Cytosorbents Corp
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Registration No. 333-205806

PROSPECTUS SUPPLEMENT

(To Prospectus dated July 29, 2015)

Up to $25,000,000

Common Stock

We have entered into a Controlled Equity Offering[SM] sales agreement with Cantor Fitzgerald & Co., or Cantor Fitzgerald, relating to shares of our common stock offered by this prospectus supplement. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to $25 million from time to time through Cantor Fitzgerald, acting as sales agent.

Our common stock is traded on the NASDAQ Capital Market under the symbol “CTSO.” On October 28, 2015, the last reported sale price of our common stock was $7.40 per share.

Sales of our common stock, if any, under this prospectus supplement and the accompanying prospectus may be made in sales deemed to be "at the market offerings" as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, or the Securities Act, including sales made directly on or through The NASDAQ Capital Market, the existing trading market for our common stock, sales made to or through a market maker other than on an exchange or otherwise, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices, and/or any other method permitted by law. Cantor Fitzgerald is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between Cantor Fitzgerald and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Cantor Fitzgerald will be entitled to compensation under the terms of the sales agreement at a fixed commission rate of 3.0% of the gross sales price per share sold. In connection with the sale of our common stock on our behalf, Cantor Fitzgerald will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Cantor Fitzgerald will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Cantor Fitzgerald with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Investing in our common stock involves a high degree of risk. Before making an investment decision, you should carefully consider all of the information set forth in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein. You should review carefully the risks and uncertainties described under the heading "Risk Factors" beginning on page S-5 of this prospectus supplement and under similar headings in the other documents that are incorporated by reference into this prospectus supplement.

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

The date of this prospectus supplement is November 4, 2015.

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Prospectus Supplement

Prospectus

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a "shelf" registration statement on Form S-3 (File No. 333-205806) that we initially filed with the Securities and Exchange Commission, or the SEC, on July 23, 2015, and that was declared effective by the SEC on July 29, 2015. This document is in two parts. The first part is this prospectus supplement which describes the terms of this offering of our common stock and adds to and updates the information contained in the accompanying prospectus. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus, you should rely on the information in this prospectus supplement.

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

You should rely only on the information contained in, or incorporated by reference into, this prospectus supplement and the accompanying prospectus. We have not, and Cantor Fitzgerald has not, authorized anyone to provide you with different or additional information.

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

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

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

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

CytoSorbents Corporation’s name and logo are either registered trademarks or trademarks of CytoSorbents Corporation in the United States and/or other countries. All other trademarks, service marks or other tradenames appearing in this prospectus supplement and the accompanying prospectus are the property of their respective owners. Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus supplement and the accompanying prospectus to the "Company," "CytoSorbents," "we," "us," "our" or similar references mean CytoSorbents Corporation, Inc., a Delaware corporation, and its subsidiaries.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information under the heading "Risk Factors" in this prospectus supplement on page S-5 and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

Our Company

CytoSorbents is a leader in critical care immunotherapy commercializing its CytoSorb® blood purification technology to reduce deadly uncontrolled inflammation in hospitalized patients around the world, with the goal of preventing or treating multiple organ failure in life-threatening illnesses. Organ failure is the cause of nearly half of all deaths in the intensive care unit, with little to improve clinical outcome. CytoSorb®, the Company's flagship product, is approved in the European Union, or EU, as a safe and effective extracorporeal cytokine filter, designed to reduce the "cytokine storm" that could otherwise cause massive inflammation, organ failure and death in common critical illnesses such as sepsis, burn injury, trauma, lung injury, and pancreatitis. These are conditions where the mortality is extremely high, yet no effective treatments exist. In addition, CytoSorb® can be used in other inflammatory conditions such as cardiac surgery, autoimmune disease flares, and potentially for cancer, cytokine release syndrome in cancer immunotherapy, and cancer cachexia where cytokines play a major role in the cause of inflammation. CytoSorbents' purification technologies are based on biocompatible, highly porous polymer beads that can actively remove toxic substances from blood and other bodily fluids by pore capture and surface adsorption. CytoSorbents has numerous products under development based upon this unique blood purification technology, protected by 32 issued U.S. patents and multiple applications pending, including HemoDefend™, ContrastSorb, DrugSorb, and others.

