primarily involved in investments in companies which, at the time of investment, (i) are primarily engaged in research and development or manufacture of new technological products or processes and (ii) involve above-average risk);
- (i) an entity primarily engaged in capital markets activities in which all of the equity owners meet one or more of the above criteria; and
- (j) an entity, other than an entity formed for the purpose of purchasing units in this offering, in which the shareholders equity (including pursuant to foreign accounting rules, international accounting regulations and U.S. generally accepted accounting rules, as defined in the Securities Law Regulations (Preparation of Annual Financial Statements), 1993) is in excess of NIS 250 million.

Any offeree of the units offered hereby in the State of Israel shall be required to submit written confirmation that it falls within the scope of one of the above criteria. This prospectus supplement will not be distributed or directed to investors in the State of Israel who do not fall within one of the above criteria.

The offering of the units offered hereby in Italy has not been registered with the Commissione Nazionale per la Società e la Borsa (CONSOB) pursuant to Italian securities legislation and, accordingly, the units offered hereby cannot be offered, sold or delivered in the Republic of Italy (Italy) nor may any copy of this prospectus supplement or any other document relating to the units offered hereby be distributed in Italy other than to professional investors (operatori qualificati) as defined in Article 31, second paragraph, of CONSOB Regulation No. 11522 of 1 July, 1998, as subsequently amended. Any offer, sale or delivery of the units

TABLE OF CONTENTS

offered hereby or distribution of copies of this prospectus supplement or any other document relating to the units offered hereby in Italy must be made:

by an investment firm, bank or intermediary permitted to conduct such activities in Italy in accordance with

- (a) Legislative Decree No. 58 of 24 February 1998 and Legislative Decree No. 385 of 1 September 1993 (the Banking Act);
- (b) in compliance with Article 129 of the Banking Act and the implementing guidelines of the Bank of Italy; and
- (c) in compliance with any other applicable laws and regulations and other possible requirements or limitations which may be imposed by Italian authorities.

This prospectus supplement has not been nor will it be registered with or approved by Finansinspektionen (the Swedish Financial Supervisory Authority). Accordingly, this prospectus supplement may not be made available, nor may the units offered hereunder be marketed and offered for sale in Sweden, other than under circumstances which are deemed not to require a prospectus under the Financial Instruments Trading Act (1991: 980). This offering will be made to no more than 100 persons or entities in Sweden.

The units offered pursuant to this prospectus supplement will not be offered, directly or indirectly, to the public in Switzerland and this prospectus supplement does not constitute a public offering prospectus as that term is understood pursuant to art. 652a or art. 1156 of the Swiss Federal Code of Obligations. The issuer has not applied for a listing of the units being offered pursuant to this prospectus supplement on the SWX Swiss Exchange or on any other regulated securities market, and consequently, the information presented in this prospectus supplement does not necessarily comply with the information standards set out in the relevant listing rules. The units being offered pursuant to this prospectus supplement have not been registered with the Swiss Federal Banking Commission as foreign investment funds, and the investor protection afforded to acquirers of investment fund certificates does not extend to acquirers of units.

Investors are advised to contact their legal, financial or tax advisers to obtain an independent assessment of the financial and tax consequences of an investment in our units.

S-23

TABLE OF CONTENTS

LEGAL MATTERS

The validity of the securities offered by this prospectus supplement will be passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., New York, New York. Goodwin Procter LLP, New York, New York, is acting as counsel for the underwriters in connection with this offering.

EXPERTS

Meaden & Moore, Ltd., independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2011, and the effectiveness of our internal control over financial reporting as of December 31, 2011, as set forth in their reports, which are incorporated by reference in this prospectus supplement, the accompanying prospectus and elsewhere in the registration statement to which this prospectus supplement and accompanying prospectus form a part. Such financial statements have been so incorporated in reliance on the reports of Meaden & Moore, Ltd., given the authority of said firm as experts in auditing and accounting

S-24

TABLE OF CONTENTS

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus supplement, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus supplement by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus supplement, and information that we file with the SEC after the date of this prospectus supplement will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus supplement.

We incorporate by reference in this prospectus supplement the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be furnished to, and not filed with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus supplement is completed:

our Annual Report on Form 10-K for the year ended December 31, 2011, filed with the SEC on March 13, 2012 (including the portions of our definitive Proxy Statement on Schedule 14A incorporated therein by reference);
our Quarterly Reports on Form 10-Q for the fiscal quarter ended March 31, 2012, filed with the SEC on May 7, 2012; and for the fiscal quarter ended June 30, 2012, filed with the SEC on August 9, 2012;
our Current Report on Form 8-K, filed with the SEC on January 26, 2012 (excluding Item 701);
our Current Report on Form 8-K, filed with the SEC on April 4, 2012;
our Current Report on Form 8-K, filed with the SEC on April 18, 2012, as amended on April 30, 2012;
our Current Report on Form 8-K, filed with the SEC on June 15, 2012; and
the description of our common stock in Form 8-A, filed with the SEC on July 20, 2006.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Room of the SEC at the above address. Please call 1-800-SEC-0330 for further information on the operations of the Public Reference Room and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus supplement is delivered, upon written or oral request, a copy of the information that has been incorporated in this prospectus supplement by reference but not delivered with the prospectus supplement (except exhibits, unless they are specifically incorporated in this prospectus supplement by reference). You should direct any requests for copies to:

