

## CytoSorbents Corporation (NASDAQ/CTSO)

July 31, 2020

### BUY: Lots of Cash, Lots of Data – All Systems are a Go

CytoSorbents raised approximately \$50M in cash at \$9.50 – 5.2M shares. We view the raise as well-timed. Adjusting for the share count, our valuation drops slightly from \$17.00 to \$15.00. Nevertheless, we see the raise as accretive, as the dollars allow the Company to drive the pipeline and current revenues. We have made no other model changes. We also note that the Company just picked up a \$4.4M Dept. of Defense contract for pipeline product HemoDefend, which is under evaluation to protect blood and plasma.

**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. However, it is 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.

The HemoDefend technology can be implemented in two ways: 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's innovative, patent-pending technology that will purify blood during the entire refrigerated storage period. CytoSorbents's 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 select a more aggressive 15%, we arrive at a \$26.00 target. If we select a mid-point (22.5%), we derive a \$15.00 target, which reflects the revised share count from the recent capital raise.

**Risks.** Market risks, Regulatory risks, Financial risks, and Commercialization risks.

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Current Price \$9.72  
 Price Target \$15.00

Estimates	F2019A	F2020E	F2021E
<b>Expenses (\$000s)</b>	\$ 43,924	\$ 48,085	\$ 60,071
1Q March	\$ 9,475	\$ 11,186	\$ 13,816
2Q June	\$ 9,862	\$ 11,501	\$ 14,417
3Q September	\$ 11,723	\$ 12,459	\$ 15,618
4Q December	\$ 12,864	\$ 12,939	\$ 16,219

	F2019A	F2020E	F2021E
<b>EPS (diluted)</b>	\$ (0.62)	\$ (0.35)	\$ 0.21
1Q March	\$ (0.15)	\$ (0.10)	\$ 0.05
2Q June	\$ (0.11)	\$ (0.08)	\$ 0.05
3Q September	\$ (0.21)	\$ (0.08)	\$ 0.06
4Q December	\$ (0.14)	\$ (0.09)	\$ 0.06

EBITDA/Share (\$0.63) (\$0.35) \$0.24

EV/EBITDA (x) 0.0 0.0 0.0

#### Stock Data

52-Week Range \$3.49 - \$11.74

Shares Outstanding (mil.) 42.3

Market Capitalization (mil.) \$411

Enterprise Value (mil.) \$391

Debt to Capital 0%

Book Value/Share \$0.35

Price/Book 36.7

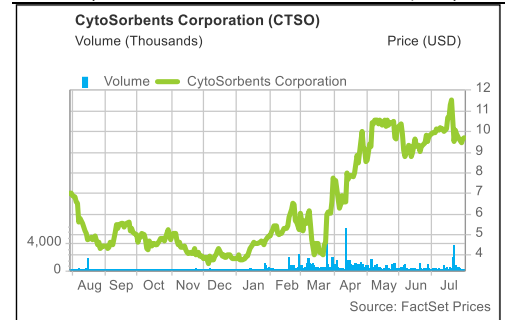
Average Three Months Trading Volume (K) 795

Insider Ownership 13.5%

Institutional Ownership 27.8%

Short interest (mil.) 6.6%

Dividend / Yield \$0.00/0.0%



**Modeling Assumptions**

1. We assume continued steady growth for CytoSorb in the current key EU direct sales countries of Germany, Austria, and Switzerland.
2. We assume a selling price per cartridge of \$1,000 for direct sales and \$600 for distribution sales. We estimate that each patient will require an average of five units (CytoSorb cartridges) for sepsis treatment and three units for cardiac treatment.
3. We conservatively assume that CytoSorb can achieve a ten percent market share of the market in Germany, Austria, and Switzerland, and 3% of the market in the rest of the EU by 2030.
4. Our model includes CytoSorb revenues in the U.S. for cardiac surgery and sepsis beginning in 2022 upon commercialization. To these revenues, we apply a 70% probability of success (or 30% risk cut).