Corporate Information

CytoSorbents Corporation was incorporated in Nevada on April 25, 2002 as Gilder Enterprises, Inc., and was originally engaged in the business of installing and operating computer networks that provided high-speed access to the Internet. On June 30, 2006, we disposed of our original business, and, pursuant to an Agreement and Plan of Merger, acquired all of the stock of MedaSorb Technologies, Inc., a Delaware corporation, and its business became

our business. Following this merger, in July 2006 we changed our name to MedaSorb Technologies Corporation. In November 2008, we changed the name of our operating subsidiary from MedaSorb Technologies, Inc. to CytoSorbents, Inc. In May 2010, we finalized the name change of MedaSorb Technologies Corporation to CytoSorbents Corporation. On October 28, 2014, we changed the name of our operating subsidiary from CytoSorbents, Inc. to CytoSorbents Medical, Inc. On December 3, 2014 we changed our state of incorporation from the State of Nevada to the State of Delaware.

On December 3, 2014, we effected a twenty-five-for-one (25:1) reverse split of our common stock. As a result of the reverse stock split shares of our common stock outstanding were reduced by approximately 96%. Based on the 582,097,092 shares of common stock outstanding as of December 3, 2014, the total number of shares of common stock outstanding after the reverse stock split, including accounting for fractional shares which were rounded up to the next whole number, were 23,284,040.

Our executive offices are located at 7 Deer Park Drive, Suite K, Monmouth Junction, New Jersey 08852. Our telephone number is (732) 329-8885.

THE OFFERING

Common stock offered by us	Shares of our common stock having an aggregate offering price of up to $25 million.
Common stock to be outstanding after this offering	Up to 25,347,242 shares (as more fully described in the notes following this table), assuming sales of 3,378,378 shares of our common stock in this offering at an offering price of $7.40 per share, which was the last reported sale price of our common stock on the NASDAQ Capital Market on October 28, 2015. The actual number of shares issued will vary depending on the sales price under this offering.
Manner of offering	"At-the-market" offering that may be made from time to time through our sales agent, Cantor Fitzgerald. See "Plan of Distribution" on page S-11.
Use of Proceeds	We currently intend to use the net proceeds from this offering for research and development activities, which include the funding of additional clinical studies and costs of obtaining regulatory approvals in countries not covered by the CE Mark, capital expenditures and other costs necessary to expand production capacity, support of various sales and marketing efforts, product development and general working capital purposes. See "Use of Proceeds" on page S-9.
Risk Factors	Investing in our common stock involves significant risks. See "Risk Factors" on page S-5, and under similar headings in other documents incorporated by reference into this prospectus supplement and the accompanying prospectus.
NASDAQ Capital Market symbol	CTSO

The above discussion is based on 24,890,521 shares outstanding as of June 30, 2015, and excludes as of such date:

· 2,639,374 shares of our common stock issuable upon exercise of outstanding stock options under our equity incentive plans, at a weighted average exercise price of $6.18, which includes 566,000 shares of our common stock reserved for future awards under our equity incentive plan;

· 1,200,000 units of restricted stock outstanding; and

· 1,418,145 shares of our common stock issuable upon exercise of outstanding warrants at a weighted average price of $6.13 per share.

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RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the risks described below before deciding to purchase shares of our common stock. If any of the events, contingencies, circumstances or conditions described in the risks below actually occur, our business, financial condition or results of operations could be seriously harmed. The trading price of our common stock could, in turn, decline and you could lose all or part of your investment.

Risks Connected to our Securities and this Offering

The price of our common stock has been highly volatile due to factors that will continue to affect the price of our stock.

Our common stock closed as high as $8.75 and as low as $3.00 per share between January 1, 2014 and December 2, 2014 on the OTCQB. On December 3, 2014, we effected a twenty-five-for-one (25:1) reverse split of our common stock. Immediately after the reverse stock split, on December 3, 2014 we changed our state of incorporation from the State of Nevada to the State of Delaware pursuant to an Agreement and Plan of Merger, dated December 3, 2014, whereby we merged with and into our then recently formed, wholly-owned Delaware subsidiary. On December 17, 2014, CytoSorbents received approval for up-listing to the NASDAQ Capital Market and our common stock began trading on the NASDAQ Capital Market on December 23, 2014. Our common stock closed as high as $14.99 and as low as $5.20 per share between December 23, 2014 and October 28, 2015. On October 28, 2015, the closing price of our common stock as reported on the NASDAQ Capital Market was $7.40. Historically, the over-the-counter markets for securities such as our common stock have experienced extreme price fluctuations. Some of the factors leading to this volatility include, but are not limited to:

- fluctuations in our operating results;
- announcements of product releases by us or our competitors;
- announcements of acquisitions and/or partnerships by us or our competitors; and
- general market conditions.