Cleveland BioLabs, Inc.
73 High Street
Buffalo, New York 14203
Phone: (716) 849-6810
Attention: Leah Brownlee, Vice President, Compliance and Operations

S-25

TABLE OF CONTENTS

PROSPECTUS

\$90,000,000
Common Stock
Warrants
Units

632,654 Shares of Common Stock
Offered by the Selling Stockholders

We may, from time to time, offer and sell shares of our common stock, par value \$0.005 per share, or warrants to purchase common stock, either separately or in units, to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis, at prices and on terms to be determined at the time of the offering, up to a total aggregate dollar amount of \$90,000,000. See **Plan of Distribution** beginning on page 8 in this prospectus. We may also describe the plan of distribution for any particular offering of these securities in any applicable prospectus supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in a prospectus supplement. The net proceeds we expect to receive from any such sale will also be included in a prospectus supplement.

In addition, the selling stockholders identified in this prospectus may offer and sell up to 632,654 shares of our common stock from time to time under this prospectus and any prospectus supplement, which number represents (i) 462,654 shares of common stock issuable upon the exercise of Series C Warrants (calculated based on the current exercise price of \$6.35 per share), which were issued in our private placement that closed on March 16, 2007, and (ii) 170,000 shares of common stock issuable upon the exercise of warrants issued to designees of the underwriters in our initial public offering, which warrants have an exercise price of \$8.70 per share (the **\$8.70 Warrants**). All of these shares of common stock may be sold by the selling stockholders named in this prospectus, or their respective transferees, pledgees, donees or successors-in-interest. The selling stockholders will receive all proceeds from the sale of the shares of our common stock being offered by the selling stockholders in this prospectus. We will only receive the exercise price of the Series C Warrants or the \$8.70 Warrants upon the exercise in cash of the Series C Warrants or the \$8.70 warrants by the selling stockholders. We are registering the offer and sale of the shares of common stock to satisfy registration rights that we have granted. The shares of common stock to which this prospectus relates may be offered and sold from time to time directly by the selling stockholders or alternatively through ordinary brokerage transactions directly to market makers of our shares or through any other means described in **Plan of Distribution** beginning on page 8 in this prospectus. The shares of common stock may be sold in one or more transactions, at fixed prices, at prevailing market prices at the time of sale or at negotiated prices.

Our common stock is listed on the Nasdaq Capital Market under the symbol **CBLI**. The last reported sales price of our common stock on the Nasdaq Capital Market on June 17, 2010 was \$3.62 per share.

Investing in our securities involves a high degree of risk. See **Risk Factors beginning on page 2 in this prospectus and other information included and incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to buy shares of our common stock or warrants.**

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

The date of this prospectus is June 17, 2010.

TABLE OF CONTENTS

TABLE OF CONTENTS

	Page No.
<u>PROSPECTUS SUMMARY</u>	<u>1</u>
<u>RISK FACTORS</u>	<u>2</u>
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>3</u>
<u>USE OF PROCEEDS</u>	<u>3</u>
<u>SELLING STOCKHOLDERS</u>	<u>3</u>
<u>PLAN OF DISTRIBUTION</u>	<u>8</u>
<u>DESCRIPTION OF OUR COMMON STOCK</u>	<u>10</u>
<u>DESCRIPTION OF OUR WARRANTS</u>	<u>12</u>
<u>DESCRIPTION OF OUR UNITS</u>	<u>13</u>
<u>LEGAL MATTERS</u>	<u>13</u>
<u>EXPERTS</u>	<u>13</u>
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	<u>14</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>14</u>

i

TABLE OF CONTENTS

PROSPECTUS SUMMARY

This summary does not contain all of the information you should consider before buying shares of our common stock or warrants. We urge you to read carefully this entire prospectus, the documents incorporated by reference in this prospectus and all applicable prospectus supplements before making an investment decision. In this prospectus, unless the context otherwise requires, the terms CBLI, company, we, us, and our refer to Cleveland BioLabs, Inc., a Delaware corporation, and, unless the context otherwise requires, common stock refers to the common stock, par value \$0.005 per share, of Cleveland BioLabs, Inc.

About this Prospectus

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the SEC) using a shelf registration process. Under this shelf process, we may sell shares of our common stock or warrants to purchase common stock, either separately or in units, in one or more offerings up to a total dollar amount of \$90,000,000, and the selling stockholders may from time to time sell up to 632,654 shares of common stock issuable upon exercise of outstanding warrants in one or more offerings. This prospectus provides you with a general description of the securities we or the selling stockholders may offer. Each time we sell shares of our common stock or warrants, we will provide a prospectus supplement that will contain specific information about the securities being offered and the terms of that offering. The prospectus supplement may also add to, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with the additional information described under the heading **Where You Can Find More Information** carefully before making an investment decision.

