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## CytoSorbents Corporation (NASDAQ/CTSO)

October 6, 2022

### BUY: US Army Makes a \$4.2M Bet on HemoDefend

*The U.S. Army Medical Research Acquisition Activity has awarded the Company a three-year Phase III contract valued at \$4.2M to customize HemoDefend-BGA™ filter for sterile integration into collections systems for freeze-dried plasma processing to generate freeze-dried universal plasma.*

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### Investment Highlights

**HemoDefend.** There has been an ongoing controversy on whether there is a difference between "old" blood and "new" blood or blood that has been stored for some time in a refrigerated compartment versus blood that has been freshly donated by a person. Although current studies show contradicting results (independent studies were highly varied in approach), it is undisputed that biological changes occur during RBC storage, although unknown if they are beneficial/harmless or detrimental changes. Whether or not aged blood is bad, HemoDefend is still advantageous when storing donated blood. Not only will it keep donated blood fresh and extend the shelf-life of blood, but it will also remove the many contaminants that may be present in donated blood, or from the changes RBCs undergo while in storage. This is to minimize the current 1-5% risk chance patients have of developing a transfusion reaction, which could be as mild as a fever to as severe as death.

**The HemoDefend Technology:** Two ways to Implement: 1. As an in-line filter between the blood bag and the patient during transfusion, or in an approach called "Beads in a Bag." Beads in a Bag is CytoSorbents' innovative, patent-pending technology that will purify blood during the entire refrigerated storage period. CytoSorbents' biocompatible beads are perfect for this use for several reasons: the beads can have extended contact with blood without causing damage to the RBCs, they are neutrally buoyant and will suspend in blood so that the blood storage bag does not need to be mixed, and during transfusion, an integrated filter will keep the beads in the bag. HemoDefend won't require any extra machine, electricity, energy source, or any other manipulation to be used, so it won't cost much to possibly save a life.

**Valuation.** We use a series of therapeutic models across the various indications and geographies and project product revenues for the Company out to the year 2030. In our U.S. therapeutic models, we apply a 30% risk cut (70% success probability) that both U.S. approvals and our market share forecasts can be realized. For us, valuation becomes an interesting question when we discuss the appropriate "r" risk-rate to use in our three-model metrics, free cash flow to the Firm (FCFF), Discounted EPS, and Sum-Of-The-Parts (SOP) models, which are equal-weighted, averaged, and rounded to the nearest whole number. Typically for early-stage companies with no revenues, we use 30%, and for companies with established products and revenues, we use a lower 15%. CytoSorbents arguably is somewhere in the middle, as products are approved and selling in Europe but not yet in the U.S. If we select a conservative 30%, we derive a \$9.00 price target. If we choose a more aggressive 15%, we arrive at a \$26.00 target. We select 25% to balance risk versus reward to derive a \$16.00 target.

**Risks** to our price target include: market, regulatory, financial, and commercialization risks.



Source: Cytosorbents

Stock Data	
52-Week Range	\$1.18 - \$7.52
Shares Outstanding (mil.)	43.6
Market Capitalization (mil.)	\$71
Enterprise Value (mil.)	\$51
Debt to Capital	0%
Book Value/Share	\$0.35
Price/Book	2.9
Average Three Months Trading Volume (K)	131
Insider Ownership	11.5%
Institutional Ownership	35.6%
Short Interest (mil.)	1.8%
Dividend / Yield	\$0.00/0.0%