Although shares of our common stock currently trade on the NASDAQ Capital Market under the symbol “CTSO,” there is no assurance that our stock will not continue to be volatile while listed on the NASDAQ Capital Market in the future.

Directors, executive officers and principal stockholders own a significant percentage of the shares of common stock, which will limit your ability to influence corporate matters.

Our directors, executive officers and principal stockholders together beneficially own a significant percentage of the voting control of our common stock on a fully diluted basis. Accordingly, these stockholders could have a significant influence over the outcome of any corporate transaction or other matter submitted to stockholders for approval, including mergers, consolidations and the sale of all or substantially all of our assets and also could prevent or cause a change in control. The interests of these stockholders may differ from the interests of our other stockholders. Third parties may be discouraged from making a tender offer or bid to acquire us because of this concentration of ownership.

Our board of directors may, without stockholder approval, issue and fix the terms of shares of preferred stock and issue additional shares of common stock, which will adversely affect the rights of holders of our common stock.

On December 3, 2014, we effected a twenty-five-for-one (25:1) reverse split of our common stock. Immediately after the reverse stock split, on December 3, 2014 we changed our state of incorporation from the State of Nevada to the State of Delaware pursuant to an Agreement and Plan of Merger, dated December 3, 2014, whereby we merged with and into our then recently formed, wholly-owned Delaware subsidiary. Pursuant to the Agreement and Plan of Merger effecting the merger, we adopted the certificate of incorporation, as amended and restated, and bylaws of our Delaware subsidiary as our certificate of incorporation and bylaws at effective time of the merger. As a result, our certificate of incorporation, as amended and restated, authorizes the issuance of up to 5,000,000 shares of “blank check” preferred stock, with such designation rights and preferences as may be determined from time to time by the Board of Directors. Currently, our certificate of incorporation, as amended and restated, which became effective on December 3, 2014, authorizes the issuance of up to 50,000,000 shares of common stock, of which as of June 30, 2015, approximately 25,109,000 shares remain available for issuance and may be issued by us without stockholder approval.

Anti-takeover provisions in our charter documents and under Delaware law could prevent or delay transactions that our stockholders may favor and may prevent stockholders from changing the direction of our business or our management.

After giving effect to our merger into our wholly-owned Delaware subsidiary, provisions of our certificate of incorporation, as amended and restated, and our bylaws may discourage, delay or prevent a merger or acquisition that our stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares, and may also frustrate or prevent any attempt by stockholders to change our direction or management. For example, these provisions:

- authorize the issuance of "blank check" preferred stock without any need for action by stockholders;
- eliminate the ability of stockholders to call special meetings of stockholders;
- prohibit stockholder action by written consent; and
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on by stockholders at stockholder meetings.

Compliance with changing corporate governance and public disclosure regulations may result in additional expense.

Keeping abreast of, and in compliance with, changing laws, regulations and standards relating to corporate governance and public disclosure, including the Sarbanes-Oxley Act of 2002, and any new SEC regulations will require an increased amount of management attention and external resources. We intend to continue to invest all reasonably necessary resources to comply with evolving standards, which may result in increased general and administrative expense and a diversion of management time and attention from revenue-generating activities to compliance activities.

Our common stock is thinly traded on the NASDAQ Capital Market exchange, and no assurances can be made about stock performance, liquidity, or maintenance of our NASDAQ listing.

Historically, our common stock was quoted on the OTCQB, which provided significantly less liquidity than a securities exchange (such as the New York Stock Exchange or the Nasdaq Stock Market). On December 17, 2014, our common stock was approved for trading on the NASDAQ Capital Market. Beginning on December 23, 2014, our common stock began trading on the NASDAQ Capital Market under the symbol "CTSO." Although currently listed on the NASDAQ Capital Market, there can be no assurance that we will continue to meet the NASDAQ Capital Market's minimum listing requirements or that of any other national exchange. In addition, there can be no assurances that a liquid market will be created for our common stock. If we are unable to maintain listing on the NASDAQ Capital Market or if a liquid market for our common stock does not develop, our common stock may remain thinly traded.

Our use of the offering proceeds may not yield a favorable return on your investment.

