HELPING TO TREAT LIFE-THREATENING CONDITIONS IN THE ICU AND CARDIAC SURGERY AROUND THE WORLD

CytoSorbents™

WORKING TO SAVE LIVES

NASDAQ: CTSO

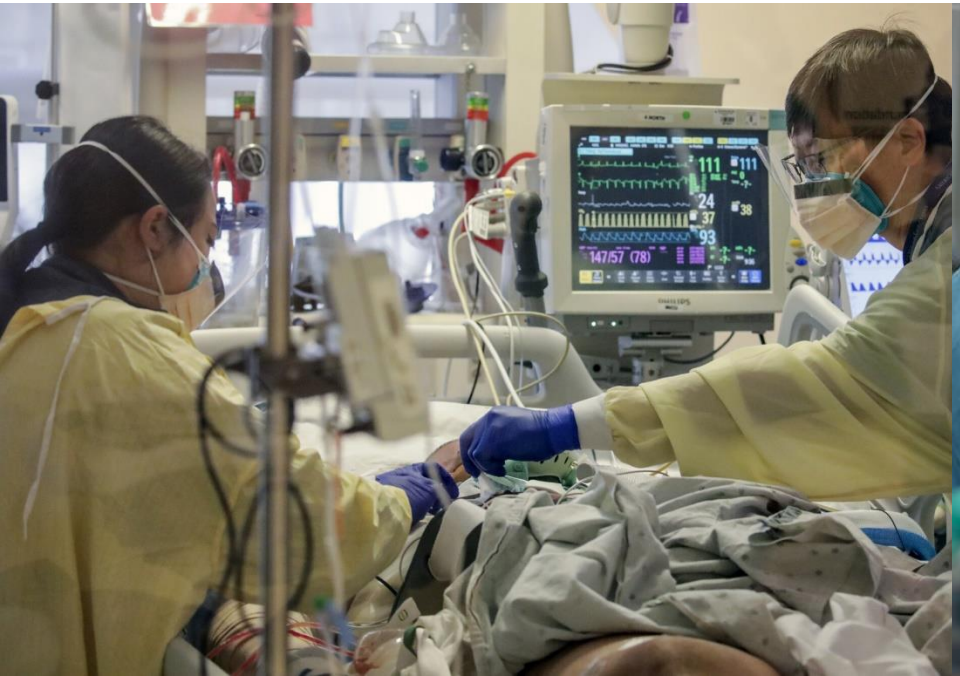
Jefferies Healthcare Conference
June 2023

Safe Harbor Statement

Statements in this presentation regarding CytoSorbents Corporation and its operating subsidiaries CytoSorbents Medical, Inc and CytoSorbents Europe GmbH that are not historical facts are forward-looking statements and are subject to risks and uncertainties that could cause actual future events or results to differ materially from such statements. Any such forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. It is routine for our internal projections and expectations to change. Although these expectations may change, we are under no obligation to inform you if they do. Actual events or results may differ materially from those contained in the projections or forward-looking statements. The following factors, among others, could cause our actual results to differ materially from those described in a forward-looking statement: our history of losses; potential fluctuations in our quarterly and annual results; competition, inability to achieve regulatory approval for our device, technology systems beyond our control and technology-related defects that could affect the companies' products or reputation; risks related to adverse business conditions; our dependence on key employees; competition for qualified personnel; the possible unavailability of financing as and if needed; and risks related to protecting our intellectual property rights or potential infringement of the intellectual property rights of third parties. This list is intended to identify only certain of the principal factors that could cause actual results to differ from those discussed in the forward-looking statements. Readers are referred to a discussion of important risk factors detailed in the Company's 2022 Form 10-K filed with the Securities and Exchange Commission on March 9, 2023, and other reports and documents filed from time to time by us, which are available online at www.sec.gov.

CytoSorbents

Leading the Prevention or Treatment of
Life-Threatening Inflammation
and other Deadly Conditions
in the ICU and Cardiac Surgery using
CytoSorb® Blood Purification



CytoSorbents At a Glance (NASDAQ: CTSO)

- U.S.-based international medical device company commercializing our E.U. approved CytoSorb® blood purification cartridge in 75 countries worldwide
  - $34.7M in 2022 total revenue
  - $29.4M in 2022 product sales, 70% product gross margins
  - $20.7M in cash (3/31/23)
  - 198 employees

- Celebrated 10 years of CytoSorb commercialization with >200,000 cumulative CytoSorb devices utilized (3/31/23)
  - Treating cytokine storm and massive uncontrolled inflammation (e.g. sepsis, ARDS)
  - Reducing other toxins such as bilirubin (liver disease), myoglobin (trauma)
  - Removing “blood thinners” or antithrombotic drugs during cardiac surgery that cause bleeding
- Partnered with leading multi-national corporations:

FRESENIUS MEDICAL CARE · B BRAUN SHARING EXPERTISE · TERUMO CARDIOVASCULAR · Biocon · NIKKISO

- Seeking U.S. FDA and Health Canada approval for DrugSorb-ATR, an equivalent polymer technology to CytoSorb, to reduce perioperative bleeding during cardiac surgery by removing a leading blood thinner, Brilinta®, under FDA Breakthrough Device Designation
  - Expect to complete our pivotal STAR-T RCT and have top-line data this year, with submission to FDA and Health Canada to follow. Targets a $650M TAM in the U.S. and Canada alone