Our Company

We are a biotechnology, or biotech, company focused on developing biodefense, tissue protection and cancer treatment drugs based on the concept of modulation of cell death for therapeutic benefit. Our goal is to identify and develop new types of drugs for protection of normal tissues from exposure to radiation and other stresses, such as toxic chemicals and for cancer treatment. Our initial target, and most promising opportunity, is to develop a drug to protect humans from the effects of exposure to radiation, whether as a result of military or terrorist acts or as a result of a nuclear accident. Recent acts of terrorism and the proliferation of nuclear weapons programs in rogue states have created a more immediate demand for further research and development, or R&D, in this area. Other potential applications of our drug candidates include reducing the side effects of cancer treatment, destroying tumor cells and generating adult stem cells.

Our development efforts are based on discoveries made in connection with the investigation of the cell-level process known as apoptosis. Apoptosis is a highly specific and tightly regulated form of cell death that can occur in response to external events such as exposure to radiation or toxic chemicals or to internal stresses. Apoptosis is a major determinant of tissue damage caused by a variety of medical conditions including cerebral stroke, heart attack or acute renal failure. Conversely, however, apoptosis also is an important protective mechanism that allows the body to shed itself of defective cells, which otherwise can cause cancerous growth.

Research has demonstrated that apoptosis is sometimes suppressed naturally. For example, most cancer cells develop resistance to apoptotic death caused by drugs or natural defenses of the human body. Our research is geared towards identifying the means by which apoptosis can be affected and manipulated depending on the need.

If the need is to protect healthy tissues against an external event such as exposure to nuclear radiation, we attempt to suppress apoptosis in those healthy tissues, thereby imitating the apoptotic-resistant tendencies displayed by cancer cells. A drug with this effect would also be useful in ameliorating the often severe side effects of anticancer drugs and radiation that cause collateral damage to healthy tissues during cancer treatment. Because the severe side effects of anticancer drugs and radiation often limit their dosage in cancer patients, an apoptosis suppressant drug may enable a more aggressive treatment regimen using anticancer drugs and radiation and thereby increase their effectiveness.

On the other hand, if the need is to kill cancerous cells, we focus our research efforts on restoring apoptotic mechanisms that are suppressed in tumors so that those cancerous cells will once again become

1

TABLE OF CONTENTS

vulnerable to apoptotic death. In this regard, we believe that our drug candidates could have significant potential for improving and becoming vital to the treatment of cancer patients.

Our Products and Technology

Through our R&D, and our strategic partnerships, we have established a technological foundation for the development of new pharmaceuticals and their rapid preclinical evaluation. We have acquired rights to develop and commercialize the following prospective drugs:

Protectans are modified proteins of microbes and tumors that protect cells from apoptosis, and which therefore have a broad spectrum of potential applications. These potential applications include both non-medical applications such as protection from exposure to radiation, whether as a result of military or terrorist action or as a result of a nuclear accident, as well as medical applications such as reducing cancer treatment toxicities.

Curaxins are small molecules designed to kill tumor cells by simultaneously targeting two regulators of apoptosis. Initial test results indicate that curaxins can be effective against a number of malignancies, including hormone-refractory prostate cancer, renal cell carcinoma, or RCC (a highly fatal form of kidney cancer), and soft-tissue sarcoma.

In the area of radiation protection, we have achieved high levels of protection in animal models. With respect to cancer treatment, the biology of cancer is such that there is no single drug that can be successfully used to treat 100% or even 50% of all cancer patients. This means that there likely will be a need for additional anticancer drugs for each type of cancer.

These drug candidates demonstrate the value of our scientific foundation. Based on the expedited approval process currently available for non-medical applications such as protection from exposure to radiation, our most advanced drug candidate, Protectan CBLB502, may be approved for such applications within 18 – 24 months. Another drug candidate, Curaxin CBLC102, demonstrated activity and safety in a Phase IIa clinical trial concluded in late 2008.

RISK FACTORS

An investment in our securities is highly speculative, involves a high degree of risk, and should be made only by investors who can afford a complete loss. You should carefully consider and evaluate all of the information included and incorporated by reference in this prospectus and any applicable prospectus supplement, including the risk factors incorporated by reference from our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2009, filed with the SEC on March 22, 2010, as updated by our Quarterly Reports on Form 10-Q and our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act), filed after such Annual Report. Any of the risks we have described could materially adversely affect our business, financial condition or operating results and could result in a partial or complete loss of your investment. Further, the risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not currently known to us, or that we currently believe are not material, could also materially adversely affect our business, financial condition or operating results.

TABLE OF CONTENTS

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference in this prospectus contain forward-looking statements.