We currently intend to use the net proceeds from this offering for research and development activities, which include the funding of additional clinical studies and costs of obtaining regulatory approvals in countries not covered by the CE Mark, capital expenditures and other costs necessary to expand production capacity, support of various sales and marketing efforts, product development and general working capital purposes. Pending the application of the net proceeds, we intend to invest the net proceeds in investment-grade or government, interest-bearing securities. Our management has broad discretion over how these proceeds are used and could spend the proceeds in ways with which you may not agree. Pending the use of the proceeds in this offering, we will invest them. However, the proceeds may

not be invested in a manner that yields a favorable or any return.

We will have broad discretion over the use of the net proceeds to us from this offering and may apply them to uses that do not improve our operating results or the value of your securities.

We will have broad discretion to use the net proceeds to us from this offering, including for any of the purposes described in the section titled "Use of Proceeds," and investors will be relying solely on the judgment of our board of directors and management regarding the application of these proceeds. Investors will not have the opportunity, as part of their investment decision, to assess whether the proceeds are being used appropriately. Our use of the proceeds may not improve our operating results or increase the value of the securities being offered hereby. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. The failure of our management to use these funds effectively could have a material adverse effect on our business, cause the market price of our common stock to decline or delay the development of our product candidates.

If you purchase shares of common stock in this offering, you will experience immediate and substantial dilution in the net tangible book value of your shares.

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 3,378,378 shares of our common stock are sold at a price of $7.40 per share, the last reported sale price of our common stock on the NASDAQ Capital Market on October 28, 2015, for aggregate gross proceeds of $25 million, and after deducting commissions and estimated aggregate offering expenses payable by us, you will experience immediate dilution of $6.16 per share, representing the difference between our as adjusted net tangible book value per share as of June 30, 2015 after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options and warrants will result in further dilution of your investment. See the section titled "Dilution" below for a more detailed illustration of the dilution you would incur if you participate in this offering.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share paid by any investor in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by any investor in this offering, and investors purchasing shares or other securities in the future could have rights superior to you. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by any investor in this offering.

Certain of our outstanding warrants include anti-dilution protection for certain issuances of securities at an effective price per share less than the exercise price of such warrants, such as may occur in this offering if we issue and sell shares of our common stock at lower issuance prices than the effective exercise price. This anti-dilution protection will only change the exercise price of these warrants and will not change the number of shares of common stock being issued upon warrant exercise. However, this may contribute to downward pressure on the trading price of our common stock.

Outstanding warrants to purchase 736,000 shares of common stock were issued in March 2014, with the current exercise price of $7.81 per share before any adjustment related to this offering. These warrants contain anti-dilution provisions that reduce the exercise price of the warrants if we sell or grant any option to purchase, or sell or grant any right to reprice, or otherwise dispose of or issue (or announce any offer, sale, grant or any option to purchase or other disposition) any common stock or common stock equivalents, at an effective price per share less than the exercise price then in effect. This anti-dilution protection will only change the exercise price of these warrants and will not change the number of shares of common stock being issued upon warrant exercise. However, the exercise of the warrants at prices below the market price of our common stock could adversely affect the price of shares of our common stock. The sales of the shares of our common stock issuable upon exercise of the warrants could have a depressive effect on the price of our common stock, particularly if there is not a coinciding increase in demand by purchasers of our common stock.

CAUTIONARY NOTICE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and documents incorporated by reference into this prospectus supplement, the accompanying prospectus and the other documents we have filed with the SEC that are incorporated herein by reference may contain "forward-looking statements" within the meaning of the safe harbor provisions of Section 27A of the Securities Act, Section 21E of the Exchange Act, and the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, but are not limited to, statements about our plans, objectives, representations and contentions and are not historical facts and typically are identified by use of terms such as "may," "should," "could," "expect," "plan," "anticipa "believe," "estimate," "predict," "potential," "project," "continue" and similar words, although some forward-looking statemen are expressed differently. You should be aware that the forward-looking statements included herein represent management's current judgment and expectations, but our actual results, events and performance could differ materially from those in the forward-looking statements. The following documents, among others, describe these assumptions, risks, uncertainties, and other factors. You should read and interpret any forward-looking statements together with the following documents:

- our most recent Annual Report on Form 10-K, as amended, including the sections entitled "Business", "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations;"
- the risk factors contained in this prospectus under the caption "Risk Factors;"
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2015 and June 30, 2015; and
- our other filings with the SEC.