**Exhibit 1. CytoSorb sepsis EU direct sales (Germany, Austria, and Switzerland)**

CytoSorb Direct Sales (Germany, Austria, Switzerland)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>EU population</b>	506,327,109	507,441,029	508,557,399	509,676,225	510,797,513	511,921,267	513,047,494	514,176,199	515,307,386	516,441,062	517,577,233	518,715,903	519,857,078
<b>Germany population</b>	81,202,563	81,632,936	82,065,591	82,500,539	82,937,791	83,377,362	83,819,262	84,263,504	84,710,100	85,159,064	85,610,407	86,064,142	86,520,282
<b>Austria population</b>	8,446,189	8,448,723	8,451,257	8,453,793	8,456,329	8,458,866	8,461,404	8,463,942	8,466,481	8,469,021	8,471,562	8,474,103	8,476,646
<b>Switzerland population</b>	8,098,152	8,115,158	8,132,200	8,149,277	8,166,391	8,183,540	8,200,726	8,217,947	8,235,205	8,252,499	8,269,829	8,287,196	8,304,599
Critical care population (Sepsis included)	498,509	500,804	503,110	505,428	507,759	510,101	512,455	514,822	517,200	519,591	521,994	524,410	526,838
Percent of patients with access to hospitals with CytoSorb	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
<b>Total patients</b>	<b>249,254.60</b>	<b>250,401.88</b>	<b>251,555.07</b>	<b>252,714.20</b>	<b>253,879.30</b>	<b>255,050.41</b>	<b>256,227.55</b>	<b>257,410.75</b>	<b>258,600.06</b>	<b>259,795.49</b>	<b>260,997.08</b>	<b>262,204.88</b>	<b>263,418.89</b>
Market penetration	1.2%	1.7%	1.8%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	7.5%	8.0%	8.0%	8.0%
Total addressable patients	2,991	4,257	4,528	5,054	7,616	10,202	12,811	14,158	15,516	16,887	18,270	19,665	21,074
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	14,955	21,284	22,640	25,271	38,082	51,010	64,057	70,788	77,580	84,434	91,349	98,327	105,368
Cost of therapy	\$ 1,030	\$ 1,041	\$ 1,051	\$ 1,062	\$ 1,072	\$ 1,083	\$ 1,094	\$ 1,105	\$ 1,116	\$ 1,127	\$ 1,138	\$ 1,149	\$ 1,161
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Revenue ('000)</b>	<b>\$ 15,408</b>	<b>\$ 22,148</b>	<b>\$ 23,795</b>	<b>\$ 26,826</b>	<b>\$ 40,829</b>	<b>\$ 55,237</b>	<b>\$ 70,058</b>	<b>\$ 78,194</b>	<b>\$ 86,554</b>	<b>\$ 95,142</b>	<b>\$ 103,964</b>	<b>\$ 113,024</b>	<b>\$ 122,328</b>
Risk factor													
<b>Total revenue ('000)</b>	<b>\$ 15,408</b>	<b>\$ 22,148</b>	<b>\$ 23,795</b>	<b>\$ 26,826</b>	<b>\$ 40,829</b>	<b>\$ 55,237</b>	<b>\$ 70,058</b>	<b>\$ 78,194</b>	<b>\$ 86,554</b>	<b>\$ 95,142</b>	<b>\$ 103,964</b>	<b>\$ 113,024</b>	<b>\$ 122,328</b>

Source: Dawson James estimates

**Exhibit 2. CytoSorb sepsis EU sales by distributorship (excluding Germany, Austria, and Switzerland)**

CytoSorb Direct Sales (Germany, Austria, Switzerland)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>EU population</b>	506,327,109	507,441,029	508,557,399	509,676,225	510,797,513	511,921,267	513,047,494	514,176,199	515,307,386	516,441,062	517,577,233	518,715,903	519,857,078
<b>Germany population</b>	81,202,563	81,632,936	82,065,591	82,500,539	82,937,791	83,377,362	83,819,262	84,263,504	84,710,100	85,159,064	85,610,407	86,064,142	86,520,282
<b>Austria population</b>	8,446,189	8,448,723	8,451,257	8,453,793	8,456,329	8,458,866	8,461,404	8,463,942	8,466,481	8,469,021	8,471,562	8,474,103	8,476,646
<b>Switzerland population</b>	8,098,152	8,115,158	8,132,200	8,149,277	8,166,391	8,183,540	8,200,726	8,217,947	8,235,205	8,252,499	8,269,829	8,287,196	8,304,599
Critical care population (Sepsis included)	498,509	500,804	503,110	505,428	507,759	510,101	512,455	514,822	517,200	519,591	521,994	524,410	526,838
Percent of patients with access to hospitals with CytoSorb	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
<b>Total patients</b>	<b>249,254.60</b>	<b>250,401.88</b>	<b>251,555.07</b>	<b>252,714.20</b>	<b>253,879.30</b>	<b>255,050.41</b>	<b>256,227.55</b>	<b>257,410.75</b>	<b>258,600.06</b>	<b>259,795.49</b>	<b>260,997.08</b>	<b>262,204.88</b>	<b>263,418.89</b>
Market penetration	1.2%	1.7%	1.8%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	7.5%	8.0%	8.0%	8.0%
Total addressable patients	2,991	4,257	4,528	5,054	7,616	10,202	12,811	14,158	15,516	16,887	18,270	19,665	21,074
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	14,955	21,284	22,640	25,271	38,082	51,010	64,057	70,788	77,580	84,434	91,349	98,327	105,368
Cost of therapy	\$ 1,030	\$ 1,041	\$ 1,051	\$ 1,062	\$ 1,072	\$ 1,083	\$ 1,094	\$ 1,105	\$ 1,116	\$ 1,127	\$ 1,138	\$ 1,149	\$ 1,161
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Revenue ('000)</b>	<b>\$ 15,408</b>	<b>\$ 22,148</b>	<b>\$ 23,795</b>	<b>\$ 26,826</b>	<b>\$ 40,829</b>	<b>\$ 55,237</b>	<b>\$ 70,058</b>	<b>\$ 78,194</b>	<b>\$ 86,554</b>	<b>\$ 95,142</b>	<b>\$ 103,964</b>	<b>\$ 113,024</b>	<b>\$ 122,328</b>
Risk factor													
<b>Total revenue ('000)</b>	<b>\$ 15,408</b>	<b>\$ 22,148</b>	<b>\$ 23,795</b>	<b>\$ 26,826</b>	<b>\$ 40,829</b>	<b>\$ 55,237</b>	<b>\$ 70,058</b>	<b>\$ 78,194</b>	<b>\$ 86,554</b>	<b>\$ 95,142</b>	<b>\$ 103,964</b>	<b>\$ 113,024</b>	<b>\$ 122,328</b>

Source: Dawson James estimates

**Exhibit 3. CytoSorb U.S. sales for cardiac surgery**

CytoSorb Cardiac Surgery US	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>US population</b>	327,296,502	329,587,577	331,894,690	334,217,953	336,557,479	338,913,381	341,285,775	343,674,775	346,080,499	348,503,062	350,942,583	353,399,182	355,872,976
Cardiac surgery	1,009,027	1,012,054	1,015,090	1,018,136	1,021,190	1,024,254	1,027,326	1,030,408	1,033,499	1,036,600	1,039,710	1,042,829	1,045,957
Market penetration	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total addressable patients	-	-	-	-	-	3,073	4,109	5,152	6,202	7,259	8,327	9,405	10,493
Estimated units per patient	-	-	-	3	3	3	3	3	3	3	3	3	3
Total filter needed	-	-	-	9,218	12,329	15,456	18,624	21,807	25,005	28,227	31,474	34,755	38,070
Cost of therapy	\$ 2,500	\$ 2,513	\$ 2,525	\$ 2,537	\$ 2,549	\$ 2,561	\$ 2,573	\$ 2,585	\$ 2,597	\$ 2,609	\$ 2,621	\$ 2,633	\$ 2,645
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Revenue ('000)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 23,277</b>	<b>\$ 31,284</b>	<b>\$ 39,419</b>	<b>\$ 47,684</b>	<b>\$ 56,079</b>	<b>\$ 64,614</b>	<b>\$ 73,291</b>	<b>\$ 82,119</b>	<b>\$ 91,107</b>	<b>\$ 100,255</b>
Risk factor				30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
<b>Total revenue ('000)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 16,294</b>	<b>\$ 21,899</b>	<b>\$ 27,593</b>	<b>\$ 33,384</b>	<b>\$ 39,271</b>	<b>\$ 45,254</b>	<b>\$ 51,335</b>	<b>\$ 57,516</b>	<b>\$ 63,797</b>	<b>\$ 70,178</b>

Source: Dawson James estimates

**Exhibit 4. CytoSorb EU sales for cardiac surgery**

CytoSorb Cardiac Surgery EU	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>Cardiac surgery</b>	1,509,018	1,512,036	1,515,060	1,518,090	1,521,126	1,524,169	1,527,217	1,530,271	1,533,322	1,536,399	1,539,471	1,542,550	1,545,635
Market penetration	0.0%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Total addressable patients	1,358	1,512	2,273	4,554	6,085	7,621	9,163	10,712	12,267	13,836	15,419	17,020	18,640
Estimated units per patient	3	3	3	3	3	3	3	3	3	3	3	3	3
Total filter needed	4,074	4,536	6,818	13,663	18,254	22,863	27,490	32,136	36,801	41,487	46,194	50,922	55,670
Cost of therapy	\$ 500	\$ 500	\$ 500	\$ 503	\$ 505	\$ 508	\$ 510	\$ 513	\$ 515	\$ 518	\$ 520	\$ 523	\$ 526
Change in price	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Revenue ('000)</b>	<b>\$ 2,037</b>	<b>\$ 2,268</b>	<b>\$ 3,409</b>	<b>\$ 6,866</b>	<b>\$ 9,218</b>	<b>\$ 11,604</b>	<b>\$ 14,022</b>	<b>\$ 16,474</b>	<b>\$ 18,959</b>	<b>\$ 21,479</b>	<b>\$ 24,034</b>	<b>\$ 26,625</b>	<b>\$ 29,251</b>
Risk factor													
<b>Total revenue ('000)</b>	<b>\$ 2,037</b>	<b>\$ 2,268</b>	<b>\$ 3,409</b>	<b>\$ 6,866</b>	<b>\$ 9,218</b>	<b>\$ 11,604</b>	<b>\$ 14,022</b>	<b>\$ 16,474</b>	<b>\$ 18,959</b>	<b>\$ 21,479</b>	<b>\$ 24,034</b>	<b>\$ 26,625</b>	<b>\$ 29,251</b>

Source: Dawson James estimates

**Exhibit 5. CytoSorb U.S. sales for sepsis**

US population	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>Severe sepsis patients</b>	981,890	988,763	995,684	1,002,654	1,009,672	1,016,740	1,023,857	1,031,024	1,038,241	1,045,509	1,052,828	1,060,198	1,067,619
Market penetration	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Total addressable patients	1,003	2,019	5,084	10,239	20,478	40,956	81,912	163,824	327,648	655,296	1,310,592	2,621,184	5,242,368
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	5,013	10,097	25,419	51,193	102,386	204,771	409,542	819,084	1,638,168	3,276,336	6,552,672	13,105,344	26,210,688
Cost of therapy	\$ 2,500	\$ 2,525	\$ 2,550	\$ 2,575	\$ 2,600	\$ 2,625	\$ 2,650	\$ 2,675	\$ 2,700	\$ 2,725	\$ 2,750	\$ 2,775	\$ 2,800
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Revenue ('000)</b>	<b>\$ 12,533</b>	<b>\$ 25,494</b>	<b>\$ 64,824</b>	<b>\$ 131,860</b>									

**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 select a more aggressive 15%, we arrive at a \$26.00 target. If we select a mid-point (22.5%), we derive a \$17.00 target. Given the company's unique position with approval in Europe, established proof of concept, and a product that works, we select the mid-point of 22.5% and set our target for CytoSorbents at \$15.00.

### Exhibit 6. FCFF Model

Average \$	15
Price Target \$	15
Year	2020

#### DCF Valuation Using FCF (min):

units ('000)	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	(17,830)	(20,358)	(13,926)	9,301	32,034	83,013	147,875	252,067	315,248	356,152	386,456	405,408	401,536
Tax Rate	0%	5%	8%	10%	12%	15%	18%	21%	24%	28%	33%	33%	33%
EBIT (1-t)	(17,830)	(19,340)	(12,812)	8,371	28,190	70,561	121,257	199,133	239,589	256,429	258,926	271,623	269,029
CapEx	(493)	(698)	(768)	(845)	(929)	(1,022)	(1,124)	(1,237)	(1,361)	(1,497)	(1,646)	(1,811)	(1,992)
Depreciation	391	582	-	-	-	-	-	-	-	-	-	-	-
Change in NWC	-	-	-	-	-	-	-	-	-	-	-	-	-
FCF	(17,932)	(19,457)	(13,580)	7,526	27,261	69,539	120,133	197,896	238,228	254,933	257,279	269,812	267,037
PV of FCF	(26,910)	(23,834)	(13,580)	6,144	18,166	37,828	53,348	71,739	70,498	61,585	50,736	43,435	35,092
Discount Rate	22.5%												
Long Term Growth Rate	1%												
Terminal Cash Flow	1,254,453												
Terminal Value YE2030	164,852												
NPV	599,843												
NPV-Debt	40,901												
Shares out ('000)	2030E												
NPV Per Share	15												

Source: Dawson James estimates

### Exhibit 7. Discounted EPS Model

Current Year	2020
Year of EPS	2030
Earnings Multiple	15
Discount Factor	22.5%
Selected Year EPS	6.58
NPV	12.97

Source: Dawson James estimates

Discount Rate and Earnings Multiple Varies, Year is Constant							
	12.97	5%	10%	15%	20%	25%	30%
Earnings Multiple	0	0.00	0.00	0.00	0.00	0.00	0.00
	5	20.19	12.68	8.13	5.31	3.53	2.39
	10	40.38	25.36	16.26	10.62	7.06	4.77
	15	60.57	38.04	24.39	15.93	10.59	7.16
	20	80.76	50.72	32.52	21.25	14.13	9.54
	25	100.95	63.40	40.65	26.56	17.66	11.93
	30	121.14	76.08	48.78	31.87	21.19	14.31
	35	141.33	88.76	56.91	37.18	24.72	16.70

Source: Dawson James estimates

### Exhibit 8. Sum of the Parts Model

CytoSorbents	LT Gr	Discount Rate	Yrs to Mkt	% Success	Peak Sales (MMs)	Term Val
<b>CytoSorb - Sepsis Direct Sales (EU)</b>	1%	22.5%	0	70%	\$151	\$701
NPV						\$7
<b>CytoSorb - Sepsis Distributor (EU)</b>	1%	22.5%	0	70%	\$88	\$408
NPV						\$4
<b>CytoSorb (Cardiac surgery US)</b>	1%	22.5%	2	50%	\$68	\$318
NPV						\$1.42
<b>CytoSorb (Cardiac surgery EU)</b>	1%	22.5%	0	70%	\$17	\$79
NPV						\$0.7
<b>CytoSorb (Sepsis US)</b>	1%	22.5%	4	50%	\$271	\$1,262
NPV						\$3.8
Net Margin						55%
MM Shrs OS (2030E)						41
<b>Total</b>						<b>\$16</b>

Source: Dawson James estimates

## Risk Analysis

**Market Share Risk:** CytoSorbents' potential inability to further grow product sales in the EU will hinder its profitability as more capital is invested in clinical trials to bring CytoSorb to the U.S. market. The Company's product represents a new treatment for critical care patients that may take longer for adoption than predicted.

**Regulatory Risk:** There may be certain regulatory risks related to CytoSorb approval in the U.S.

**Commercial Risk:** There is no guarantee that the Company will be able to develop and expand sales operations to offset research and development costs. Delays in U.S. commercialization will be negatively reflected in its valuation.

**Financial Risk:** The Company should be expected to raise capital in the near term. We assume a raise and dilution, but there is no guarantee that market conditions will be favorable.

**Exhibit 9. Income Statement**

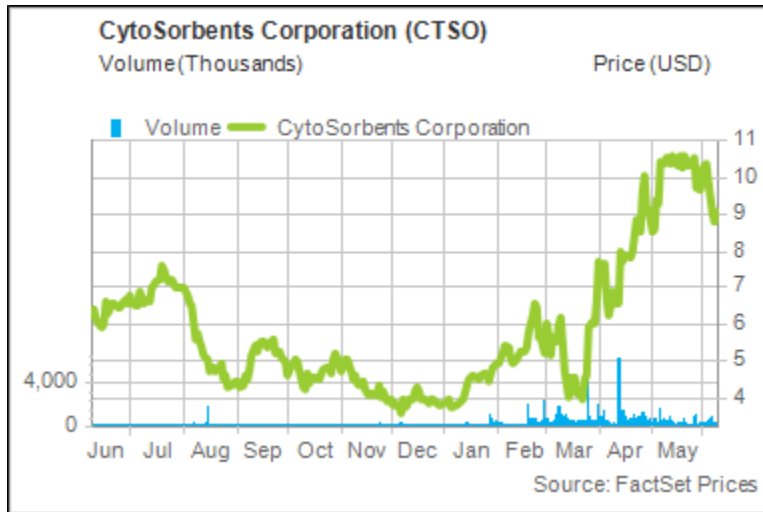
CTSO.: Income Statement (\$000)																
YE December 31	1Q19A	2Q19A	3Q19A	4Q19A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>Revenue:</b>																
CytoSorb Direct Sales (Germany, Austria, Switzerland)	4,576	5,850	5,728	6,612	22,766	21,500	40,239	54,439	69,046	84,070	99,520	115,405	131,735	148,520	150,699	150,699
CytoSorb Distributor (Rest of EU)	-	-	-	-	-	9,602	13,336	21,587	27,297	41,422	55,871	70,651	85,766	86,763	87,771	87,771
CytoSorb (Cardiac surgery EU)	-	-	-	-	-	3,000	6,866	9,218	11,604	14,022	16,474	16,589	16,705	16,822	16,940	16,940
CytoSorb (Cardiac surgery US)	-	-	-	-	-	-	-	-	16,294	21,899	27,593	66,755	67,290	67,829	68,373	68,373
CytoSorb (sepsis US)	-	-	-	-	-	-	8,773	17,846	45,376	92,302	187,755	200,508	223,353	246,919	271,225	271,225
VetResQ	-	-	-	-	-	150	158	165	174	182	191	-	-	-	-	-
Other Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Product Sales</b>	<b>4,576</b>	<b>5,850</b>	<b>5,728</b>	<b>6,612</b>	<b>22,766</b>	<b>34,252</b>	<b>69,372</b>	<b>103,255</b>	<b>169,790</b>	<b>253,897</b>	<b>387,404</b>	<b>469,908</b>	<b>524,849</b>	<b>566,853</b>	<b>595,008</b>	<b>595,008</b>
Royalty (HemoDefend US)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grant revenue	615	382	367	820	2,184	551	-	-	-	-	-	-	-	-	-	-
Other revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Revenue</b>	<b>5,191</b>	<b>6,232</b>	<b>6,095</b>	<b>7,432</b>	<b>24,950</b>	<b>34,803</b>	<b>69,372</b>	<b>103,255</b>	<b>169,790</b>	<b>253,897</b>	<b>387,404</b>	<b>469,908</b>	<b>524,849</b>	<b>566,853</b>	<b>595,008</b>	<b>595,008</b>
<b>Expenses:</b>																
Costs of Goods Sold	1,738	1,834	1,696	2,096	7,364	7,660	13,874	20,651	33,958	50,779	77,481	93,982	104,970	113,371	119,002	119,002
	<b>%COGS</b>	<b>38%</b>	<b>29%</b>	<b>25%</b>	<b>25%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>
Research and Development	2,418	2,930	3,185	3,559	12,092	13,301	14,631	16,094	17,704	19,474	21,422	23,564	25,920	28,512	31,364	34,500
	<b>%R&amp;D</b>	<b>53%</b>	<b>50%</b>	<b>56%</b>	<b>53%</b>	<b>39%</b>	<b>21%</b>	<b>16%</b>	<b>10%</b>	<b>8%</b>	<b>6%</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>	<b>6%</b>
Selling, General and Administrative	4,758	4,506	6,108	6,634	22,006	25,307	29,103	32,013	32,653	33,307	33,973	34,652	35,345	36,052	36,773	37,509
	<b>%SG&amp;A</b>	<b>104%</b>	<b>77%</b>	<b>107%</b>	<b>97%</b>	<b>74%</b>	<b>42%</b>	<b>31%</b>	<b>19%</b>	<b>13%</b>	<b>9%</b>	<b>7%</b>	<b>7%</b>	<b>6%</b>	<b>6%</b>	<b>6%</b>
Legal, financial and other counseling	561	592	733	576	2,462	2,462	2,462	2,462	2,462	2,462	2,462	2,462	2,462	2,462	2,462	2,462
<b>Total Expenses</b>	<b>9,475</b>	<b>9,862</b>	<b>11,723</b>	<b>12,864</b>	<b>43,924</b>	<b>48,730</b>	<b>60,071</b>	<b>71,221</b>	<b>86,777</b>	<b>106,022</b>	<b>135,337</b>	<b>154,660</b>	<b>168,697</b>	<b>180,397</b>	<b>189,600</b>	<b>193,472</b>
Operating Income (Loss)	(4,284)	(3,630)	(5,628)	(5,432)	(18,974)	(13,926)	9,301	32,034	83,013	147,875	252,067	315,248	356,152	386,456	405,408	401,536
Interest income (expense), net	(205)	(214)	(302)	(332)	(1,384)	-	-	-	-	-	-	-	-	-	-	-
Gain (loss) on foreign currency transactions	(393)	297	(956)	(332)	(1,384)	-	-	-	-	-	-	-	-	-	-	-
Change in warrant liability	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other income (expense), net	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Other Income</b>	<b>(598)</b>	<b>83</b>	<b>(1,258)</b>	<b>(332)</b>	<b>(1,384)</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>(4,882)</b>	<b>(3,547)</b>	<b>(6,886)</b>	<b>(5,764)</b>	<b>(20,358)</b>	<b>(13,926)</b>	<b>9,301</b>	<b>32,034</b>	<b>83,013</b>	<b>147,875</b>	<b>252,067</b>	<b>315,248</b>	<b>356,152</b>	<b>386,456</b>	<b>405,408</b>	<b>401,536</b>
Income Tax Benefit (Provision)	-	-	-	1,092	1,092	(1,114)	930	3,844	12,452	26,617	52,934	75,660	99,723	127,531	133,784	132,507
<b>Tax Rate</b>	<b>0%</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>	<b>8%</b>	<b>10%</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>(4,882)</b>	<b>(3,547)</b>	<b>(6,886)</b>	<b>(4,672)</b>	<b>(19,266)</b>	<b>(12,812)</b>	<b>8,371</b>	<b>28,190</b>	<b>70,561</b>	<b>121,257</b>	<b>199,133</b>	<b>239,589</b>	<b>256,429</b>	<b>258,926</b>	<b>271,623</b>	<b>269,029</b>
<b>GAAP-EPS</b>	<b>(0.15)</b>	<b>(0.11)</b>	<b>(0.21)</b>	<b>(0.14)</b>	<b>(0.60)</b>	<b>(0.34)</b>	<b>0.21</b>	<b>0.71</b>	<b>1.77</b>	<b>3.04</b>	<b>4.97</b>	<b>5.95</b>	<b>6.35</b>	<b>6.38</b>	<b>6.67</b>	<b>6.58</b>
GAAP-EPS (Dil)	(0.15)	(0.11)	(0.21)	(0.14)	(0.60)	(0.34)	0.21	0.71	1.77	3.04	4.97	5.95	6.35	6.38	6.67	6.58
Wgtd Avg Shrs (Bas) - '000s	31,931	32,267	32,366	32,450	32,253	37,983	39,455	39,613	39,772	39,931	40,091	40,252	40,413	40,575	40,738	40,901
Wgtd Avg Shrs (Dil) - '000s	31,931	32,267	32,366	32,450	32,253	37,983	39,455	39,613	39,772	39,931	40,091	40,252	40,413	40,575	40,738	40,901

Source: Dawson James estimates and company reports

**Important Disclosures:**

Companies mentioned in this report include:

**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

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Ratings Distribution	Company Coverage		Investment Banking	
	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	23	85%	4	17%
Market Perform (Neutral)	4	15%	1	25%
Market Underperform (Sell)	0	0%	0	0%
Total	27	100%	5	19%

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