These forward-looking statements include information about possible or assumed future results of our business, financial condition, liquidity, results of operations, plans and objectives. The words may, should, expect, anticipate, intend, plan, continue, believe, seek, project, estimate and similar expressions used in this prospectus or in this prospectus by reference that do not relate to historical facts are intended to identify forward-looking statements. These statements are only predictions. You should not place undue reliance on these forward-looking statements. By way of example, statements regarding the following subjects are forward-looking by their nature:

- statements as to the anticipated timing of clinical tests and other business developments;
- statements as to the development of new products and the commercialization of products;
- expectations as to the adequacy of our cash balances to support our operations for specified periods of time and as to the nature and level of cash expenditures; and
- expectations as to the market opportunities for our drug candidates as well as our ability to take advantage of those opportunities.

The forward-looking statements are based on management's beliefs, plans, expectations and assumptions and on information available to us as of the time such statements were made. These beliefs, plans, expectations and assumptions can change as a result of many possible events or factors, not all of which are known to us. Neither we nor any other person assumes responsibility for the accuracy or completeness of these statements. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements.

The forward-looking statements in this prospectus or incorporated in this prospectus by reference are not representations or guarantees of future performance and involve certain risks, uncertainties and assumptions. Such risks, uncertainties and assumptions include, but are not limited to, any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act or in any supplement to this prospectus.

Many of such factors are beyond our control and are difficult to predict. As a result, our future actions, financial position and results of operations could differ materially from those expressed in any forward-looking statements made by us. Readers are therefore cautioned not to place undue reliance on forward-looking statements. We also do not intend to publicly update any forward-looking statements that may be made from time to time by us or on our behalf, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

We currently intend to use the net proceeds from the sale of the shares of our common stock and warrants and the exercise of our warrants for working capital and general corporate purposes. We will not receive any of the proceeds from the sale of our common stock by the selling stockholders. We will, however, receive the exercise price of the Series C Warrants and the \$8.70 Warrants upon the exercise in cash of the Series C Warrants and the \$8.70 Warrants by the selling stockholders. Any proceeds received by us from the exercise of the Series C Warrants or \$8.70 Warrants will be used for working capital and general corporate purposes.

SELLING STOCKHOLDERS

The shares of common stock being offered by the selling stockholders are issuable upon exercise of the Series C Warrants and the \$8.70 Warrants. We are registering the shares of common stock to satisfy registration rights that we have granted to the selling stockholders, and in order to permit the selling stockholders to offer the shares for resale from time to time.

The Series C Warrants were issued on March 16, 2007 to Sunrise Securities Corp. (SSC) and its designees as partial compensation for SSC 's services as lead placement agent in connection with our private placement of Series B Convertible Preferred Stock and Series B Warrants for an aggregate purchase price of approximately \$30,000,000.

The Series C Warrants, which had an initial exercise price of \$11.00 per share

TABLE OF CONTENTS

and were originally exercisable for 267,074 shares of common stock, now have a current exercise price of \$6.35 per share and are exercisable for 462,654 shares of common stock as a result of adjustments required by the antidilution provisions of the Series C Warrants. The Series C Warrants were issued pursuant to the exemption from the registration requirements of the Securities Act of 1933, as amended (the Securities Act), available pursuant to Rule 506 under the Securities Act.

The \$8.70 Warrants were issued on July 26, 2006 upon the consummation of our initial public offering for an aggregate purchase price of \$100 to designees of SSC and Roth Capital Partners, the underwriters in our initial public offering. The number of shares underlying the \$8.70 Warrants was calculated to equal an aggregate of 10% of the number of shares sold in our initial public offering, excluding the over-allotment option. The \$8.70 Warrants do not have antidilution provisions. The \$8.70 Warrants were issued pursuant to the Section 4(2) exemption from the registration requirements of the Securities Act.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the shares of common stock by each of the selling stockholders. The column titled Shares of Common Stock Owned Before the Offering lists the number of shares of common stock owned by each selling stockholder as of June 14, 2010, assuming conversion of all preferred stock and exercise of all warrants and options, including exercise of all Series C Warrants and \$8.70 Warrants held by the selling stockholders on that date, without regard to any limitations on conversions or exercise. The column titled Shares of Common Stock Being Offered lists the shares of common stock being offered pursuant to this prospectus by the selling stockholders (i.e., the shares of common stock underlying their Series C Warrants and \$8.70 Warrants). The column titled Shares of Common Stock Owned Upon Completion of the Offering lists the shares of common stock owned by each selling stockholder, assuming the shares of common stock underlying the Series C Warrants and the \$8.70 Warrants have been sold, and the column titled Percentage of Common Stock Outstanding Upon Completion of the Offering provides the percentage owned by each selling stockholder of all shares of common stock outstanding, assuming the same.

This prospectus covers the resale of 462,654 shares of common stock issuable upon exercise of Series C Warrants (at the current exercise price of \$6.35 per share) and 170,000 shares of common stock issuable upon exercise of \$8.70 Warrants. Because the number of shares underlying the Series C Warrants is subject to adjustment for dilutive issuances, and because the number of shares underlying the Series C Warrants and \$8.70 Warrants is subject to adjustment for stock splits, stock dividends, reclassifications or similar events, the number of shares of common stock that will actually be issued upon exercise of the Series C Warrants and \$8.70 Warrants may be more or less than the number of shares being offered by this prospectus.