Any forward-looking statement speaks only as to the date on which that statement is made. We assume no obligation to update any forward-looking statement to reflect events or circumstances that occur after the date on which the statement is made.

USE OF PROCEEDS

We may offer and sell shares of our common stock having aggregate sales proceeds of up to $25 million from time to time. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the Controlled Equity Offering[SM] sales agreement with Cantor Fitzgerald as a source of financing.

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Except as described in any related free writing prospectus that we may authorize to be provided to you, we currently intend to use the net proceeds from the sale of the securities offered hereby for research and development activities, which include the funding of additional clinical studies and costs of obtaining regulatory approvals in countries not covered by the CE Mark, capital expenditures and other costs necessary to expand production capacity, support of various sales and marketing efforts, product development and general working capital purposes. Pending these uses, we intend to invest the net proceeds primarily in government securities.

DILUTION

If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock after this offering.

The net tangible book value of our common stock as of June 30, 2015 was approximately $11.0 million, or approximately $0.44 per share. Net tangible book value per share represents the amount of our total tangible assets less total liabilities divided by the total number of shares of our common stock outstanding.

After giving effect to the sale of $25 million of common stock in this offering at an assumed public offering price of $7.40 per share (the last reported sale price of our common stock on the NASDAQ Capital Market on October 28, 2015), and after deducting commissions and estimated aggregate offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2015 would have been approximately $35.1 million, or approximately $1.24 per share. This represents an immediate increase in net tangible book value of approximately $0.80 per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of approximately $6.16 per share to investors participating in this offering, as illustrated by the following table:

Assumed offering price per share of common stock		$7.40
Net tangible book value per share as of June 30, 2015	$0.44	
Increase in net tangible book value per share after this offering	$0.80	
As adjusted net tangible book value per share as of June 30, 2015, after giving effect to this offering		$1.24
Dilution per share to investors participating in this offering		$6.16

The table above assumes for illustrative purposes that an aggregate of 3,378,378 shares of our common stock are sold at a price of $7.40 per share, the last reported sales price of our common stock on the NASDAQ Capital Market on October 28, 2015, for aggregate gross proceeds of approximately $25 million. The shares sold in this offering, if any, will be sold from time to time at various prices.

The above discussion and table are based on 24,890,521 shares outstanding as of June 30, 2015, and excludes as of such date:

- 2,639,374 shares of our common stock issuable upon exercise of outstanding stock options under our equity incentive plans, at a weighted average exercise price of $6.18, which includes 566,000 shares of our common stock reserved for future awards under our equity incentive plan;

- 1,200,000 units of restricted stock outstanding; and

- 1,418,145 shares of our common stock issuable upon exercise of outstanding warrants at a weighted average price of $6.13 per share.

To the extent that any of these outstanding options are exercised or we issue additional shares under our equity incentive plans, there will be further dilution to new investors. 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 additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

PLAN OF DISTRIBUTION

We have entered into a Controlled Equity Offering[SM] sales agreement with Cantor Fitzgerald, under which we may offer and sell shares of our common stock having an aggregate gross sales price of up to $25 million from time to time through Cantor Fitzgerald acting as sales agent. The sales agreement has been filed as an exhibit to a Current Report on Form 8-K and incorporated by reference into this prospectus supplement.

Upon delivery of a placement notice and subject to the terms and conditions of the sales agreement, Cantor Fitzgerald may sell shares of our common stock by any method permitted by law deemed to be an "at-the-market offering" as defined in Rule 415 promulgated under the Securities Act, including sales made directly on the NASDAQ Capital Market, on any other existing trading market for our common stock or to or through a market maker. Cantor Fitzgerald may also sell our common stock by any other method permitted by law, including in privately negotiated transactions. We may instruct Cantor Fitzgerald not to sell our common stock if the sales cannot be effected at or above the price designated by us from time to time. We or Cantor Fitzgerald may suspend the offering of our common stock upon notice and subject to other conditions.