Marketed Products and Product Pipeline

Internal development supplemented by strong government support with ~$48M in grants, contracts, other non-dilutive funds awarded to date for our technology from DARPA, NIH, NHLBI, U.S. Army, U.S. Air Force, HHS, and others

Sepsis, Critical Care, High Risk Surgery

CE

ECOS-300CY®

Ex Vivo Organ Perfusion For Transplant

CE

VETRESQ®

Critical Illnesses in Animals

Marketed

DrugSorb™ ATR — **Removal of Antithrombotic Drugs**

HemoDefend RBC — **Purification of pRBCs**

HemoDefend BGA — **Universal Plasma**

CytoSorb-XL — **Successor to CytoSorb**

K+ontrol — **Severe Hyperkalemia**

ContrastSorb — **CT Imaging and Interventional Radiology**

Under Development

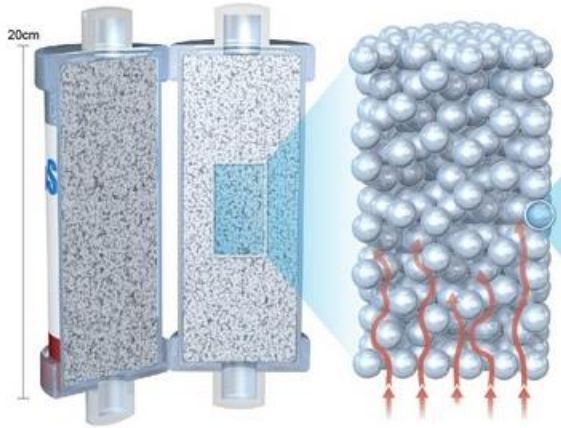
CytoSorbents™

What does CytoSorb do and How does it work??

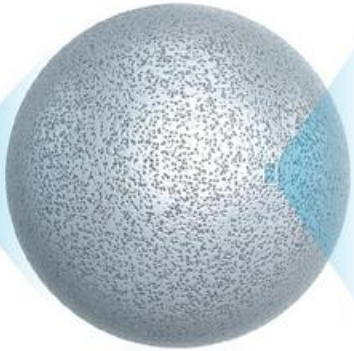
CytoSorbents™

The CytoSorb adsorber

The underlying blood purification technology is based on biocompatible, highly porous polymer beads that act like tiny sponges to remove harmful substances from blood

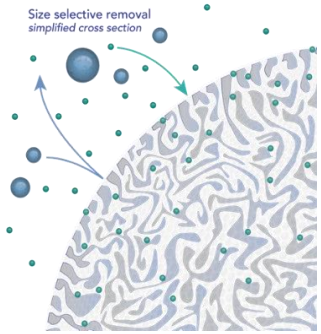


Section through an adsorber



Adsorber bead

Internal structure



- Massive surface area: 7 football fields in a single cartridge




- 19 issued U.S. patents and multiple patents issued and pending worldwide

- Manufactured at our ISO 13485 certified facility in New Jersey

CytoSorbents™

Expanding the Dimension of Blood Purification

CytoSorb is fundamentally different from, but complementary to, dialysis technology, removing a broad range of dissimilar toxins that dialysis does not remove well

CytoSorb works like the liver with some kidney function

Large Molecules and
Fat soluble substances

Cytokines
Inflammatory mediators
Bacterial toxins
Liver toxins
Proteins and peptides
Fat-soluble drugs

Dialysis works like the kidney

Small Molecules and
Water soluble substances

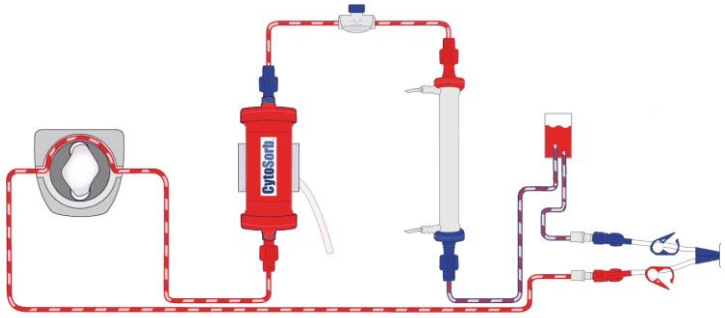
Urea, Ammonia
Electrolytes
Water
Water-soluble drugs

CytoSorbents™

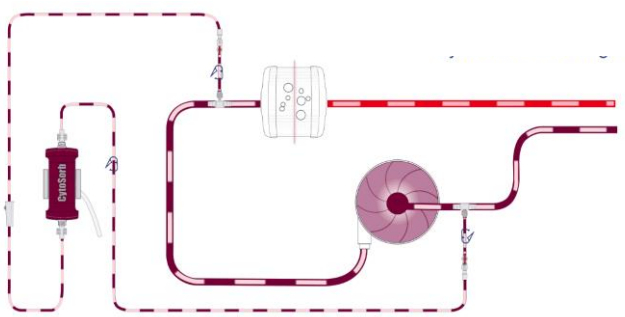
CytoSorb is “Plug and Play” Compatible

Compatible with Existing Blood Pump Infrastructure In Hospitals Today

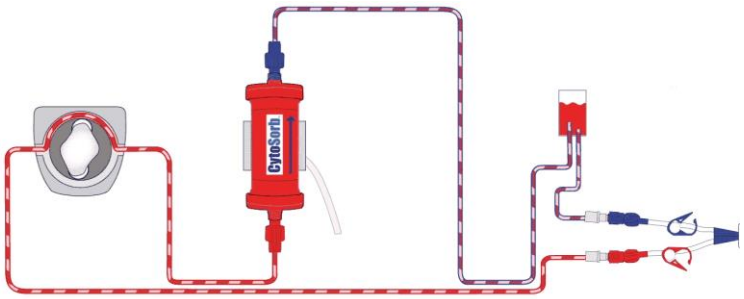
Dialysis or CRRT
(Continuous Renal Replacement Therapy)



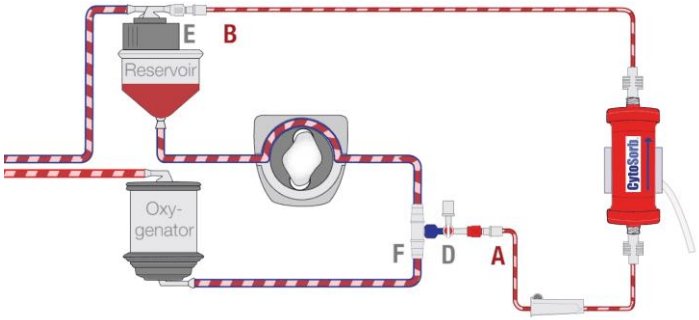
ECMO
(Extracorporeal Membrane Oxygenation)



Hemoperfusion
(Standalone Treatment)



CPB
(Cardiopulmonary Bypass)



CytoSorbents™

Targets Deadly Conditions That Afflict Millions of People

Critical Care

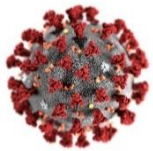
Removes the "fuel to the fire" of massive uncontrolled inflammation that is often associated with organ failure and death

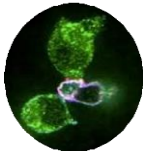

Sepsis

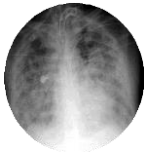

Surgical Complications

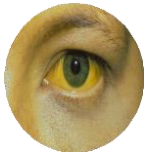

Influenza


Burn Injury


COVID-19


Cytokine Release Syndrome


Lung Injury


Liver Failure

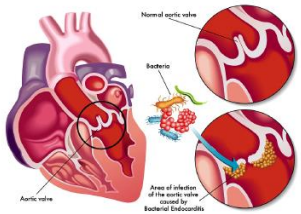

Trauma

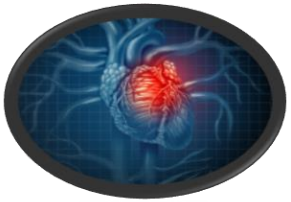

Pancreatitis

Cardiothoracic Surgery

Reduces inflammation and blood thinners, targeting reduction in complications of cardiac surgery like sepsis, bleeding, shock, and others

Life-threatening bleeding due to anti-thrombotic "blood thinners"

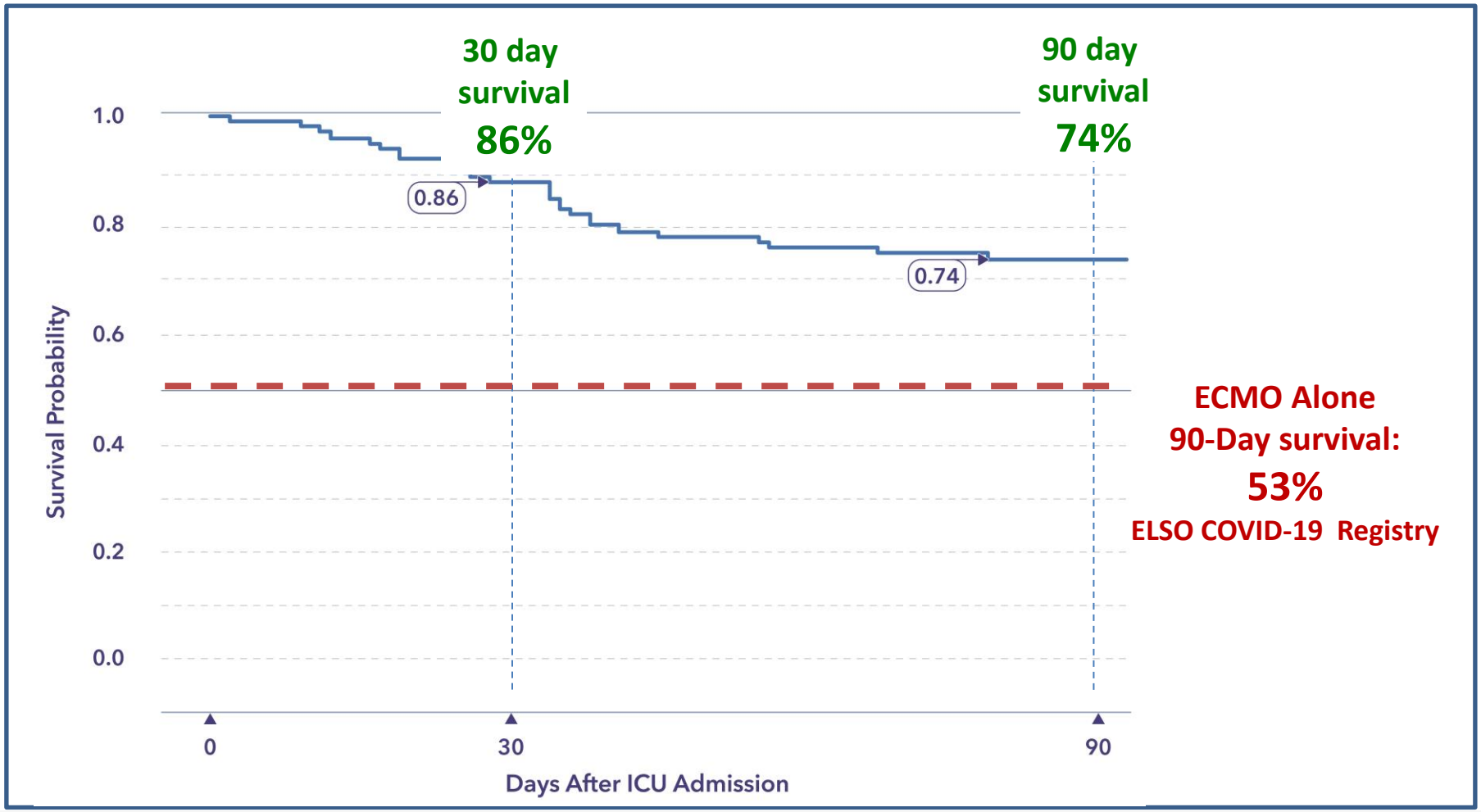

Infective Endocarditis


High Risk Procedures

CytoSorbents™

Example of how CytoSorb is Saving Lives Today

"Enhanced Lung Rest" with CytoSorb and ECMO under FDA EUA achieved 74% 90-day survival in 100 COVID patients with refractory lung failure from 5 major U.S. centers (CTC Registry)



* Hayanga JWA, et al., ESICM 2022, Paris France

CytoSorbents™

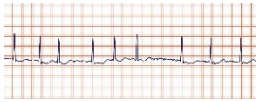
Riding Many Macro Trends in Healthcare

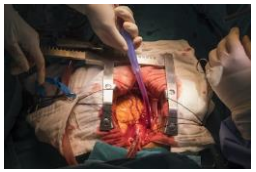
Aging Population is Getting Older

>1 billion
over 60

The Use of Blood Thinners

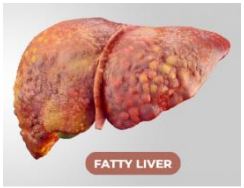
Millions worldwide are on blood thinners to reduce risk of stroke and heart attack

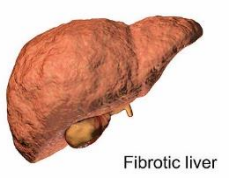


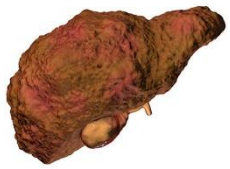


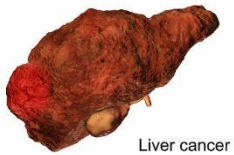
Chronic Liver Disease

Afflicts 1 in 11 worldwide

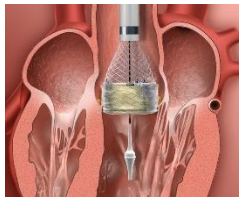


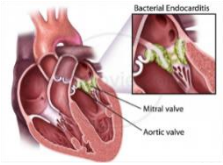






Endocarditis





CytoSorbents™

What is the Company's Business model and Financial performance?

CytoSorbents Has a Strong Hybrid Sales Model

75 Countries Worldwide and >200,000 devices utilized

Critical Care and Cardiac Surgery

Direct Sales ⟺ Distributor and Partner Sales

Direct sales in 15 countries:

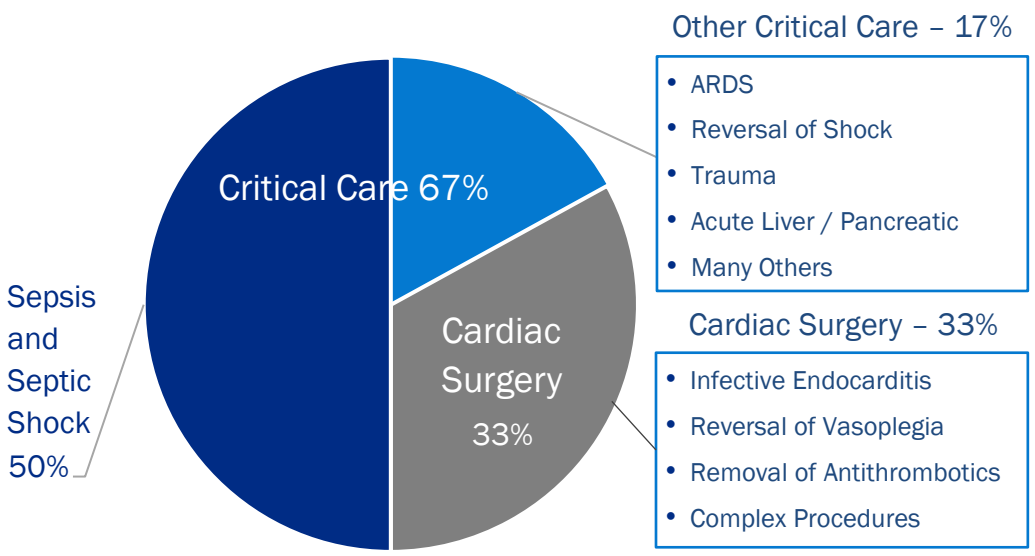
Germany, Austria, Switzerland, Belgium, Poland, Netherlands, Denmark, Norway, Sweden, Luxembourg, England, Wales, Scotland, Northern Ireland, Ireland

Distributor and Partner sales in >60 other countries

Entered U.S. under FDA EUA, expanded to Latin America, the Middle East, South Korea, and many others

CytoSorb Commercialization Focus

By Market



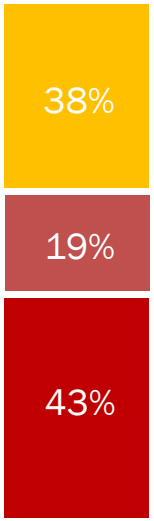
Other Critical Care – 17%

- ARDS
- Reversal of Shock
- Trauma
- Acute Liver / Pancreatic
- Many Others

Cardiac Surgery – 33%

- Infective Endocarditis
- Reversal of Vasoplegia
- Removal of Antithrombotics
- Complex Procedures

By Geography



Distributor / Partner

Other Direct

- Austria
- Switzerland
- 13 other countries

Germany – Direct

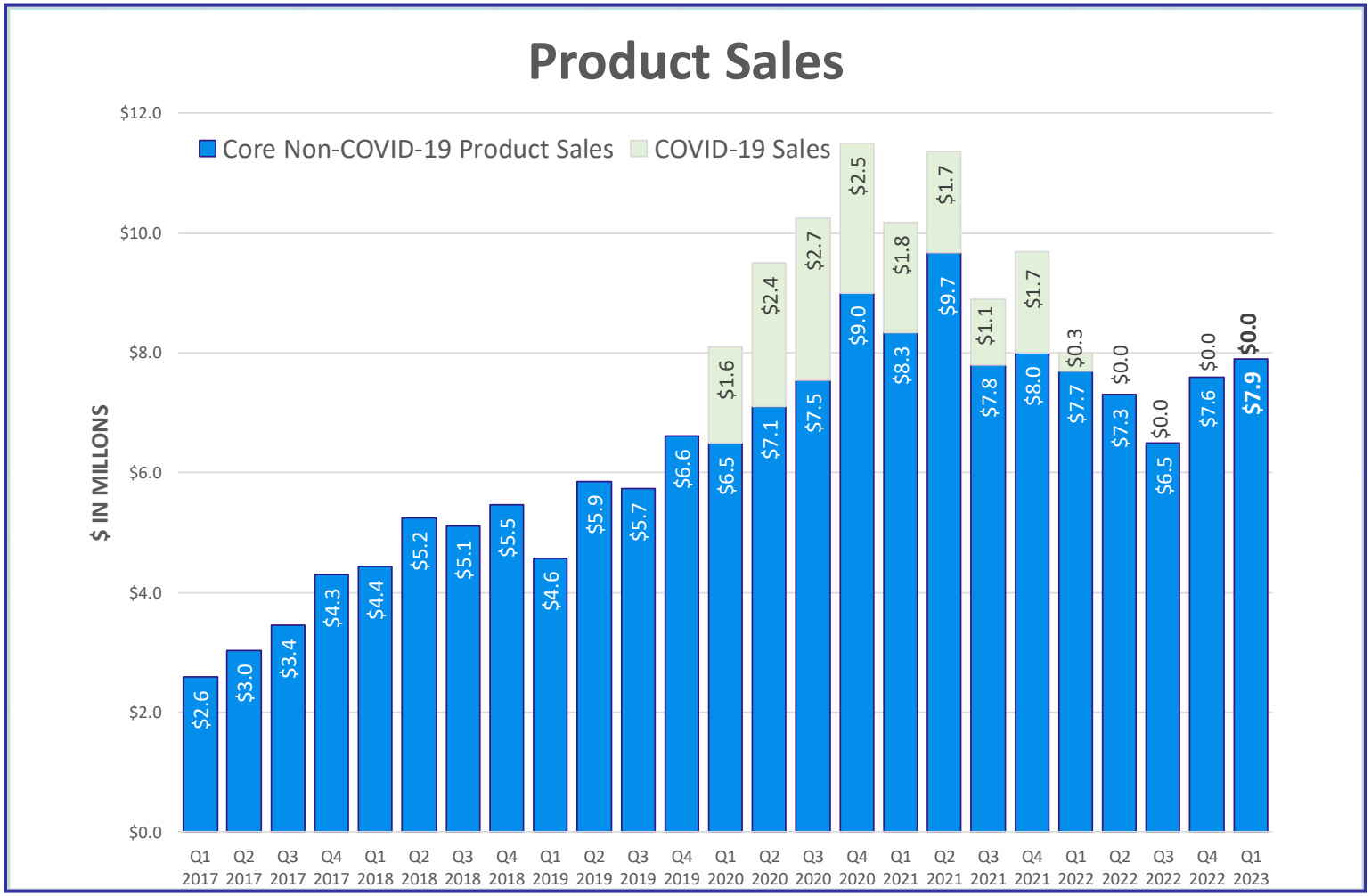
2022

CytoSorbents™

CytoSorb Is a High Margin "Razorblade"

- High margin "razorblade" fully compatible with existing installed base of "razor" blood pumps: Dialysis, CRRT, and ECMO machines (ICU), and heart-lung machines (OR)
- Blended historic gross margins are 80+%, driven by volume production from our current manufacturing facility and manufacturing efficiencies
- Average Direct Selling Price is approximately $1,000 per cartridge
- ~1 - 5 cartridges are typically used per patient depending on the course of treatment
  - Open heart surgery: 1-2 cartridges
  - Sepsis: 3-5 cartridges (or the cost of roughly 1 day in the ICU)
  - ARDS and ECMO: 5+ cartridges
- In Germany, 400 hospitals have >400 beds. Each hospital typically sees 300-600 sepsis patients per year. At 3-5 cartridges per patient:
  - Revenue per patient = ~$3,000-5,000
  - Potential revenue per hospital = $1-3M for sepsis alone
- Previously disclosed one German hospital with sales >$1M, broadly adopting the use of CytoSorb in critical care and cardiac surgery, validating revenue model. Other hospitals are tracking along same path, giving us visibility on future growth

Total Quarterly Product Sales



Quarter over quarter sales have been increasing over the past two quarters.

CytoSorbents™
WORKING TO SAVE LIVES

New Manufacturing Facility Now Fully Operational

- Relocated to new Princeton, NJ headquarters with our new ISO 13485-certified manufacturing facility that increases manufacturing capacity by 5x to $300-400M in annual sales
- CytoSorb and ECOS-300CY are currently being commercially manufactured on this line, while DrugSorb-ATR is expected to be added in the future
- Product gross margins have historically been ~80% but dropped in 2022 as we transitioned to the new facility. Product gross margins are expected to return to 75-80% this year as we drive volume production from the new facility

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What are the catalysts to create value?

1. Grow sales of CytoSorb

2. Get DrugSorb-ATR approved in U.S. and Canada – the second engine of growth

EU Approval to Remove Brilinta and Xarelto "Blood Thinners" During Cardiothoracic Surgery

CytoSorb has received E.U. approval to remove two well-known blockbuster "blood thinners" during cardiothoracic surgery, used in millions of patients to reduce risk of stroke and heart attacks. Last week, hemoadsorptive technologies were included in the European guidelines for this indication

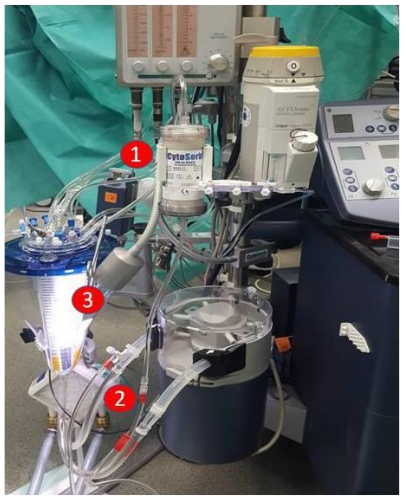
Brilinta® (generic ticagrelor, aka Brilique® - AstraZeneca) is a blockbuster $P2Y_{12}$ anti-platelet agent ("blood thinner") with more than $1.5 billion in 2021 global sales, used in patients with acute coronary syndrome

Xarelto® (rivaroxaban – Bayer, Jansenn/J&J) is a blockbuster Factor Xa inhibitor anticoagulant ("blood thinner") with ~$7.5 billion in 2021 global sales used as lifelong therapy in patients with atrial fibrillation

Problem: Patients that require emergent or urgent cardiothoracic surgery on these blood thinners can develop serious bleeding complications

CytoSorb installs easily into a heart-lung machine or cardiopulmonary bypass machine and as blood flows through the cartridge, removes these drugs rapidly during surgery and >90% from whole blood in CPB simulations to reverse their anticoagulant effect

We believe CytoSorb can quickly become a cost-effective standard of care to prevent bleeding due to antithrombotic drugs, helping to drive sales growth



Eur J Anaesthesiol 2023 April 1; 40(4):226-304

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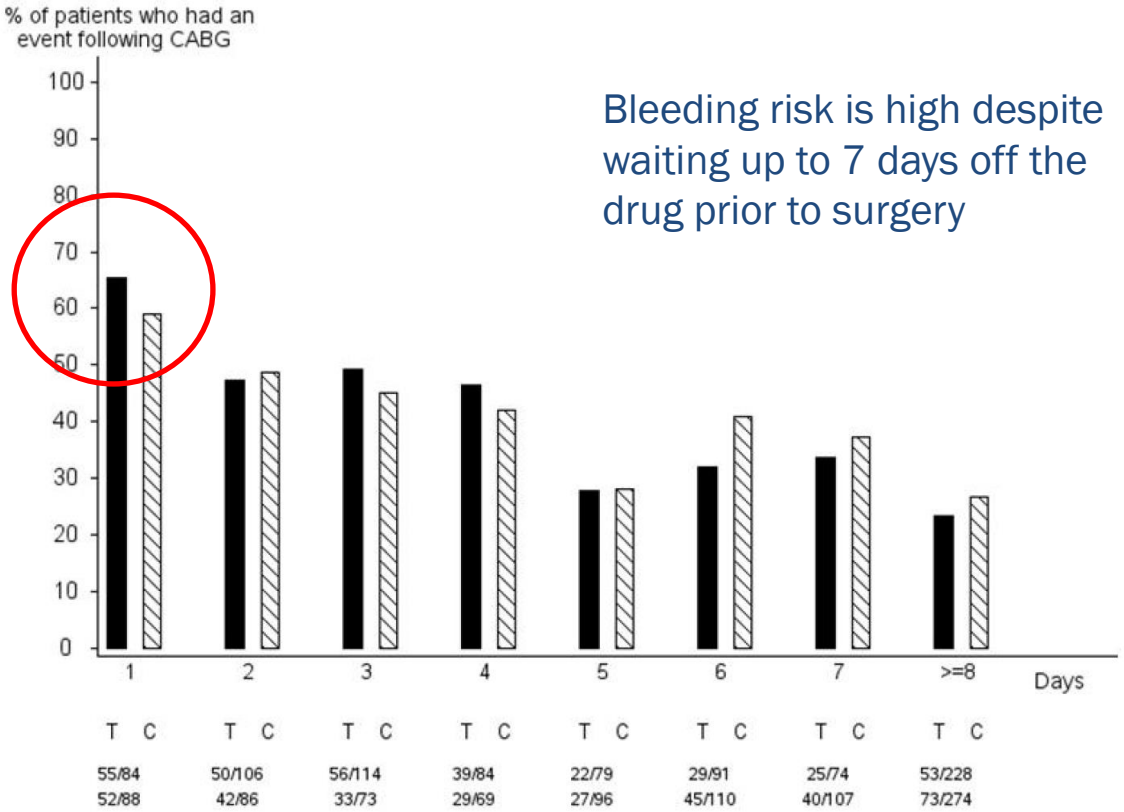
Risk of Bleeding Is High in CABG Patients on Brilinta

In the Brilinta (ticagrelor) registration PLATO (PLAeleT inhibition and patient Outcomes) trial, 1584 patients underwent CABG surgery, randomized between those who received either ticagrelor or clopidogrel. Those patients (%) with life-threatening bleeding are shown.

Figure 2 – 'Major fatal/life-threatening' CABG-related bleeding by days from last dose of study drug to CABG procedure (PLATO)



Bleeding risk is high despite waiting up to 7 days off the drug prior to surgery

PLATO Major bleed, fatal/life-threatening: any major bleed as described above and associated with a decrease in Hb of more than 5 g/dL (or a fall in hematocrit (Hct) of at least 15%); transfusion of 4 or more units.
Fatal: A bleeding event that directly led to death within 7 days.

* Astra Zeneca Prescribing Information for Ticagrelor
PLATO Trial: Wallentin, L. et al. Ticagrelor versus clopidogrel in patients with acute coronary syndromes, NEJM 2009 Sep 10; 361(11):1045-57.

CytoSorbents™

By Removing Drug, CytoSorb Reduces Bleeding Complications

55 patients

43 patients emergency surgery with ticagrelor			12 patients emergency surgery with rivaroxaban		
32 patients with intra-operative CytoSorb	11 patients control without CytoSorb		7 patients with intra-operative CytoSorb	5 patients control without CytoSorb	
CPB + CytoSorb (n=32)	CPB alone (n=11)		CPB + CytoSorb (n=7)	CPB alone (n=5)	
288 ± 63	353 ± 84	Procedure duration** (min; mean ± SD)	184 ± 97	309 ± 50	
21.9% (n=7)	45.5% (n=5)	Red blood cell transfusion	14.3% (n=1)	100% (n=5)	
34.4% (n=11)	100% (n=11)	Platelet transfusion	28.6% (n=2)	100% (n=5)	
350 [300 - 450]	890 [630 - 1025]	Chest tube drainage remove volume/24hrs (ml; median [IQR])	390 [310 - 430]	600 [590 - 1000]	
0% (n=0)	36.4% (n=4)	Re-thoracotomy	0% (n=0)	40% (n=2)	
2 [1 - 3]	3 [2 - 4]	Days in intensive care (median [IQR])	2 [2 - 3]	6 [5 - 6]	
11 [9 - 12]	14 [10 - 16]	Total length of stay (days; median [IQR])	11 [10 - 13]	18 [18 - 20]	

In a separate analysis done in the U.K., this has translated into a projected cost savings to the hospital of approximately $5,000 per patient, including the cost of CytoSorb

- Hassan K, et al. Ann Thor Surg. 2019; 1:45-51.
- Javanbakht, M, et al. Pharmacoecon Open. 2020 Jun; 4(2):307-319.

CytoSorbents™

Targeting U.S. & Canada Marketing Approval

DrugSorb™ ATR — Breakthrough Device Status

- We seek U.S. FDA and Health Canada marketing approval of DrugSorb™-ATR to remove the blood thinners, Brilinta®, and Xarelto® and Eliquis® ($16.7B in 2021 sales) during open heart surgery, to reduce potentially fatal bleeding complications
- We were awarded ***two*** FDA Breakthrough Device Designations for this application - a "fast track" path for devices addressing major unmet clinical needs
- We are actively enrolling the STAR-T (Safe and Timely Antithrombotic Removal – Ticagrelor) RCT designed to support U.S. FDA and Health Canada marketing approval of DrugSorb™-ATR
  - STAR-T targets the enrollment of 120 patients across 30 sites in the U.S. and Canada
  - The primary endpoint is a reduction in perioperative bleeding vs standard of care alone
  - STAR-T achieved second milestone of 80 patients enrolled in April 2023 with subsequent DSMB unblinded data analysis expected in the next several months
  - Expect to complete enrollment by Summer 2023 with U.S. FDA and Health Canada submission thereafter. STAR-D (for Xarelto and Eliquis removal) trial to follow STAR-T
  - Seek to establish DrugSorb-ATR as a "one-stop shop" for ATR removal in cardiac surgery

CytoSorbents™

United States TAM for Ticagrelor Removal

50,000 patients on ticagrelor needing emergent/urgent open heart surgery annually in US

X

$5,000 per device

$250M Initial U.S. Total Addressable Market

Ticagrelor market share expected to grow

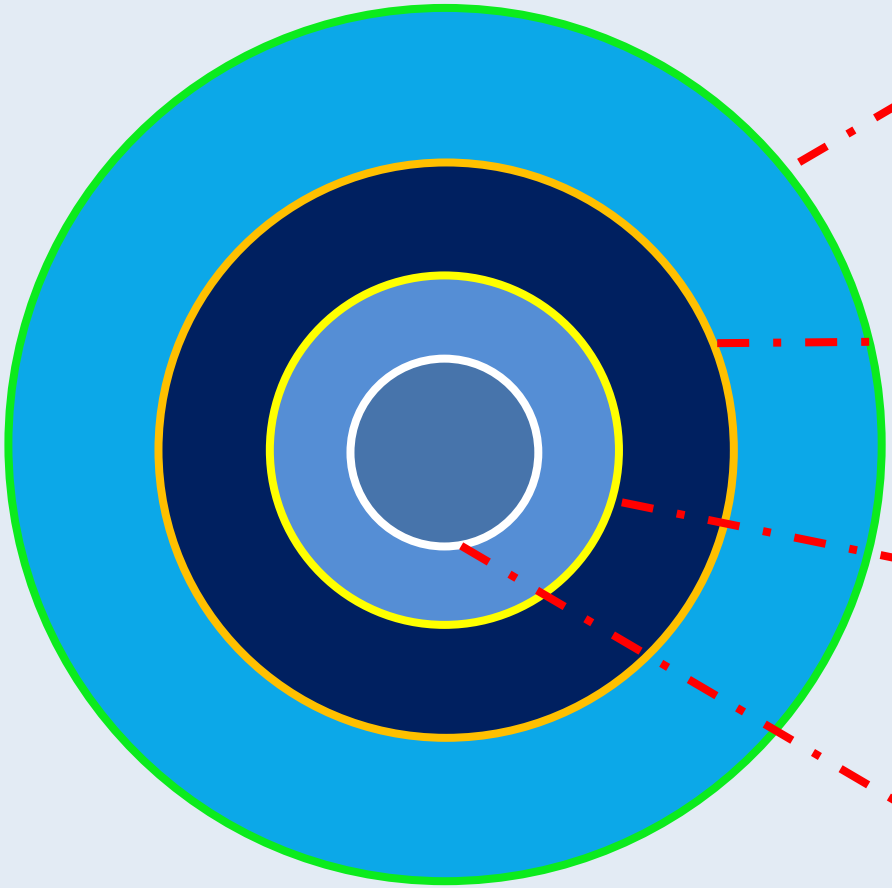
- DrugSorb-ATR would make ticagrelor the only reversible platelet inhibitor
- Ticagrelor goes off patent in 2024 leading to a likely drop in prices

$500M U.S. Total Addressable Market

* CytoSorb price assumption = $5,000 based on Javanbakht, M, et al. Pharmacoecon Open. 2020 Jun; 4(2):307-319. Pricing of the U.S. market has not yet been established

CytoSorbents™

Addressable U.S. Market For Current and Potential Future Indications for Antithrombotic Removal by DrugSorb-ATR



Eliquis®, Xarelto®
and Brilinta®
All surgery
$2.0B

Eliquis®, Xarelto®
and Brilinta®
Cardiac surgery
$1.0B

Brilinta®
Cardiac surgery
(Future)
$500M

Brilinta®
Cardiac surgery
(Today)
$250M

Today: CytoSorb Drives our Growth

- CytoSorb forms the Company's foundation
  - E.U. approved and sold around the world
  - Generated ~$200M in sales since launch
  - High margin razorblade business model with industry top-tier 80+% blended product gross margins
  - Strong validation by customers, partners, and government agencies
  - Current sales supports near-breakeven, less clinical trial costs, which we believe helps to de-risk the Company and the investment opportunity

We believe CytoSorb represents the fuel for future strong anticipated growth targeting the $20-30B worldwide TAM of major unmet medical needs in critical care, cardiac surgery, as well as liver and kidney disease

We believe this gives CytoSorbents the potential upside of a biotechnology company, with the lower risk profile of a high margin medical device company with sales

CytoSorbents™

Soon: CytoSorb & DrugSorb™ ATR = Dual Growth Engines

- We are racing to the finish of STAR-T, where we are rapidly nearing the completion of enrollment this summer, with top-line data in 2H 2023
- Should STAR-T be successful and DrugSorb-ATR achieves U.S. FDA and Health Canada regulatory approval, we intend to commercialize DrugSorb-ATR in both the U.S. and Canada – a potentially ***major second engine of growth***, working in tandem with CytoSorb to drive sales
- DrugSorb-ATR would open an expected U.S. and Canadian TAM of $600-650M for Brilinta® alone, where we expect significant penetration, given the major unmet need indicated by our FDA Breakthrough Designation
- If successful, this could transform CytoSorbents into a dual U.S. and international growth company that current and prospective institutional and retail shareholders, are excited about and have been waiting for, and that can create significant value.

HELPING TO TREAT LIFE-THREATENING CONDITIONS IN THE ICU AND CARDIAC SURGERY AROUND THE WORLD

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CytoSorbents™
WORKING TO SAVE LIVES

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