Under the terms of the Series C Warrants and the \$8.70 Warrants, a selling stockholder may not exercise the Series C Warrants or the \$8.70 Warrants to the extent such exercise would cause such selling stockholder, together with its affiliates, to beneficially own a number of shares of common stock that exceeds 9.99% of our then outstanding shares of common stock following such exercise. The entries in the table below do not reflect this limitation. The selling stockholders may sell all, some or none of their shares in this offering. See Plan of Distribution.

TABLE OF CONTENTS

Name and Address of Selling Stockholder	Shares of Common Stock Owned Before the Offering	Shares of Common Stock Being Offered	Shares of Common Stock Owned Upon Completion of the Offering ⁽¹⁾	Percentage of Common Stock Outstanding Upon Completion of the Offering ⁽²⁾
Sunrise Securities Corp. ⁽³⁾ 641 Lexington Avenue, 25 th Floor New York, New York 10022	647,134	83,150	563,984	2.06 %
Amnon Mandelbaum ⁽⁴⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	378,624	130,675	247,949	*
David Goodfriend ⁽⁵⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	21,513	14,520	6,993	*
Eric Abitbol ⁽⁶⁾ 201 E. 69 St. #6-O New York, New York 10021	3,773	671	3,102	*
Jeffrey Meyerson ⁽⁷⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	43,282	6,248	37,034	*
Lucy DaRita ⁽⁸⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	1,733	1,733	0	
Marcia Kucher ⁽⁹⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	5,450	3,950	1,500	*
Nathan Low ⁽¹⁰⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	352,839	251,762	101,077	*
Paul Scharfer ⁽¹¹⁾ 1364 Biscaya Drive Surfside, FL 33154	35,307	23,402	11,905	*
Peter Weprin ⁽¹²⁾ 225 5 th Ave. Apt. 11K New York, New York 10010	420	278	142	*
Robert Fuchs ⁽¹³⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor	335	222	113	*

New York, New York 10022 Sam Berger ⁽¹⁴⁾ c/o Sunrise Securities Corp. 641 Lexington Avenue, 25 th Floor New York, New York 10022	38,021	25,218	12,803	*
Roth Capital Partners, LLC ⁽¹⁵⁾ 24 Corporate Plaza Newport Beach, California 92660	82,250	82,250	0	
Richard B. Stone ⁽¹⁶⁾ 44 W. 77 th Street New York, NY 10024	1,794	1,794	0	

5

TABLE OF CONTENTS

Name and Address of Selling Stockholder	Shares of Common Stock Owned Before the Offering	Shares of Common Stock Being Offered	Shares of Common Stock Owned Upon Completion of the Offering ⁽¹⁾	Percentage of Common Stock Outstanding Upon Completion of the Offering ⁽²⁾
Serge Moyal ⁽¹⁷⁾ 532 Spring Gate Blvd. Thornhill, Ontario L4J 5B7 Canada	3,876	1,281	2,595	*
David Filer ⁽¹⁸⁾ 165 East 32 nd St., #2F New York, New York 10016	4,400	4,400	0	
National Securities ⁽¹⁹⁾ 1001 4 th Ave., 22 nd Floor Seattle, Washington 98154	1,100	1,100	0	

*

Less than 1% of outstanding shares.

We do not know when or in what amounts the selling stockholders may offer common stock for sale. The stockholders may not sell any or all of the shares of common stock offered by this prospectus. Because the stockholders may offer all or some of the shares pursuant to this offering, and because there are currently no

(1) agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the stockholders.

(2) Based on 26,803,712 shares of our common stock outstanding as of June 14, 2010.

Shares of common stock owned before the offering includes 45,119 shares of common stock underlying a Series B Warrant owned by Sunrise Securities Corp., 83,150 shares of common stock underlying a Series C Warrant owned by Sunrise Securities Corp., and 518,865 shares of common stock underlying a Series B warrant owned by Sunrise Equity Partners, LP. Level Counter LLC is the general partner of Sunrise Equity Partners, LP. The three managing members of Level Counter LLC are Nathan Low, the sole stockholder of Sunrise Securities Corp. and its president, Amnon Mandelbaum, one of the Managing Directors of Investment Banking at Sunrise Securities Corp., and Marilyn Adler, who is otherwise unaffiliated with Sunrise Securities Corp., and a unanimous vote of all three

(3) persons is required to dispose of the securities of Sunrise Equity Partners, LP. Accordingly, each of such persons may be deemed to have shared beneficial ownership of the securities owned by Sunrise Equity Partners, LP. Such persons disclaim such beneficial ownership. As a result of the relationship of Mr. Low and Mr. Mandelbaum to Sunrise Securities Corp., Sunrise Equity Partners, LP may be deemed to beneficially own the securities owned by Sunrise Securities Corp. and/or Sunrise Securities Corp. may be deemed to beneficially own the securities owned by Sunrise Equity Partners, LP. Sunrise Equity Partners, LP disclaims any beneficial ownership of the securities owned by Sunrise Securities Corp. and Sunrise Securities Corp. disclaims any beneficial ownership of the securities owned by Sunrise Equity Partners, LP.