We will pay Cantor Fitzgerald commissions, in cash, for its services in acting as agent in the sale of our common stock. Cantor Fitzgerald will be entitled to compensation at a commission rate of 3.0% of the gross sales price per share sold. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. We have also agreed to reimburse Cantor Fitzgerald for certain specified expenses, including the fees and disbursements of its legal counsel in an amount not to exceed $50,000. We estimate that the total expenses for the offering, excluding compensation and reimbursements payable to Cantor Fitzgerald under the terms of the sales agreement, will be approximately $100,000. Cantor has entered into a fee sharing agreement with Brean Capital, LLC, or Brean, pursuant to which Brean will be entitled to receive a certain percentage of the net commissions payable to Cantor for any of the up to $25 million of sales of our common stock under the sales agreement in consideration for Brean’s services to us as a financial advisor under this offering. Other than serving as a financial advisor to us, Brean will have no other obligation or responsibility in connection with the sale of the common stock covered by this prospectus supplement.

Settlement for sales of common stock will occur on the third business day following the date on which any sales are made, or on some other date that is agreed upon by us and Cantor Fitzgerald in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our common stock as contemplated in this prospectus supplement and the accompanying prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and Cantor Fitzgerald may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

Cantor Fitzgerald will use its commercially reasonable efforts, consistent with its sales and trading practices, to solicit offers to purchase the common stock shares under the terms and subject to the conditions set forth in the sales agreement. In connection with the sale of the common stock on our behalf, Cantor Fitzgerald will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Cantor Fitzgerald will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Cantor Fitzgerald against certain civil liabilities, including liabilities under the Securities Act.

The offering of our common stock pursuant to the sales agreement will terminate upon the earlier of (1) the sale of all shares of our common stock subject to the sales agreement, (2) termination of the sales agreement as permitted therein or (3) the third anniversary of the date of the sales agreement. We and Cantor Fitzgerald may each terminate the sales agreement at any time upon ten days' prior notice.

Cantor Fitzgerald and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, Cantor Fitzgerald will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

This prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by Cantor Fitzgerald and Cantor Fitzgerald may distribute this prospectus supplement and the accompanying prospectus electronically.

LEGAL MATTERS

The validity of the common stock offered by this prospectus supplement will be passed upon for us by DLA Piper LLP (US), Short Hills, New Jersey. Cantor Fitzgerald is being represented in connection with this offering by Cooley LLP, New York, New York.

EXPERTS

The consolidated financial statements of CytoSorbents Corporation appearing in CytoSorbents Corporation’s Annual Report on Form 10-K for the year ended December 31, 2014 have been audited by WithumSmith+Brown, PC, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC for the shares of common stock offered by this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus, including the information incorporated by reference herein and therein, do not include all of the information contained in the registration statement. You should refer to the registration statement and its exhibits for additional information.

We file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Rigel Pharmaceuticals, Inc. The SEC's Internet site can be found at *http://www.sec.gov*.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" much of the information we file with them under Commission File No. 000-51038, which means that we can disclose important information to you by referring you to those publicly available documents. All of the information that we incorporate by reference is considered to be part of this prospectus, and any of our subsequent filings with the SEC will automatically update and supersede this information. This prospectus incorporates by reference the documents listed below and any future filings made by CytoSorbents Corporation with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except for information furnished under Items 2.02 or 7.01 of Current Report on Form 8-K, or exhibits related thereto, until the filing of a post-effective amendment to this prospectus which indicates that all securities registered have been sold or which deregisters all securities then remaining unsold:

- our annual report on Form 10-K for the fiscal year ended December 31, 2014, filed on March 31, 2015, pursuant to Section 13 or 15(d) of the Exchange Act, in which there is set forth the audited financial statements for our fiscal year ended December 31, 2014;
- our definitive proxy statement for our annual meeting of stockholders, filed on April 22, 2015
- our quarterly report on Form 10-Q for the quarter ended March 31, 2015, filed on May 11, 2015;
- our quarterly report on Form 10-Q for the quarter ended June 30, 2015, filed on August 13, 2015;
- our current reports on Form 8-K, filed on January 14, 2015, April 3, 2015, April 8, 2015 (responsive to Items 8.01 and 9.01), April 14, 2015, June 4, 2015, July 15, 2015, July 23, 2015 and November 4, 2015; and
- our description of our common stock contained in the Registration Statement on Form 8-A12B filed with the Securities and Exchange Commission on December 17, 2014.

We will provide, upon written or oral request, to each person to whom a prospectus is delivered, a copy of any or all of the information that has been incorporated by reference in the prospectus but not delivered with the prospectus. You may request a copy of these filings, at no cost, by writing us at CytoSorbents Corporation, 7 Deer Park Drive, Suite K, Monmouth Junction, New Jersey 08852. Our telephone number is (732) 329-8885.

