Zacks Small-Cap Research

October 27, 2015

Brian Marckx, CFA
bmarckx@zacks.com
Ph (312) 265-9474

scr.zacks.com

111 North Canal Street, Chicago, IL 60606

CytoSorbents Cp (CTSO- NASDAQ)

CTSO: $1.5M Ph2 NHLBI Grant for HemoDefend

Current Recommendation	**Outperform**
Prior Recommendation	N/A
Date of Last Change	06/04/2012
Current Price (10/27/15)	$6.75
Target Price	**$12.50**

OUTLOOK

CytoSorb was CE Marked in March 2011 and subsequently commenced its initial commercialization. Initial focus on building awareness appears to be paying off. CTSO now generating clinical outcomes data which is just starting to be used to accelerate adoption and utilization. CTSO now also focused in U.S. regulatory approval – either with a cardiac surgery or critical care indication (such as sepsis). Co now investigating EAP route in U.S. to try and speed time to market at lower cost.

Recent restructuring of sales force caused a hiccup in sales but we think this is a short-term issue, is already being resolved with new hires and has no impact on long-term potential of CytoSorb. Interest in and use of CytoSorb from hospitals and physicians continues to increase. Also seeing great interest from distributors and other industry partners.

SUMMARY DATA

52-Week High	**$15.24**
52-Week Low	**$4.40**
One-Year Return (%)	**5.69**
Beta	**-0.56**
Average Daily Volume (sh)	**87,108**
Shares Outstanding (mil)	**25**
Market Capitalization ($mil)	**$169**
Short Interest Ratio (days)	**13.85**
Institutional Ownership (%)	**5**
Insider Ownership (%)	**26**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**72.9**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2015 Estimate	**N/A**
P/E using 2016 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**Above Avg.,**
Type of Stock	**Small-Growth**
Industry	**Med Products**

ZACKS ESTIMATES

Revenue
(in '000 of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	1062 A	1025 A	1162 A	874 A	4123 A
2015	723 A	964 A	1048 E	1453 E	4189 E
2016					12396 E
2017					20245 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	-0.20 A	-0.27 A	-0.22 A	-0.47 A	-1.29 A
2015	-0.19 A	0.06 A	-0.10 E	-0.11 E	-0.34 E
2016					-0.27 E
2017					-0.21 E

Zacks Projected EPS Growth Rate - Next 5 Years % **N/A**

© Copyright 2015, Zacks Investment Research. All Rights Reserved.

HemoDefend Awarded $1.5M Ph 2 NHLBI Grant: Should Provide Greater Insight Into Utility/Commercialization

CytoSorbents announced this morning (Oct 27) that they have been awarded a Phase II grant from the National Heart, Lung and Blood Institute to fund further development of HemoDefend. The 2-year contract, titled, “pRBCs (packed red blood cells) Contaminant Removal with Porous Polymer Beads”, will begin immediately.

This most recent contract follows a Phase I grant from NHLBI in the amount of $203k that CTSO received in September 2013 which encompassed both the in-line filter and "beads in a bag" configurations and focused on increasing the number of blood contaminants that can be captured by the technology as well as determining the quality of the blood following treatment.

Dr. Larry Dumont, from the Geisel School of Medicine at Dartmouth, worked with CytoSorbents on the the Phase I grant and will also be involved in the Phase II contract, which expands the in-line filter testing to human subjects. CTSO also notes in the PR that this will also fund development of new polymers related to blood transufions

As we have noted in our coverage of CTSO, we had yet to model any financial contribution from HemoDefend given the earlier stage of development of the product and little visibility as to potential commercialization timelines. CytoSorbents had not spoken much about HemoDefend in the recent past, although had noted that they had experienced some interest in the technology since introducing it at the October 2011 American Association of Blood Banks conference. With their main focus on the roll-out of CytoSorb, HemoDefend was relegated to somewhat of a back-burner project.

And while the grant likely provides little in the way of financial margin (our model has been updated to reflect the Ph2 award), it has the potential to push development closer towards a feasible commercialization timeline. CTSO has in the past talked about looking for a partner to help in completing development of HemoDefend for one or more applications. This follow-on grant, coupled with additional evidence indicating its effectiveness in cleaning blood – including a poster presentation at AABB 2015 just yesterday (see CTSO’s PR) – may help attract additional interest from potential partners. At the very least, it almost certainly will provide additional insight into the effectiveness and potential applications of the technology as well as lending another vote of confidence from the NHLBI, a division of the National Institutes of Health.

HemoDefend
HemoDefend, with expected applications in purification of blood used for transfusions, uses a new optimized version of CytoSorbents' polymer technology designed to capture contaminants in blood that can cause adverse events and transfusion reactions. Blood can become contaminated either from the donor or during storage as the blood ages. HemoDefend is designed to safeguard the quality and safety of the blood supply by removing contaminants such as antibodies, free hemoglobin, cytokines, and bioactive lipids in whole blood, packed red blood cells, and platelets that can cause transfusion reactions such as life-threatening Transfusion Related Acute Lung Injury (TRALI) and lethal allergic reactions. The technology uses a mixture of different beads and can be tailored to remove specific substances of interest.

According to the World Health Organization (WHO), there are more than 80 million blood donations each year worldwide with each donation generating multiple blood transfusion products such as packed red blood cells (pRBCs), platelets, fresh frozen plasma, and cryoprecipitate. Every year there is an estimated 150 - 200 million transfusions administered worldwide with, according to the American Red Cross, more than 30 million in the U.S. alone. CytoSorbents target market for the technology are pRBCs, platelets, and whole blood, which represent more than half of all blood transfusions annually. HemoDefend can be configured either as an in-line filter design or what the company has termed "Beads in a Bag".

With "Beads in a Bag" the beads are placed directly into a blood storage bag during bag manufacturing and blood or separated blood components are then later added to the bag. Purification begins instantly and continues throughout the duration of storage, maximizing removal efficiency. The beads are neutrally buoyant, eliminating the need for mixing and simplifying the purification process. An integrated filter in the bag prevents beads from leaving the bag during the transfusion process. The polymer beads meet ISO 10993 standards for biocompatibility, hemocompatibility, genotoxicity, cytotoxicity, acute sensitivity and complement activation and can therefore directly contact blood for extended periods of time. In addition, the beads are inert and stable at a wide range of temperatures, and do not contain any antibodies, recombinant proteins, ligands, or drugs. Because of this, they have a very long shelf life that is consistent with blood storage bag manufacturing standards. No special

equipment or handling is required, making it ideal for mainstream and military applications, as well as for use in less developed countries.

.

FINANCIAL MODEL

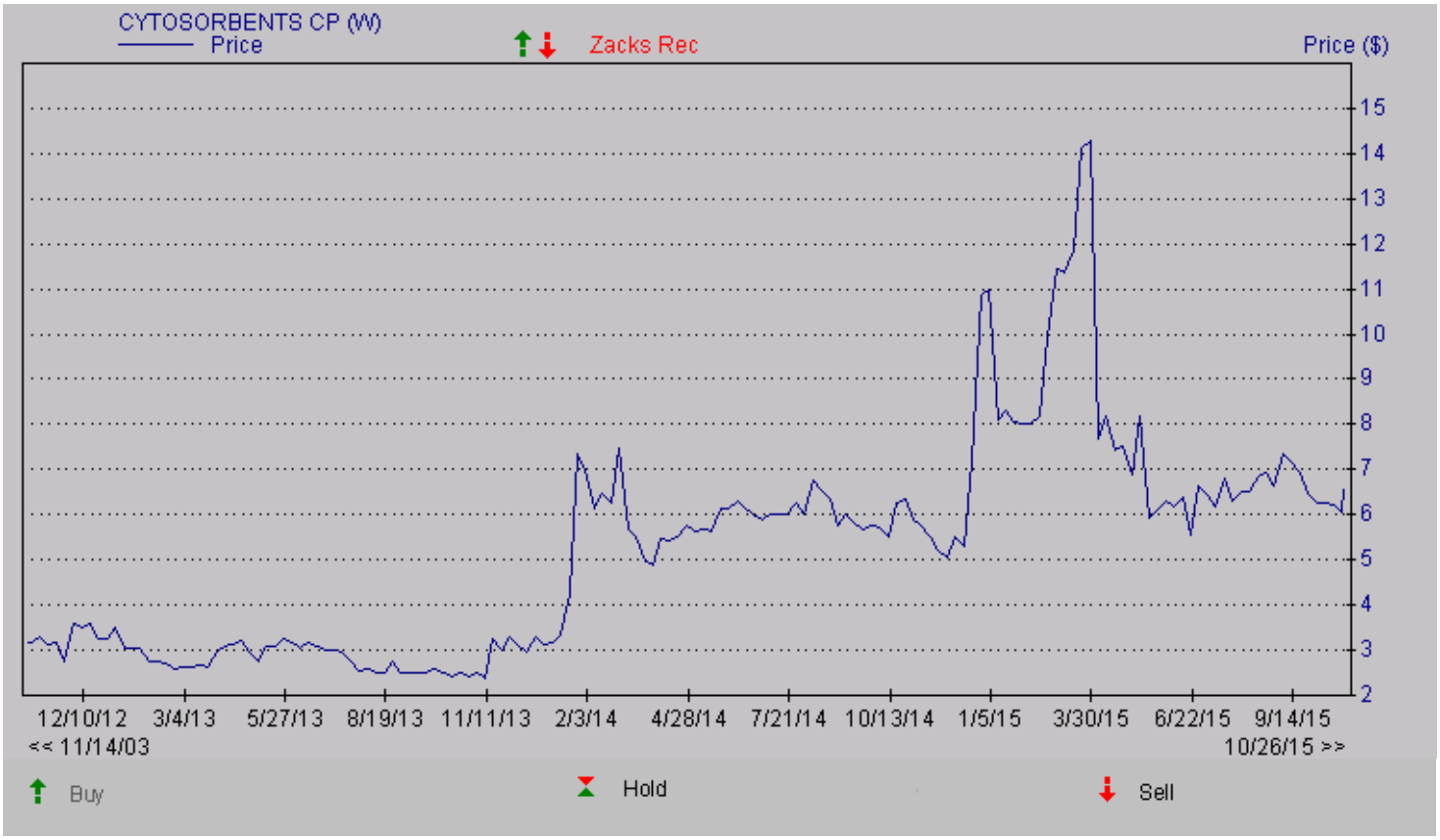
CytoSorbents Inc.

	2014 A	Q1A	Q2A	Q3E	Q4E	2015 E	2016 E	2017 E	2018 E
CytoSorb Sales	$3,135.4	$703.7	$773.1	$961.4	$1,242.7	$3,680.8	$11,030.0	$19,580.0	$28,010.0
y-o-y growth	*281.5%*	*23.6%*	*16.6%*	*-6.8%*	*42.6%*	*17.4%*	*199.7%*	*77.5%*	*43.1%*
Total Royalties/Grants/Other	$987.5	$19.4	$190.8	$87.0	$211.1	$508.3	$1,365.8	$665.0	$0.0
y-o-y growth	*-38.3%*	*-96.1%*	*-47.2%*	*-33.4%*	*8217.6%*	*-48.5%*	*168.7%*	*-51.3%*	*-100.0%*
Revenue	$4,122.9	$723.1	$963.9	$1,048.4	$1,453.8	$4,189.2	$12,395.8	$20,245.0	$28,010.0
YOY Growth	*70.2%*	*-31.9%*	*-5.9%*	*-9.8%*	*66.4%*	*1.6%*	*195.9%*	*63.3%*	*38.4%*
Cost of Goods Sold	$2,133.9	$304.5	$465.4	$451.5	$667.6	$1,889.0	$5,394.7	$8,005.7	$10,643.8
Gross Income	$1,989.0	$418.6	$498.5	$596.9	$786.2	$2,300.2	$7,001.1	$12,239.4	$17,366.2
Gross Margin	*48.2%*	*57.9%*	*51.7%*	*56.9%*	*54.1%*	*54.9%*	*56.5%*	*60.5%*	*62.0%*
SG&A	$6,836.2	$2,179.2	$1,924.3	$2,225.0	$2,434.0	$8,762.5	$9,654.0	$13,237.0	$14,341.1
% SG&A	*165.8%*	*301.4%*	*199.6%*	*212.2%*	*167.4%*	*209.2%*	*77.9%*	*65.4%*	*51.2%*
R&D	$2,431.7	$951.0	$801.7	$974.0	$1,118.0	$3,844.7	$4,694.0	$4,902.0	$4,915.0
% R&D	*59.0%*	*131.5%*	*83.2%*	*92.9%*	*76.9%*	*91.8%*	*37.9%*	*24.2%*	*17.5%*
Operating Income	($7,278.9)	($2,711.6)	($2,227.5)	($2,602.1)	($2,765.8)	($10,307.0)	($7,346.9)	($5,899.7)	($1,889.9)
Operating Margin	-	-	-	-	-	-	-	-	-
Total Other Expense	$2,428.5	$2,005.3	($3,661.8)	$0.0	$0.0	($1,656.5)	$0.0	$0.0	$0.0
Pre-Tax Income	($9,707.4)	($4,716.9)	$1,434.3	($2,602.1)	($2,765.8)	($8,650.5)	($7,346.9)	($5,899.7)	($1,889.9)
Taxes (benefit)	($385.6)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Tax Rate	*4.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Preferred Dividend	$9,266.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Net Income	($18,588.4)	($4,716.9)	$1,434.3	($2,602.1)	($2,765.8)	($8,650.5)	($7,346.9)	($5,899.7)	($1,889.9)
Net Margin	-	*-652.3%*	*148.8%*	*-248.2%*	*-190.2%*	*-206.5%*	*-59.3%*	*-29.1%*	*-6.7%*
EPS	($1.29)	($0.19)	$0.06	($0.10)	($0.11)	($0.34)	($0.27)	($0.21)	($0.07)
YOY Growth	-	-	-	-	-	-			
Diluted Shares O/S	14,441	24,394	24,769	25,200	26,000	25,091	27,000	27,700	28,200

Brian Marckx, CFA

© Copyright 2015, Zacks Investment Research. All Rights Reserved.

HISTORICAL ZACKS RECOMMENDATIONS



DISCLOSURES

The following disclosures relate to relationships between Zacks Small-Cap Research ("Zacks SCR"), a division of Zacks Investment Research ("ZIR"), and the issuers covered by the Zacks SCR Analysts in the Small-Cap Universe.

ANALYST DISCLOSURES

I, Brian Marckx, CFA, CFA, hereby certify that the view expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report. I believe the information used for the creation of this report has been obtained from sources I considered to be reliable, but I can neither guarantee nor represent the completeness or accuracy of the information herewith. Such information and the opinions expressed are subject to change without notice.

INVESMENT BANKING, REFERRALS, AND FEES FOR SERVICE

Zacks SCR does not provide nor has received compensation for investment banking services on the securities covered in this report. Zacks SCR does not expect to receive compensation for investment banking services on the Small-Cap Universe. Zacks SCR may seek to provide referrals for a fee to investment banks. Zacks & Co., a separate legal entity from ZIR, is, among others, one of these investment banks. Referrals may include securities and issuers noted in this report. Zacks & Co. may have paid referral fees to Zacks SCR related to some of the securities and issuers noted in this report. From time to time, Zacks SCR pays investment banks, including Zacks & Co., a referral fee for research coverage.

Zacks SCR has received compensation for non-investment banking services on the Small-Cap Universe, and expects to receive additional compensation for non-investment banking services on the Small-Cap Universe, paid by issuers of securities covered by Zacks SCR Analysts. Non-investment banking services include investor relations services and software, financial database analysis, advertising services, brokerage services, advisory services, equity research, investment management, non-deal road shows, and attendance fees for conferences sponsored or co-sponsored by Zacks SCR. The fees for these services vary on a per client basis and are subject to the number of services contracted. Fees typically range between ten thousand and fifty thousand USD per annum.

© Copyright 2015, Zacks Investment Research. All Rights Reserved.

POLICY DISCLOSURES

Zacks SCR Analysts are restricted from holding or trading securities placed on the ZIR, SCR, or Zacks & Co. restricted list, which may include issuers in the Small-Cap Universe. ZIR and Zacks SCR do not make a market in any security nor do they act as dealers in securities. Each Zacks SCR Analyst has full discretion on the rating and price target based on his or her own due diligence. Analysts are paid in part based on the overall profitability of Zacks SCR. Such profitability is derived from a variety of sources and includes payments received from issuers of securities covered by Zacks SCR for services described above. No part of analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in any report or article.

ADDITIONAL INFORMATION

Additional information is available upon request. Zacks SCR reports are based on data obtained from sources we believe to be reliable, but are not guaranteed as to be accurate nor do we purport to be complete. Because of individual objectives, this report should not be construed as advice designed to meet the particular investment needs of any investor. Any opinions expressed by Zacks SCR Analysts are subject to change without notice. Reports are not to be construed as an offer or solicitation of an offer to buy or sell the securities herein mentioned.

ZACKS RATING & RECOMMENDATION

ZIR uses the following rating system for the 1208 companies whose securities it covers, including securities covered by Zacks SCR:
Buy/Outperform: The analyst expects that the subject company will outperform the broader U.S. equity market over the next one to two quarters.
Hold/Neutral: The analyst expects that the company will perform in line with the broader U.S. equity market over the next one to two quarters.
Sell/Underperform: The analyst expects the company will underperform the broader U.S. Equity market over the next one to two quarters.

The current distribution is as follows: Buy/Outperform- 27.0%, Hold/Neutral- 51.9%, Sell/Underperform – 17.5%. Data is as of midnight on the business day immediately prior to this publication.