Shares of common stock owned before the offering includes 185,019 shares of common stock, 62,930 shares of (4) common stock underlying a Series B Warrant, 103,996 shares of common stock underlying a Series C Warrant, and 26,679 shares of common stock underlying an \$8.70 Warrant

(5)

Shares of common stock owned before the offering includes 6,993 shares of common stock underlying a Series B Warrant, 11,555 shares of common stock underlying a Series C Warrant, and 2,965 shares of common stock underlying an \$8.70 Warrant.

Shares of common stock owned before the offering includes 2,904 shares of common stock, 198 shares of common (6) stock underlying a Series B Warrant, 389 shares of common stock underlying a Series C Warrant, and 282 shares of common stock underlying an \$8.70 Warrant.

Shares of common stock owned before the offering includes 3,300 shares of common stock, 33,734 shares of (7) common stock underlying Series B Warrants, 5,599 shares of common stock underlying a Series C Warrant, and 649 shares of common stock underlying an \$8.70 Warrant.

6

TABLE OF CONTENTS

- (8) Shares of common stock owned before the offering includes 1,733 shares of common stock underlying a Series C Warrant.
- (9) Shares of common stock owned before the offering includes 1,500 shares of common stock, 3,465 shares of common stock underlying a Series C Warrant, and 485 shares of common stock underlying an \$8.70 Warrant.
Shares of common stock owned before the offering includes 101,077 shares of common stock underlying a Series B Warrant, 203,698 shares of common stock underlying Series C Warrants, and 48,064 shares of common stock underlying an \$8.70 Warrant.
- (10) Shares of common stock owned before the offering includes 11,905 shares of common stock underlying a Series B Warrant and 23,402 shares of common stock underlying a Series C Warrant.
- (11) Shares of common stock owned before the offering includes 142 shares of common stock underlying a Series B Warrant, and 278 shares of common stock underlying a Series C Warrant.
- (12) Shares of common stock owned before the offering includes 113 shares of common stock underlying a Series B Warrant and 222 shares of common stock underlying a Series C Warrant.
Shares of common stock owned before the offering includes 12,803 shares of common stock underlying a Series B Warrant, 25,167 shares of common stock underlying a Series C Warrant, and 51 shares of common stock underlying an \$8.70 Warrant.
- (13) Shares of common stock owned before the offering includes 82,250 shares of common stock underlying an \$8.70 Warrant. Byron Roth, Chief Executive Officer of Roth Capital Partners, LLC, owns 81.2% of CR Financial Holdings Inc., which owns 100% of Roth Capital Partners, LLC. Accordingly, Byron Roth exercises voting and dispositive control over these shares. Byron Roth disclaims beneficial ownership of the securities held by Roth Capital Partners, LLC. Gordon Roth, Chief Financial Officer of Roth Capital Partners, LLC, owns 5.5% of CR Financial Holdings Inc.
- (14) Shares of common stock owned before the offering includes 1,794 shares of common stock underlying an \$8.70 Warrant.
- (15) Shares of common stock owned before the offering includes 2,595 shares of common stock underlying a Series B Warrant, and 1,281 shares of common stock underlying an \$8.70 warrant.
- (16) Shares of common stock owned before the offering includes 4,400 shares of common stock underlying an \$8.70 Warrant.
Shares of common stock owned before the offering includes 1,100 shares of common stock underlying an \$8.70 Warrant. Leo Satriawan is the Chief Financial Officer of National Securities and exercises voting and dispositive control over these shares. Mr. Satriawan disclaims beneficial ownership of the securities held by National Securities.
- (17)
- (18)
- (19)

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

We or the selling stockholders may sell all or a portion of the securities offered through this prospectus through one or more underwriters, broker-dealers or agents. If the securities are sold through underwriters or broker-dealers, we or the selling stockholders will be responsible for underwriting discounts or commissions or agent's commissions. The securities may be sold in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions,

on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;

in the over-the-counter market;

in transactions otherwise than on these exchanges or systems or in the over-the-counter market;

through the writing of options, whether such options are listed on an options exchange or otherwise;

ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;

block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;

purchases by a broker-dealer as principal and resale by the broker-dealer for its account;

an exchange distribution in accordance with the rules of the applicable exchange;

privately negotiated transactions;

short sales;

sales pursuant to Rule 144;

broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;

a combination of any such methods of sale; and

any other method permitted pursuant to applicable law.

If the selling stockholders effect such transactions by selling shares of common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents may receive commissions in the form of discounts, concessions or commissions from the selling stockholders or commissions from purchasers of the shares of common stock for whom they may act as agent or to whom they may sell as principal (which discounts, concessions or commissions as to particular underwriters, broker-dealers or agents may be in excess of those customary in the types of transactions involved). In connection with sales of the shares of common stock or otherwise, the selling stockholders may enter into hedging transactions with broker-dealers, which may in turn engage in short sales of the shares of common stock in the course of hedging in positions they assume. The selling stockholders may also sell shares of common stock short and deliver shares of common stock covered by this prospectus to close out short positions created after the effective date of the registration statement of which this prospectus is a part and to return borrowed shares in connection with such short sales. The selling stockholders may also loan or pledge shares of common stock to broker-dealers that in turn may sell such shares.

The selling stockholders may pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock from time to time pursuant to this prospectus or any supplement to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending, if necessary, the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer and donate the shares of common stock in other circumstances in which case the transferees, donees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

TABLE OF CONTENTS

The selling stockholders and any broker-dealer participating in the distribution of the shares of common stock may be deemed to be underwriters within the meaning of the Securities Act, and any commission paid, or any discounts or concessions allowed to, any such broker-dealer may be deemed to be underwriting commissions or discounts under the Securities Act. At the time a particular offering of the shares of common stock is made, a prospectus supplement, if required, will be distributed which will set forth the aggregate amount of shares of common stock being offered and the terms of the offering, including the name or names of any broker-dealers or agents, any discounts, commissions and other terms constituting compensation from the selling stockholders and any discounts, commissions or concessions allowed or reallocated or paid to broker-dealers.

Under the securities laws of some states, the shares of common stock may be sold in such states only through registered or licensed brokers or dealers. In addition, in some states the shares of common stock may not be sold unless such shares have been registered or qualified for sale in such state or an exemption from registration or qualification is available and is complied with.

There can be no assurance that any selling stockholder will sell any or all of the shares of common stock registered pursuant to the shelf registration statement, of which this prospectus forms a part.

The selling stockholders and any other person participating in such distribution will be subject to applicable provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder, including, without limitation, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the shares of common stock by the selling stockholders and any other participating person. Regulation M may also restrict the ability of any person engaged in the distribution of the shares of common stock to engage in market-making activities with respect to the shares of common stock. All of the foregoing may affect the marketability of the shares of common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of common stock.

Once sold under the registration statement, of which this prospectus forms a part, the shares of common stock will be freely tradable in the hands of persons other than our affiliates.

TABLE OF CONTENTS

DESCRIPTION OF OUR COMMON STOCK

The following summary describes the material terms of our common stock. It summarizes material provisions of our certificate of incorporation and by-laws and is subject to, and qualified in its entirety by, our certificate of incorporation and by-laws that are included as exhibits to certain of the documents incorporated by reference herein. If we offer shares of our common stock for sale under this prospectus, we will provide a prospectus supplement that describes the terms of the offering, including the number of shares offered and the offering price.

General

Our certificate of incorporation authorizes us to issue 80,000,000 shares of common stock, par value \$.005 per share. As of June 14, 2010, 26,803,712 shares of common stock were issued and outstanding with 2,912,597 shares of common stock reserved for issuance upon exercise of issued and outstanding options and 9,910,763 shares of common stock reserved for issuance upon exercise of issued and outstanding warrants.

Voting

Holders of our common stock are entitled to one vote per share. All actions submitted to a vote of stockholders will be voted on by holders of our common stock.

Dividends

Holders of common stock are entitled to receive cash dividends equally on a per share basis, as if and when the dividends are declared by the board of directors from legally available funds.

Liquidation

After satisfaction of the liquidation preferences of all securities ranking senior to the common stock, the holders of common stock will share with each other on an equal basis in any net assets available for distribution to holders of shares of capital stock upon liquidation.

Other Terms

The rights, preferences and privileges of holders of common stock will be subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate and issue in the future.

Common Stockholders

As of June 14, 2010, we had 71 holders of record of our common stock.

Listing of Stock

Our common stock is listed on the NASDAQ Capital Market under the trading symbol **CBLI**.

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is Continental Stock Transfer & Trust Company.

Anti-Takeover Effects of Our Certificate of Incorporation and our By-laws

The authorized but unissued shares of our common stock and our preferred stock will be available for future issuance with limited requirements for the vote or approval of our stockholders. These additional shares may be utilized for a variety of corporate purposes, including future offerings to raise additional capital or corporate acquisitions. The existence of authorized but unissued shares of our common stock and our preferred stock could render more difficult or discourage an attempt to obtain control over us by means of a proxy contest, tender offer, merger or otherwise.

Our certificate of incorporation requires that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and may not be effected by a consent in writing. Our certificate of incorporation also requires that special meetings of stockholders be called only by our chairman of our board of directors or the board of directors as a whole. In

TABLE OF CONTENTS

addition, our by-laws provide that candidates for director may be nominated and other business brought before an annual meeting only by the board of directors or by a stockholder who gives written notice to us no later than 90 days prior to nor earlier than 120 days prior to the first anniversary of the last annual meeting of stockholders. These provisions may have the effect of deterring hostile takeovers or delaying changes in control of our management, which could depress the market price of our common stock.

Directors Limitation of Liability

Our certificate of incorporation and by-laws include provisions to indemnify the directors and officers to the fullest extent permitted by the Delaware General Corporation Law, including circumstances under which indemnification is otherwise discretionary. We believe that these provisions are necessary to attract and retain qualified persons as directors and officers. We have also obtained directors and officers liability insurance in amounts commensurate with those of similarly situated companies.

Insofar as indemnification for liability arising under the Securities Act may be permitted to our directors, officers and controlling persons as stated in the foregoing provisions or otherwise, we have been advised that, in the opinion of the SEC, this indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

TABLE OF CONTENTS

DESCRIPTION OF OUR WARRANTS

General

The following outlines some of the general terms and provisions of the warrants we may offer. Further terms of the warrants and the applicable warrant agreement will be stated in the applicable prospectus supplement. The following description and any description of the warrants in a prospectus supplement may not be complete and is subject to and qualified in its entirety by reference to the terms and provisions of the relevant warrant agreement.

Warrants may be issued by us independently or together with any other securities and may be attached or separate from such securities. We may issue each series of warrants under a separate warrant agreement to be entered into between us and a warrant agent. If we designate a warrant agent, such warrant agent will act solely as our agent in connection with the warrants of such series and will not assume any obligation or relationship of agency for or with holders or beneficial owners of warrants.

The applicable prospectus supplement will describe the terms of any warrants that we may offer, including the following:

- the title of the warrants;
- the total number of warrants;
- the price or prices at which the warrants will be issued;
- if applicable, the currency or currencies investors may use to pay for the warrants;
- the number of shares of common stock and other rights to be delivered to warrant holders upon exercise of the warrants;
- if applicable, the price at which and the currency or currencies, including composite currencies, in which investors may purchase the underlying securities or other rights purchasable upon exercise of the warrants;
- if applicable, any anti-dilution provisions;
- the date on which the right to exercise the warrants will commence and the date on which the right will expire;
- whether the warrants will be issued in registered form or bearer form;
- information with respect to book-entry procedures, if any;
- if applicable, the minimum or maximum amount of warrants which may be exercised at any one time;
- if applicable, the date on and after which the warrants and the related underlying securities will be separately transferable;
- if applicable, a discussion of material U.S. federal income tax considerations;
- the identity of the warrant agent, if any;
- the procedures and conditions relating to the exercise of the warrants; and
- any other terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

TABLE OF CONTENTS

DESCRIPTION OF OUR UNITS

We may issue units comprised of the securities described in this prospectus. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. The applicable prospectus supplement may describe:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units;

the terms of the unit agreement governing the units;
United States federal income tax considerations relevant to the units; and
whether the units will be issued in fully registered global form.

This summary of certain general terms of units and any summary description of units in the applicable prospectus supplement do not purport to be complete and are qualified in their entirety by reference to all provisions of the applicable unit agreement and, if applicable, collateral arrangements and depositary arrangements relating to such units. The forms of the unit agreements and other documents relating to a particular issue of units will be filed with the SEC each time we issue units, and you should read those documents for provisions that may be important to you.

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon for us by Katten Muchin Rosenman LLP, Chicago, Illinois.

EXPERTS

The financial statements as of and for the years ended December 31, 2009 and 2008, incorporated in this prospectus by reference to our Annual Report on Form 10-K for the year ended December 31, 2009, have been so incorporated in reliance on the report of Meaden & Moore, Ltd., an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

TABLE OF CONTENTS

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus, and information that we file with the SEC after the date of this prospectus will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus.

We incorporate by reference in this prospectus the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be furnished to, and not filed with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus is completed:

our Annual Report on Form 10-K for the year ended December 31, 2009, filed with the SEC on March 22, 2010 (including the portions of our definitive Proxy Statement on Schedule 14A incorporated therein by reference);
our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010, filed with the SEC on May 14, 2010;
our Current Report on Form 8-K, filed with the SEC on January 5, 2010;
our Current Report on Form 8-K, filed with the SEC on February 2, 2010;
our Current Report on Form 8-K, filed with the SEC on February 16, 2010;
our Current Report on Form 8-K, filed with the SEC on February 26, 2010;
our Current Report on Form 8-K/A, filed with the SEC on February 26, 2010;
our Current Report on Form 8-K, filed with the SEC on June 9, 2010; and
the description of our common stock in Form 8-A, filed with the SEC on July 20, 2006.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Room of the SEC at the above address. Please call 1-800-SEC-0330 for further information on the operations of the Public Reference Room and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of the information that has been incorporated in this prospectus by reference but not delivered with the prospectus (except exhibits, unless they are specifically incorporated in this prospectus by reference). You should direct any requests for copies to:

Cleveland BioLabs, Inc.
73 High Street
Buffalo, New York 14203
Phone: (716) 849-6810
Attention: John A. Marhofer, Jr., Chief Financial Officer

TABLE OF CONTENTS

Shares of Common Stock

Warrants to Purchase Shares of Common Stock

PROSPECTUS SUPPLEMENT

, 2012

Sole Book-Running Manager

Oppenheimer & Co.

Co-Managers

Cantor Fitzgerald & Co.

Ladenburg Thalmann & Co. Inc.