Prospectus

$100,000,000

Common Stock, Preferred Stock,
Debt Securities, Warrants and Units

2,500,000

Shares of Common Stock
Offered by the Selling Stockholder

CytoSorbents Corporation may offer from time to time in one or more offerings up to an aggregate of $100,000,000 of the common stock, preferred stock, debt securities, warrants, and/or units described in this prospectus, separately or together in one or more combinations. The preferred stock, debt securities, and warrants may be convertible into or exercisable or exchangeable for common stock or preferred stock or other securities of CytoSorbents Corporation as identified in the applicable prospectus supplement.

In addition, the selling stockholder may offer and sell, from time to time, up to an aggregate of 2,500,000 shares of common stock under this prospectus. We will not receive any proceeds from sales of our common stock, if any, by the selling stockholder.

This prospectus provides a general description of the securities we or the selling stockholder may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and the applicable prospectus supplement carefully before you invest in any securities. This prospectus may not be used to consummate a sale of securities by us unless accompanied by the applicable prospectus supplement.

Our common stock is listed on the Nasdaq Capital Market under the symbol "CTSO." The last reported sale price of our common stock on the Nasdaq Capital Market on July 17, 2015 was $6.80 per share. We may sell the shares of common stock through underwriters, through dealers, directly to one or more institutional purchasers or through agents.

Investing in shares of our common stock involves risk. See " Risk Factors " beginning on page 9 of this prospectus. You should read this document and any prospectus supplement carefully before you invest.

This prospectus will allow us and the selling stockholder to offer for sale securities over time. We will provide a prospectus supplement each time we issue securities, which will inform you about the specific terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as the documents incorporated by reference before you invest in any of our securities. This prospectus may not be used to sell the securities unless accompanied by a prospectus supplement.

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

The date of this Prospectus is July 29, 2015

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission using a "shelf" registration process. Under this shelf registration process, we may offer and sell, from time to time, any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of $100,000,000. In addition, the selling stockholder may offer and sell, from time to time, up to an aggregate of 2,500,000 shares of common stock under this prospectus.

This prospectus provides you with a general description of the securities we or the selling stockholder may offer. Each time we or the selling stockholder sell securities under this shelf registration, we will, to the extent required by law, provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits. You should carefully read this prospectus, the applicable prospectus supplement, the information and documents incorporated herein by reference and the additional information under the heading "Where You Can Find More Information" before making an investment decision.

We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any accompanying supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any accompanying prospectus supplement. This prospectus and any accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus and any accompanying prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any accompanying prospectus supplement is delivered or securities sold on a later date.

This prospectus may not be used by us to consummate sales of our securities, unless it is accompanied by a prospectus supplement. To the extent there are inconsistencies between any prospectus supplement, this prospectus and any documents incorporated by reference, the document with the most recent date will control.

Unless the context otherwise requires, references in this prospectus to "we," "us," "our," or the "Company" refer to CytoSorbents Corporation, a Delaware corporation, and its subsidiaries.

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ABOUT CYTOSORBENTS CORPORATION

CytoSorbents is a leader in critical care immunotherapy commercializing its CytoSorb® blood purification technology to reduce deadly uncontrolled inflammation in hospitalized patients around the world, with the goal of preventing or treating multiple organ failure in life-threatening illnesses. Organ failure is the cause of nearly half of all deaths in the intensive care unit, with little to improve clinical outcome. CytoSorb®, the Company's flagship product, is approved in the European Union, or EU, as a safe and effective extracorporeal cytokine filter, designed to reduce the "cytokine storm" that could otherwise cause massive inflammation, organ failure and death in common critical illnesses such as sepsis, burn injury, trauma, lung injury, and pancreatitis. These are conditions where the mortality is extremely high, yet no effective treatments exist. In addition, CytoSorb® can be used in other inflammatory conditions such as cardiac surgery, autoimmune disease flares, and potentially for cancer, cytokine release syndrome in cancer immunotherapy, and cancer cachexia where cytokines play a major role in the cause of inflammation. CytoSorbents' purification technologies are based on biocompatible, highly porous polymer beads that can actively remove toxic substances from blood and other bodily fluids by pore capture and surface adsorption. CytoSorbents has numerous products under development based upon this unique blood purification technology, protected by 32 issued U.S. patents and multiple applications pending, including HemoDefend™, ContrastSorb, DrugSorb, and others.