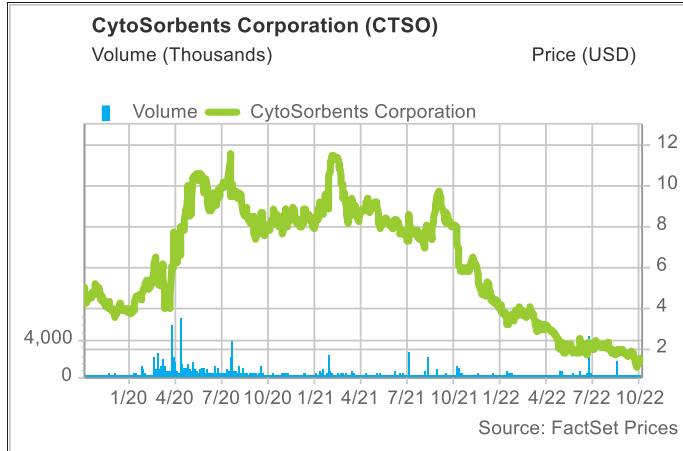
**Exhibit 1. Income Statement**

CTSO.: Income Statement (\$000)																
YE December 31	2019A	2020A	2021A	1Q22A	2Q22A	3Q22E	4Q22E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>Revenue:</b>																
CytoSorb Direct Sales (Germany, Austria, Switzerland)	22,766	25,607	29,354	6,066	5,489	7,325	7,606	28,172	31,046	42,620	49,732	58,030	67,713	79,013	92,198	92,198
CytoSorb Distributor (Rest of EU)		10,240	10,498	1,800	1,500	2,982	3,096	11,468	13,649	15,878	18,472	21,490	25,001	29,085	33,837	33,837
CytoSorb (Cardiac surgery EU)		3,420							11,604	14,022	16,474	16,589	16,705	16,822	16,940	16,940
CytoSorb (Cardiac surgery US)		-	-	-	-	-	-	-	-	21,899	27,593	66,755	67,290	67,829	68,373	68,373
CytoSorb (other US)		-	-	-	-	-	-	-	-	38,459	78,231	190,960	283,238	395,071	602,722	602,722
VetResQ		185	194	58	49	53	55	204	214	225	236					
Other Sales					293											
<b>Total Product Sales</b>	<b>22,766</b>	<b>39,452</b>	<b>40,047</b>	<b>7,924</b>	<b>7,331</b>	<b>10,359</b>	<b>10,758</b>	<b>39,844</b>	<b>56,513</b>	<b>133,103</b>	<b>190,738</b>	<b>353,824</b>	<b>459,947</b>	<b>587,820</b>	<b>814,070</b>	<b>814,070</b>
Royalty (HemoDefend US)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grant revenue	2,184	1,552	3,062	767	1,164	-	-	1,931	-	-	-	-	-	-	-	-
Other revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Revenue</b>	<b>24,950</b>	<b>41,004</b>	<b>43,109</b>	<b>8,691</b>	<b>8,495</b>	<b>10,359</b>	<b>10,758</b>	<b>41,775</b>	<b>56,513</b>	<b>133,103</b>	<b>190,738</b>	<b>353,824</b>	<b>459,947</b>	<b>587,820</b>	<b>814,070</b>	<b>814,070</b>
<b>Expenses:</b>																
Costs of Goods Sold	7,364	11,052	11,047	2,278	3,551	2,072	2,152	10,052	11,303	26,621	38,148	70,765	91,989	117,564	162,814	162,814
	%COGS	25%	28%	32%	20%	48%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Research and Development	12,092	8,810	16,380	4,243	4,183	4,685	4,865	18,018	19,820	21,802	23,982	26,381	29,019	31,920	35,113	38,624
	%R&D	53%	22%	41%	54%	57%	45%	45%	35%	16%	13%	7%	6%	5%	4%	5%
Selling, General and Administrative	22,006	28,463	35,749	9,161	8,439	10,224	10,618	39,324	40,111	40,913	41,731	42,566	43,417	44,285	45,171	46,075
	%SG&A	97%	72%	89%	116%	115%	99%	99%	71%	31%	22%	12%	9%	8%	6%	6%
Legal, financial and other counseling	2,462	3,048	2,731	801	679	710	737	2,731	2,731	2,731	2,731	2,731	2,731	2,731	2,731	2,731
<b>Total Expenses</b>	<b>43,924</b>	<b>51,373</b>	<b>65,907</b>	<b>16,483</b>	<b>16,852</b>	<b>17,691</b>	<b>18,371</b>	<b>70,125</b>	<b>73,964</b>	<b>92,066</b>	<b>106,592</b>	<b>142,442</b>	<b>167,156</b>	<b>196,501</b>	<b>245,828</b>	<b>250,243</b>
Operating Income (Loss)	(18,974)	(10,369)	(22,799)	(7,792)	(8,357)	(7,331)	(7,613)	(28,350)	(17,451)	41,037	84,147	211,383	292,791	391,320	568,242	563,827
Interest income (expense), net				8	24											
Gain (loss) on foreign currency transactions	(1,384)	(1,201)	2	30	(2,523)											
Change in warrant liability		2,607	(2,569)	(1,213)	(23)											
Other income (expense), net																
<b>Total Other Income</b>	<b>(1,384)</b>	<b>1,406</b>	<b>(2,567)</b>	<b>(1,175)</b>	<b>(2,522)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Pretax Income</b>	<b>(20,358)</b>	<b>(8,964)</b>	<b>(25,366)</b>	<b>(8,967)</b>	<b>(10,880)</b>	<b>(7,331)</b>	<b>(7,613)</b>	<b>(28,350)</b>	<b>(17,451)</b>	<b>41,037</b>	<b>84,147</b>	<b>211,383</b>	<b>292,791</b>	<b>391,320</b>	<b>568,242</b>	<b>563,827</b>
Income Tax Benefit (Provision)	1,092	1,127	(2,537)							7,387	17,671	50,732	81,982	129,136	187,520	186,063
<b>Tax Rate</b>	<b>5%</b>	<b>8%</b>	<b>10%</b>	<b>12%</b>	<b>12%</b>	<b>12%</b>	<b>12%</b>	<b>12%</b>	<b>15%</b>	<b>18%</b>	<b>21%</b>	<b>24%</b>	<b>28%</b>	<b>33%</b>	<b>33%</b>	<b>33%</b>
<b>GAAP Net Income (Loss)</b>	<b>(19,266)</b>	<b>(7,837)</b>	<b>(22,829)</b>	<b>(8,967)</b>	<b>(10,880)</b>	<b>(7,331)</b>	<b>(7,613)</b>	<b>(28,350)</b>	<b>(17,451)</b>	<b>33,650</b>	<b>66,476</b>	<b>160,651</b>	<b>210,810</b>	<b>262,184</b>	<b>380,722</b>	<b>377,764</b>
<b>GAAP-EPS</b>	<b>(0.62)</b>	<b>(0.20)</b>	<b>(0.57)</b>	<b>(0.21)</b>	<b>(0.25)</b>	<b>(0.17)</b>	<b>(0.17)</b>	<b>(0.65)</b>	<b>(0.40)</b>	<b>0.77</b>	<b>1.51</b>	<b>3.63</b>	<b>4.74</b>	<b>5.87</b>	<b>8.49</b>	<b>8.40</b>
GAAP-EPS (Dil)	(0.60)	(0.20)	(0.53)	(0.21)	(0.25)	(0.17)	(0.17)	(0.65)	(0.40)	0.77	1.51	3.63	4.74	5.87	8.49	8.40
Wgtd Avg Shrs (Bas) - '000s	32,253	38,819	43,358	43,488	43,560	43,604	43,647	43,575	43,756	43,932	44,108	44,284	44,462	44,640	44,819	44,998
Wgtd Avg Shrs (Dil) - '000s	32,253	38,819	43,358	43,488	43,560	43,604	43,647	43,575	43,756	43,932	44,108	44,284	44,462	44,640	44,819	44,998

Source: Dawson James estimates and company reports

**Important Disclosures:**

**Price Chart:**



Price target and rating changes over the past three years:

- Initiated – Buy – July 11, 2019 – Price Target \$15.00
- Update – Buy – August 12, 2019 – Price Target \$15.00
- Update – Buy – August 15, 2019 – Price Target \$15.00
- Update – Buy – August 19, 2019 – Price Target \$15.00
- Update – Buy – November 6, 2019 – Price Target \$15.00
- Update – Buy – February 19, 2020 – Price Target \$15.00
- Price Target Increase – Buy – March 9, 2020 – Price Target \$17.00
- Update – Buy – March 25, 2020 – Price Target \$17.00
- Update – Buy – April 13, 2020 – Price Target \$17.00
- Update – Buy – May 6, 2020 – Price Target \$17.00
- Update – Buy – June 9, 2020 – Price Target \$17.00
- Update – Buy – July 31, 2020 – Price Target \$15.00
- Update – Buy – August 12, 2020 – Price Target \$16.00
- Update – Buy – September 16, 2020 – Price Target \$16.00
- Update – Buy – October 14, 2020 – Price Target \$16.00
- Update – Buy – November 5, 2020 – Price Target \$16.00
- Update – Buy – December 2, 2020 – Price Target \$16.00
- Update – Buy – January 12, 2021 – Price Target \$16.00
- Update – Buy – January 19, 2021 – Price Target \$16.00
- Update – Buy – April 20, 2021 – Price Target \$16.00
- Update – Buy – May 6, 2021 – Price Target \$16.00
- Update – Buy – July 6, 2021 – Price Target \$16.00
- Update – Buy – September 1, 2021 – Price Target \$16.00
- Update – Buy – October 15, 2021 – Price Target \$16.00
- Update – Buy – November 9, 2021 – Price Target \$16.00
- Update – Buy – November 22, 2021 – Price Target \$16.00
- Update – Buy – January 18, 2022 – Price Target \$16.00
- Update – Buy – March 9, 2022 – Price Target \$16.00
- Update – Buy – April 29, 2022 – Price Target \$16.00
- Update – Buy – May 4, 2022 – Price Target \$16.00
- Update – Buy – August 3, 2022 – Price Target \$16.00
- Update – Buy – August 17, 2022 – Price Target \$16.00
- Update – Buy – October 6, 2022 – Price Target \$16.00

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- 2) **Neutral:** The analyst believes the price of the stock is fairly valued for the next 12-18 months;
- 3) **Sell:** The analyst believes the price of the stock will decline by at least 20% over the next 12-18 months and should be sold.

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Current as of 20-Sep-22

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	25	83%	3	12%
Market Perform (Neutral)	4	13%	1	25%
Market Underperform (Sell)	1	3%	0	0%
Total	30	100%	4	13%

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