In March 2011, we received EU regulatory approval under the CE Mark and Medical Devices Directive for our flagship product, CytoSorb®, as an extracorporeal cytokine filter indicated for use in clinical situations where cytokines are elevated. The goal of the CytoSorb® is to prevent or treat organ failure by reducing cytokine storm and the potentially deadly systemic inflammatory response syndrome in diseases such as sepsis, trauma, burn injury, acute respiratory distress syndrome, pancreatitis, liver failure, and many others. Organ failure is the leading cause of death in the intensive care unit, and remains a major unmet medical need, with little more than supportive care therapy (e.g., mechanical ventilation, dialysis, vasopressors, fluid support, etc.) as treatment options. By potentially preventing or treating organ failure, CytoSorb® may improve clinical outcome, including survival, while reducing the need for costly intensive care unit treatment, thereby potentially saving significant healthcare costs.

Our CE Mark enables CytoSorb® to be sold throughout all 28 countries of the EU. In addition, many countries outside the EU accept CE Mark approval for medical devices, but may also require registration with or without additional clinical studies. The broad approved indication enables CytoSorb® to be used "on-label" in diseases where cytokines are elevated including, but not limited to, critical illnesses such as those mentioned above, autoimmune disease flares, cancer cachexia, and many other conditions where cytokine-induced inflammation plays a detrimental role.

Cytokines are small proteins that normally stimulate and regulate the immune response. However, in certain diseases, particularly life-threatening conditions commonly seen in the intensive care unit, or ICU, such as sepsis and infection, trauma, acute respiratory distress syndrome (ARDS), severe burn injury, liver failure, and acute pancreatitis, cytokines are often produced in vast excess – a condition often called cytokine storm. Left unchecked, this cytokine storm can lead to a severe maladaptive systemic inflammatory response syndrome, or SIRS, that can then cause cell death,

multiple organ dysfunction syndrome or MODS, and multiple organ failure, MOF. Failure of vital organs such as the heart, lungs, and kidneys, accounts for nearly half of all deaths in the intensive care unit. This is despite the wide availability of supportive care therapies, or “life support”, such as dialysis, mechanical ventilation, extracorporeal membrane oxygenation, and vasopressors. By replacing the function of failed organs, these supportive care therapies can initially help to keep patients alive, but do not help patients recover faster, and in many cases can increase the risk of dangerous complications. Unlike these supportive care therapies, the goal of the CytoSorb® cytokine filter is to pro-actively prevent or treat organ failure by reducing cytokine storm and reducing the maladaptive SIRS response. In doing so, CytoSorb® targets the reduction in the severity of patient illness and the need for intensive care, while potentially improving clinical outcome and saving healthcare costs.

As part of the CE Mark approval process, we completed our randomized, controlled, European Sepsis Trial amongst 14 trial sites in Germany in 2011, with enrollment of 100 patients with sepsis and respiratory failure. The trial established that CytoSorb® was safe in this critically-ill population. Taking into account all 100 patients, the treatment was well-tolerated with no serious device related adverse events reported in more than 300 human treatments in the trial. Although the trial was not powered to demonstrate significant reduction in other clinical endpoints such as mortality, these were also included as secondary and exploratory endpoints in the trial.

The first 22 patients in the study represented a sepsis pilot study. In the next 31 patients, a compromise of the manual randomization schedule at two trial sites led to an imbalance in the severity of illness between the control and treatment patient groups of the study. After a thorough review, the Scientific Advisory Board, or SAB, and the independent Data Safety Monitoring Board, or DSMB, both recommended that due to this enrollment bias, these 31 patients should only be used for safety evaluation purposes and that new patients should be enrolled into the trial using electronic web-based randomization to randomly assign patients into either the control or treatment arms.

Excluding four patients that withdrew, the remaining 43 patients enrolled under electronic randomization were relatively balanced in terms of the severity of illness in treatment and control patients, confirming the findings of the SAB and DSMB. An independent CRO,RCRI, Inc., analyzed these 43 patients the European Sepsis Trial and showed on a statistically significant basis ($p<0.05$), CytoSorb®’s ability to reduce circulating levels of key cytokines from whole blood in treated patients on the average of 30-50% over the seven-day treatment period. Additionally, post-hoc subgroup analyses of the clinical outcome data from patients enrolled under electronic randomization demonstrated statistically significant reduction in mortality in patients at high risk of death in sepsis, specifically in patients with: