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

CytoSorbents™

WORKING TO SAVE LIVES

NASDAQ: CTSO

Investor Presentation

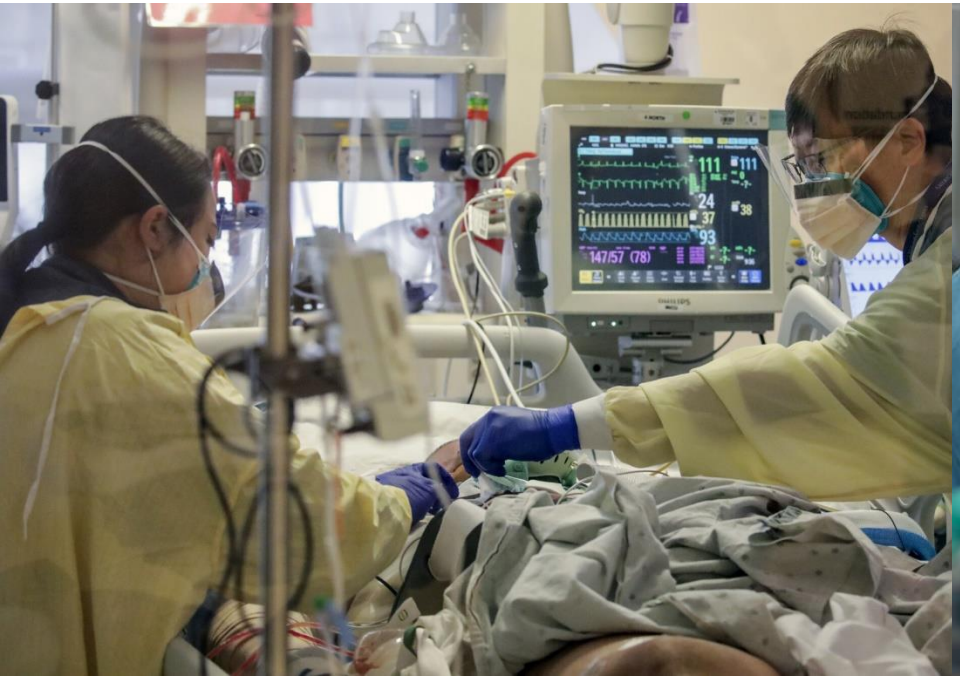
March 2024

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 14, 2024, 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
  - $36.3M in 2023 total revenue
  - $31.4M in 2023 product sales
  - 72% product gross margins

- More than 228,000 CytoSorb devices have been utilized cumulatively (12/31/23)
  - 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

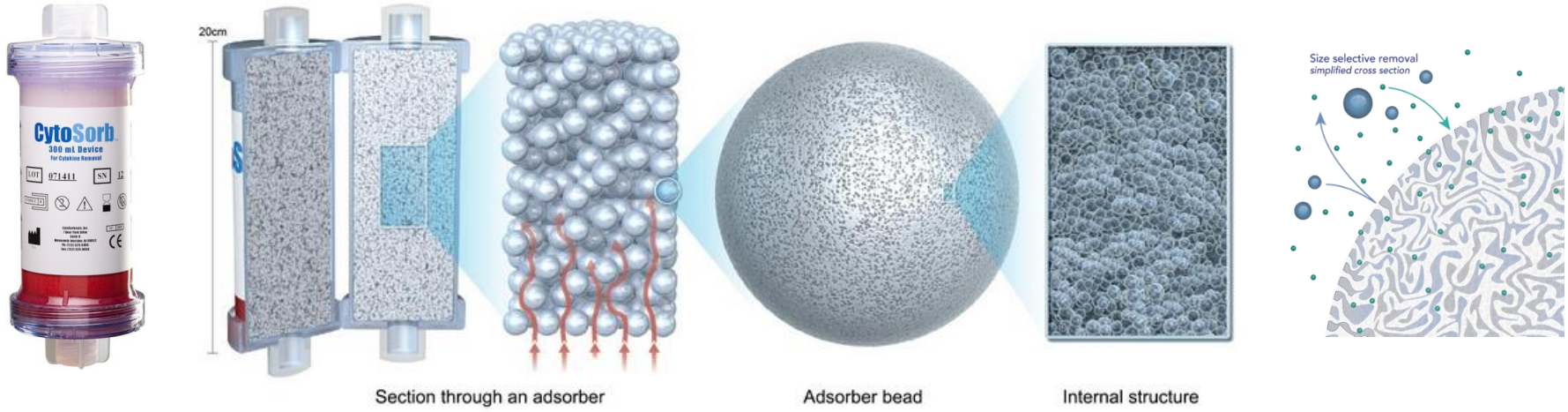
- Data from the completed pivotal U.S. and Canadian STAR-T RCT will be presented at AATS 2024 in April. This year, we plan to submit for U.S. FDA and Health Canada approval for DrugSorb-ATR, an equivalent polymer technology to CytoSorb, to reduce the severity of perioperative bleeding caused by a leading blood thinner, Brilinta®, in patients undergoing isolated CABG surgery. CytoSorb has previously received FDA Breakthrough Device Designation for this application.

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



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

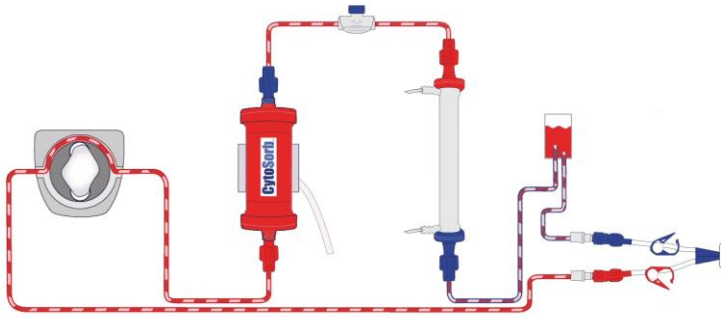
- 19 issued U.S. patents and multiple patents issued and pending worldwide
- Manufactured at our ISO 13485 certified facility in New Jersey

* Since inception

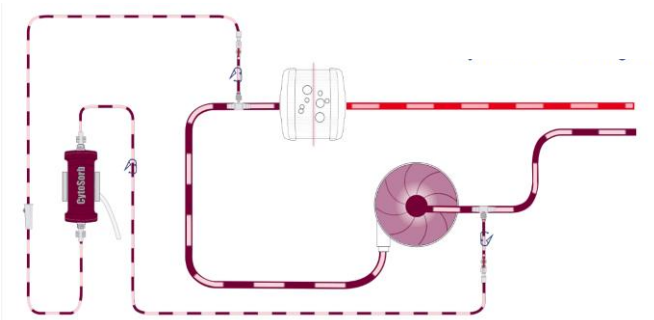
CytoSorb Is “Plug and Play” Compatible

Compatible with Existing Blood Pump Infrastructure In Hospitals Today

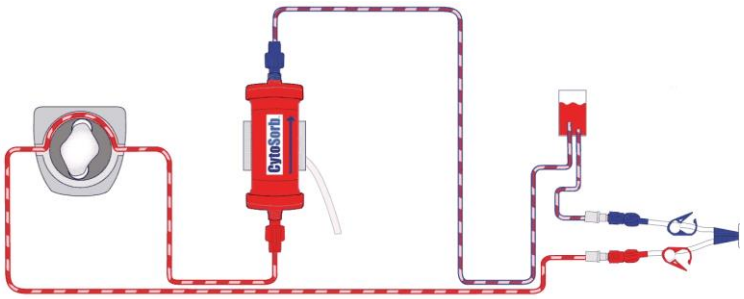
Dialysis or CRRT
(Continuous Renal Replacement Therapy)



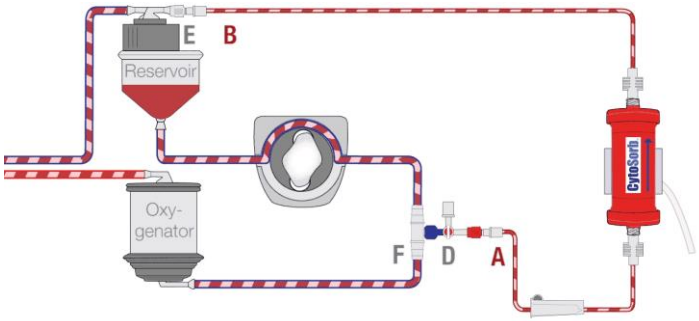
ECMO
(Extracorporeal Membrane Oxygenation)



Hemoperfusion
(Standalone Treatment)



CPB
(Cardiopulmonary Bypass)



CytoSorbents™

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

Targets Deadly Conditions That Afflict Millions of People

Critical Care

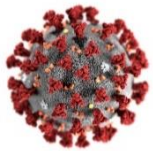
Removes the "fuel to the fire" of massive uncontrolled inflammation that is often associated with organ failure and death

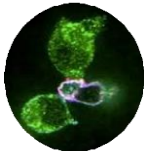

Sepsis

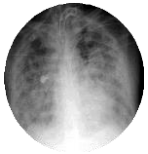

Surgical Complications

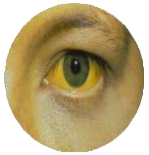

Influenza


Burn Injury


COVID-19


Cytokine Release Syndrome


Lung Injury


Liver Failure

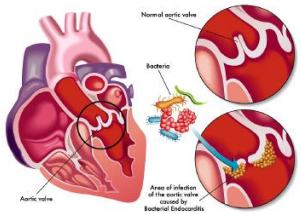

Trauma

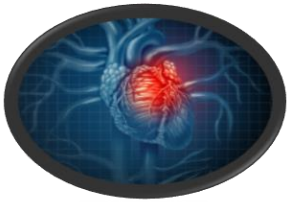

Pancreatitis

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

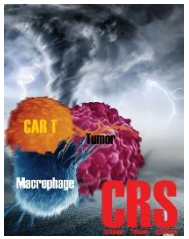

High Risk Procedures

CytoSorbents™

Riding Many Macro Trends in Healthcare

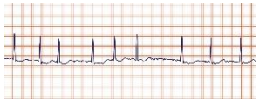
Aging Population is Getting Older

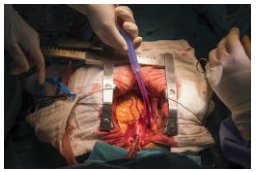
>1 billion
over 60



The Use of Blood Thinners

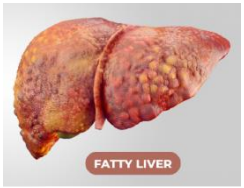
Millions worldwide are on blood thinners to reduce risk of stroke and heart attack

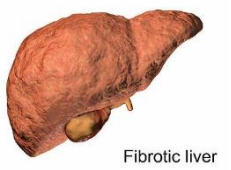


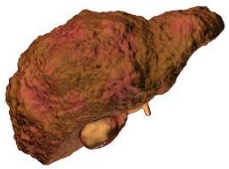


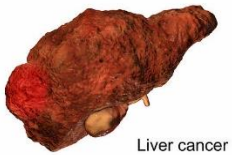
Chronic Liver Disease

Afflicts 1 in 5 worldwide

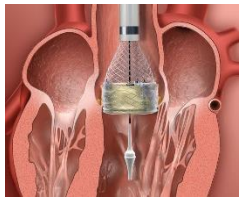


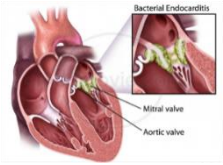






Endocarditis





CytoSorbents™

Marketed Products and Product Pipeline

Internal development supplemented by strong government support with ~$50M in grants, contracts, other non-dilutive funds awarded since 2003 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™

ECOS-300CY® in Ex Vivo Perfusion and Solid Organ Transplant

- Solid organ transplant is the main treatment option in advanced organ failure but is limited by the availability of suitable and healthy organs
- Ex vivo organ perfusion (EVOP) with temperature controlled, oxygenated, nutrient rich fluid or blood is being increasingly used as an alternative to transporting the organ on ice, to improve functioning of transplant organs and to salvage substandard ones that would otherwise be discarded.
- However, it does not directly control inflammation within the organ that is core to dysfunction
- ECOS-300CY is specifically E.U. approved to reduce inflammatory mediators during EVOP

PerLife® by Aferetica

Goals and cited benefits of ECOS-300CY in early data

- Reduces inflammatory mediators
- Helps to recondition poorly functioning organs that would normally be discarded, increasing the donor pool of organs
- Reduces rates of primary graft dysfunction, improving clinical outcomes

CytoSorbents™

VETRESQ® For Companion Animals

- The COVID pandemic has driven companion animal ownership, with 45% of U.S. households owning a dog, and 26% owning a cat, according to the American Veterinarian Medical Society

- Companion animals are prone to a wide variety of medical emergencies ranging from:
  - Drug intoxication
  - Heat Stroke
  - Infections such as leptospirosis
  - Sepsis and septic shock
  - Trauma
  - Others

- VetResQ brings the power of CytoSorb to veterinary medicine with three sizes of cartridges, intended to treat the full size range of companion animals

- In 2023, we had a limited, but successful launch of VetResQ to a number of regional veterinary centers and in 2024, we will debut our integrated all-in-one solution that includes a hemoperfusion pump for vets

CytoSorbents™

HemoDefend BGA The Promise of Universal Plasma

- HemoDefend-BGA was developed to create “universal plasma” – plasma that does not need blood-typing and can be given off the shelf to anyone in need regardless of blood type - by removing anti-A and anti-B antibodies that make plasma blood-type specific

Simplifies to

- Many applications of life-saving plasma include trauma resuscitation, treatment of critically ill patients, and component purification (e.g. clotting factors, albumin, IVIG)
- In the U.S. alone, >10,000 units of fresh frozen plasma are administered daily, or >3.6M units per year
- With more than $17M in funding from the U.S. Dept of Defense, CytoSorbents has successfully developed and demonstrated a prototype HemoDefend-BGA adsorber that removes anti-A and anti-B antibodies from human plasma, with the goal of having our off-the-shelf, one-size-fits-all blood-type independent “universal plasma” in every ambulance and emergency room around the world
- We have now recently met with FDA in preliminary discussions, with the goal of advancing HemoDefend-BGA to a human clinical trial and commercialization

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

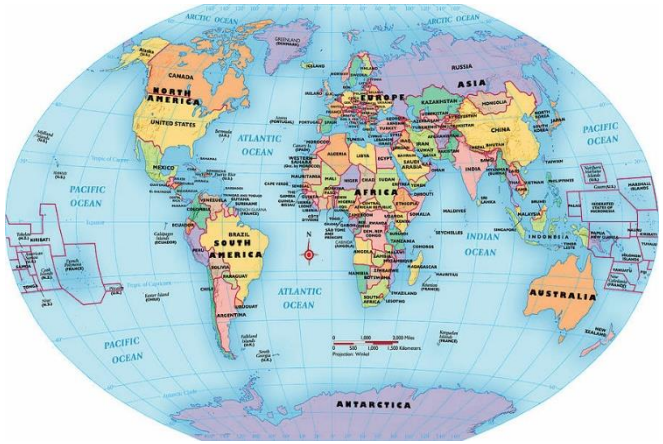
CytoSorbents™

CytoSorbents Has a Strong Hybrid Sales Model

75 Countries Worldwide and >228,000 devices utilized

Critical Care and Cardiac Surgery

Direct Sales ⟺ Distributor and Partner Sales



Direct sales in 15 countries:

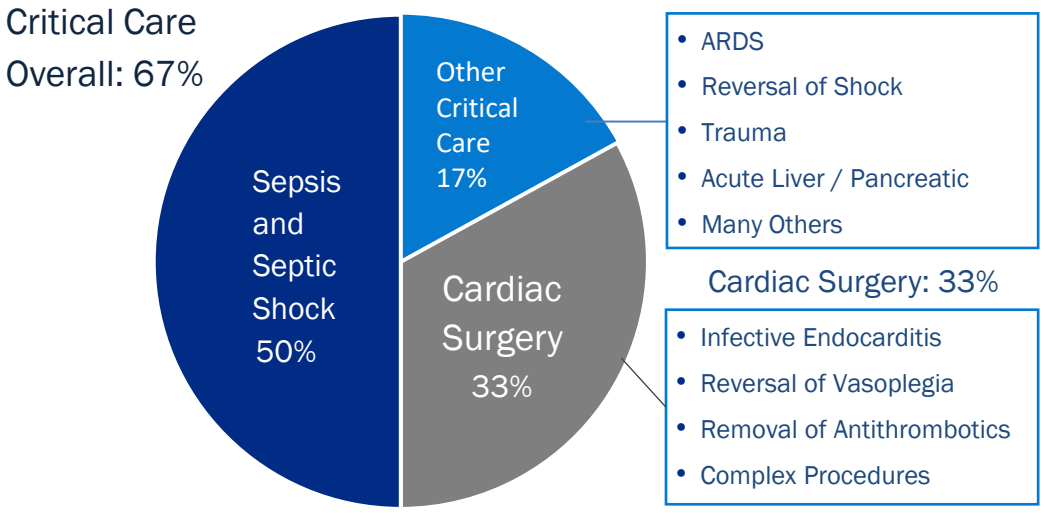
Germany, Austria, Switzerland, Belgium, Poland, Netherlands, Denmark, Norway, Sweden, Luxembourg, England, Wales, Scotland, Northern Ireland, Ireland

Distributor and Partner sales in >60 other countries

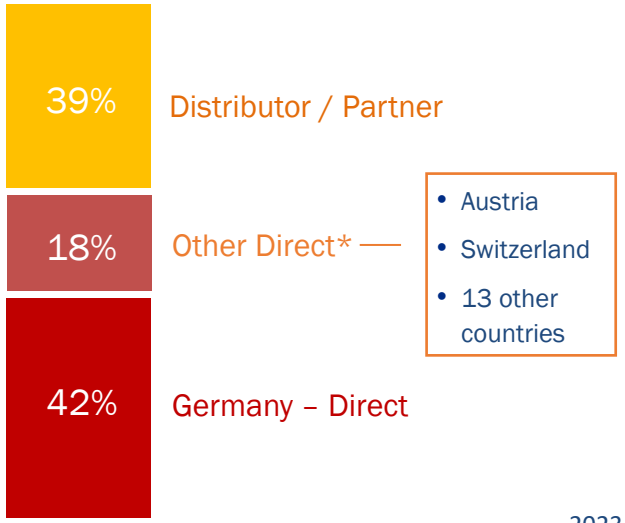
Entered U.S. under FDA EUA, expanded to Latin America, the Middle East, South Korea, and many others

CytoSorb Commercialization Focus

Estimated Revenue By Market



Revenue By Geography



* U.S., Switzerland, Austria, Belgium, Luxembourg, Poland, Netherlands, Sweden, Denmark, Norway, England, Wales, North Ireland, Scotland, Ireland

CytoSorbents™

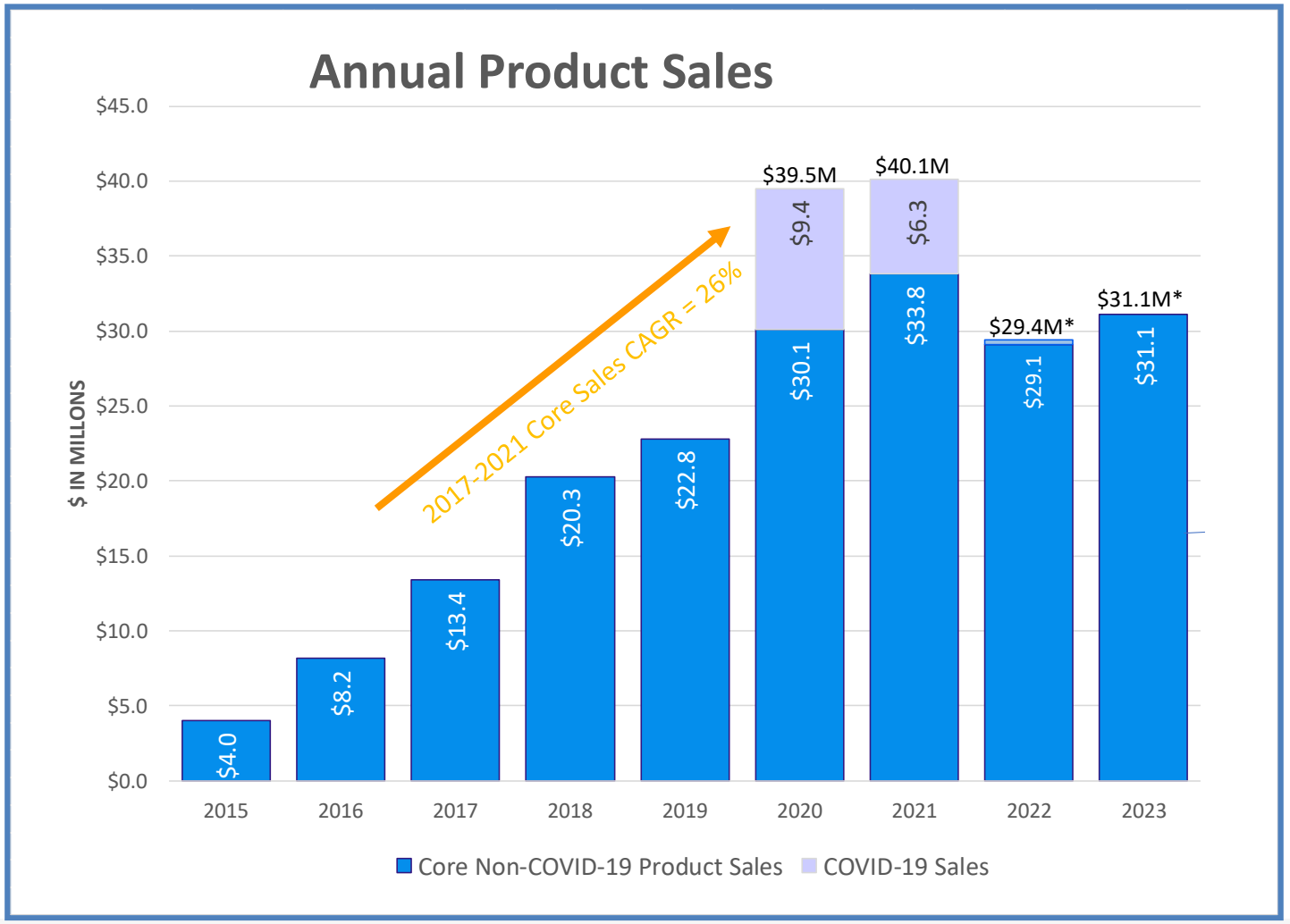
CytoSorb Is a High Margin "Razorblade"

- 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

* CTSO 2016 10-K

Annual Product Sales

2023 Core CytoSorb sales grew 10% over 2022



* 2022 and 2023 Core Product Sales were impacted by devaluation of Euro to dollar compared to 2021

CytoSorbents

What are our key goals for 2024?

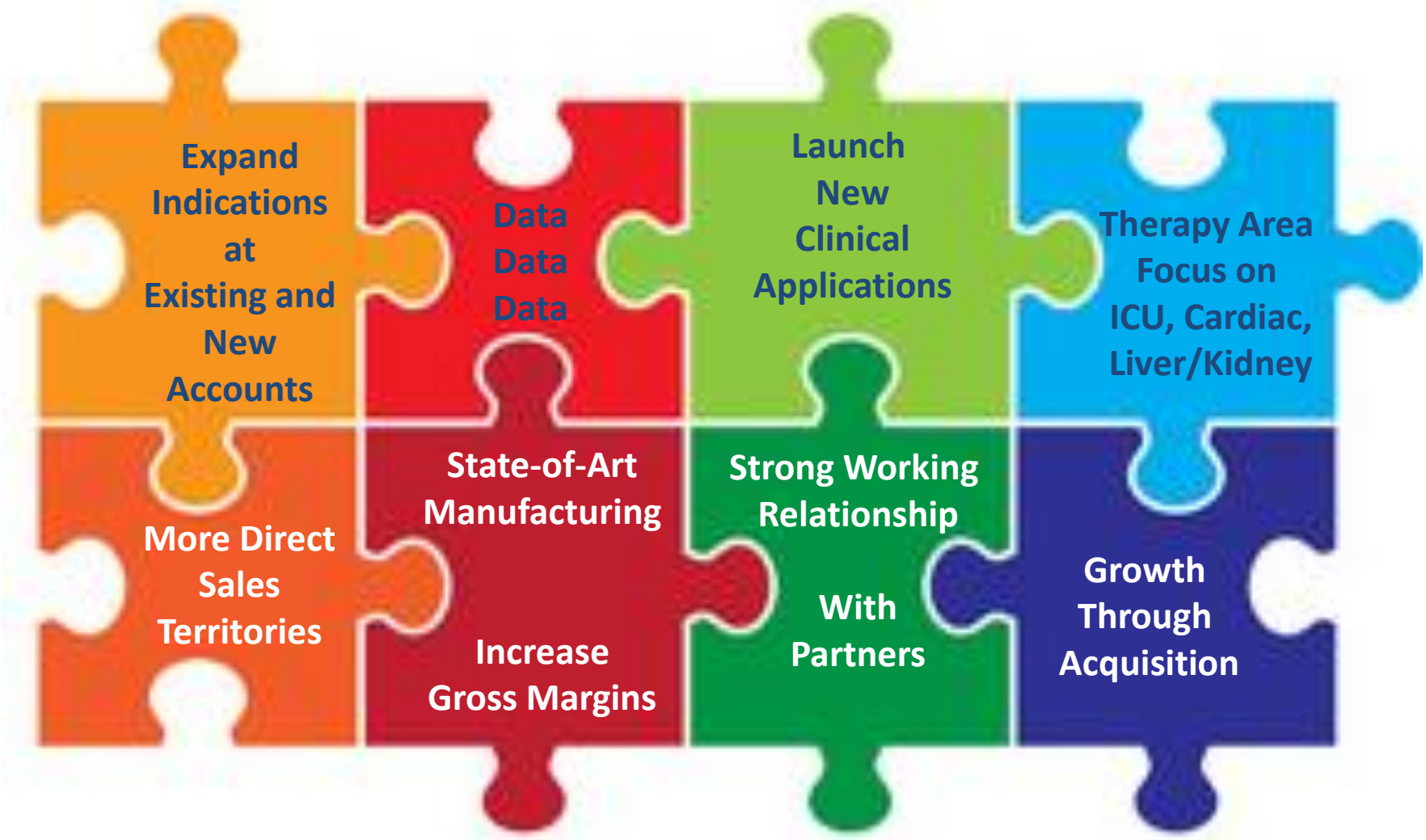
1. Grow high margin CytoSorb sales

2. Get DrugSorb-ATR approved in U.S. and Canada

Drive increased growth in high margin CytoSorb sales

CytoSorbents™

Targeting a Return to Significant Growth



CytoSorbents™

New Manufacturing Facility Now Fully Operational

- Relocated to new Princeton, NJ headquarters with our new ISO 13485-certified manufacturing facility that is designed to increase manufacturing capacity to support up to $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 were 72% in 2023 and are expected to return to the 75-80% range in the near future

Global Marketing Agreement with FRESENIUS MEDICAL CARE

- Last year, we announced a new, expanded global marketing agreement with long-time partner, Fresenius Medical Care, the market leader in dialysis worldwide, with a massive installed base of blood purification machines in ICUs worldwide.

- Fresenius has begun marketing CytoSorb as the "featured technology for cytokine, bilirubin, and myoglobin removal" on its critical care platforms worldwide (excluding the U.S.) but is expected to officially launch a more comprehensive effort next year through its sales force, website, conferences, literature, social media, & other platforms next year

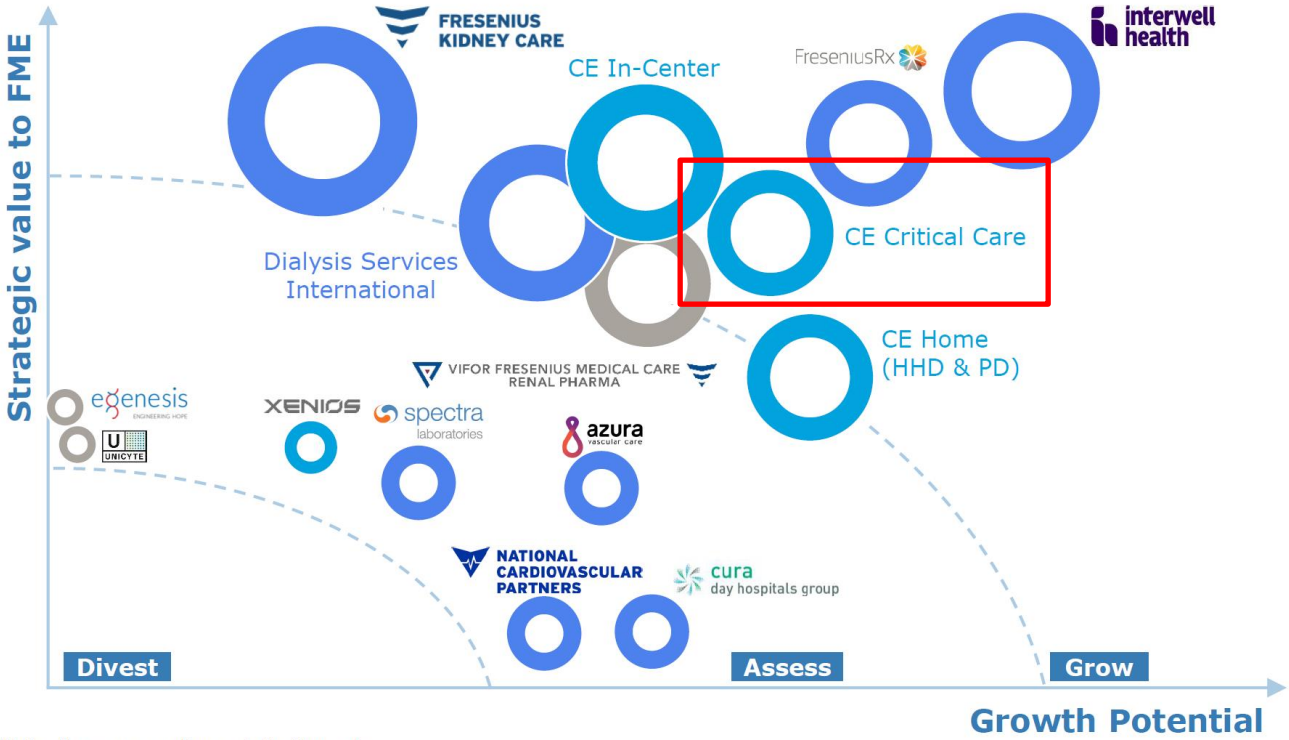
- The partnership "Expands the Dimension of Blood Purification" with excellent synergy between the two companies
  - Fresenius dominates kidney replacement blood purification technologies where 10-15% of patients in the ICU have failed kidneys
  - CytoSorbents strengthens and broadens the focus on the lucrative critical care segment, as CytoSorb helps to address deadly inflammation and toxin overload that afflicts an estimated 40-50% of patients in the ICU

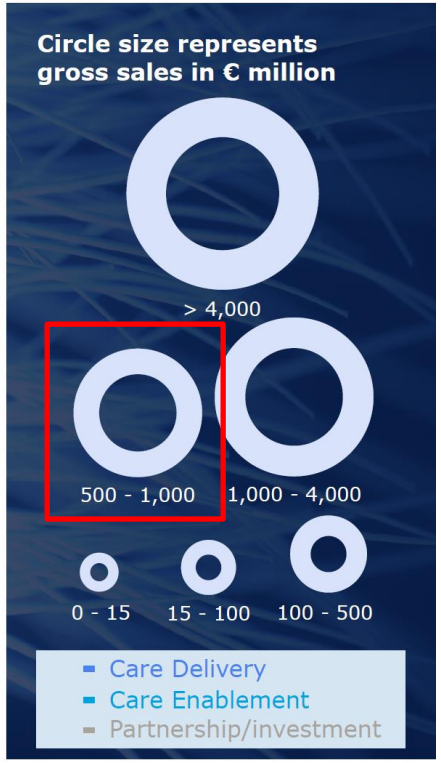
- CytoSorbents benefits from the global endorsement and push on Fresenius' sales and marketing platform and has agreed to subsidize this effort with a 0.9% royalty to FMC on ex-US CytoSorb sales

Fresenius and CytoSorbents Are Well-Aligned

CEO | Global Medical Office | Care Delivery | Care Enable-ment

Portfolio optimization | Evaluating our assets to unlock value





Note: Axes are non-linear, indicative only

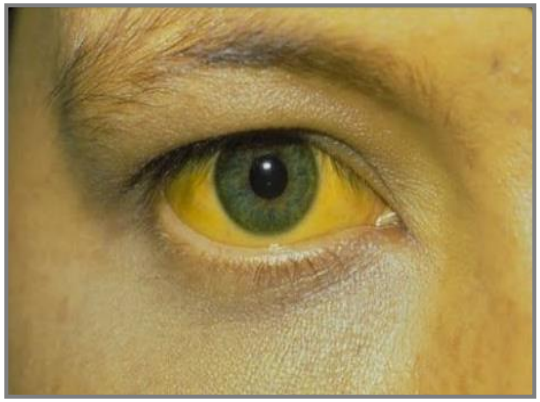
Stand-Alone Hemoperfusion Pump Initiative

Our Stand-alone pump initiative is expected to bring our next generation blood purification capability to countries that do not have a strong dialysis infrastructure

CytoSorbents™

Expanding into New Markets: Liver Disease

Roughly one in 5 people worldwide have chronic liver disease with millions admitted to hospitals each year with acute exacerbations of liver disease



Before

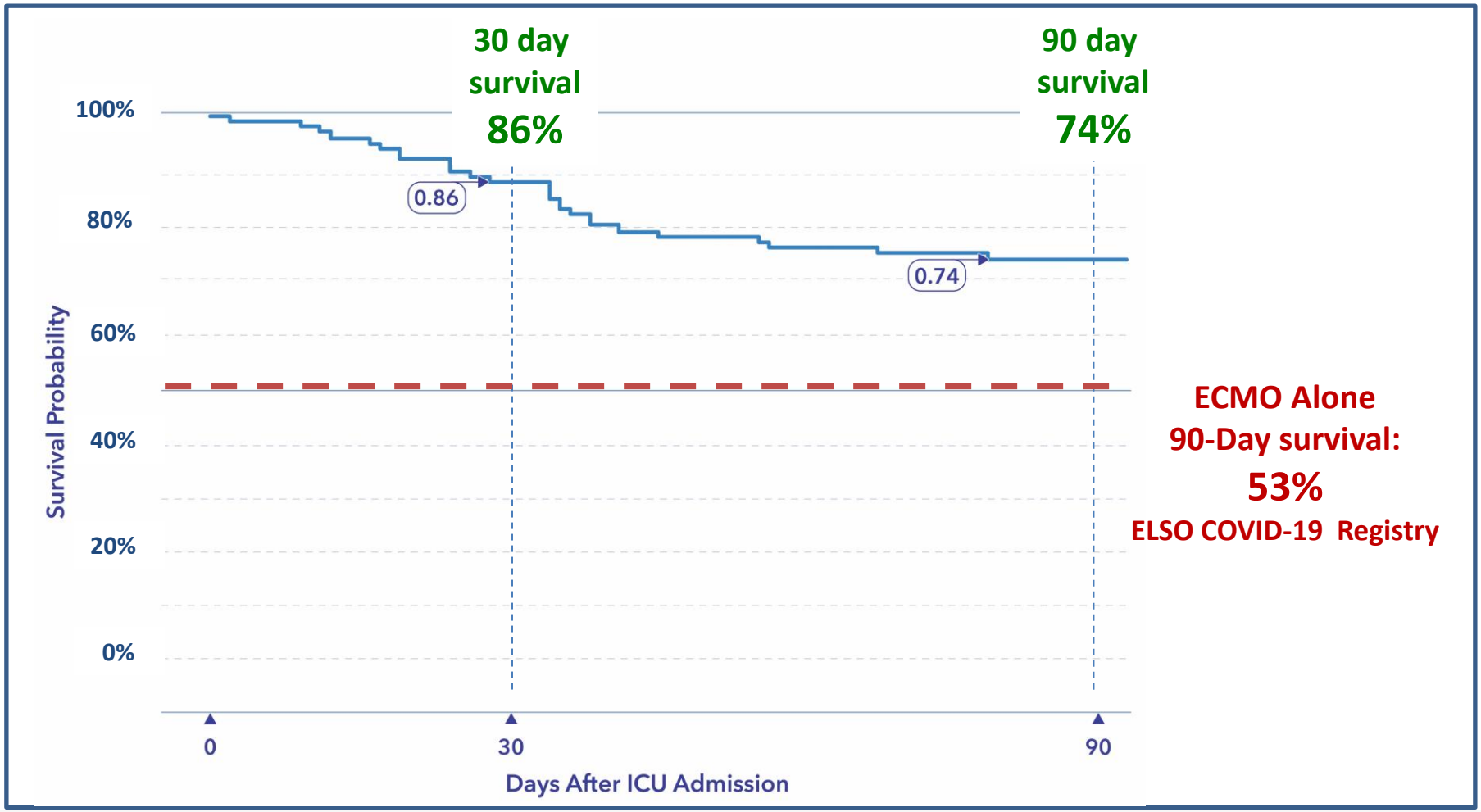
After

Lancet 2018; 392: 1789–858

CytoSorbents™

CytoSorb + ECMO: A Better Approach to ARDS

"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™

2 Get DrugSorb™ ATR Approved in U.S. and Canada
The Potential Second Engine of Growth

Blood Thinners Are Among the Most Prescribed Drugs

"Blood thinners," also known as antithrombotic drugs, are used by millions of patients globally to prevent strokes and heart attacks cause by blood clots.

Brilinta® (ticagrelor, aka Brilique® - AstraZeneca) is a blockbuster $P2Y_{12}$ anti-platelet agent ("blood thinner") with more than $1.6 billion in 2022 global sales, used in patients with acute coronary syndrome, stents, prosthetic heart valves

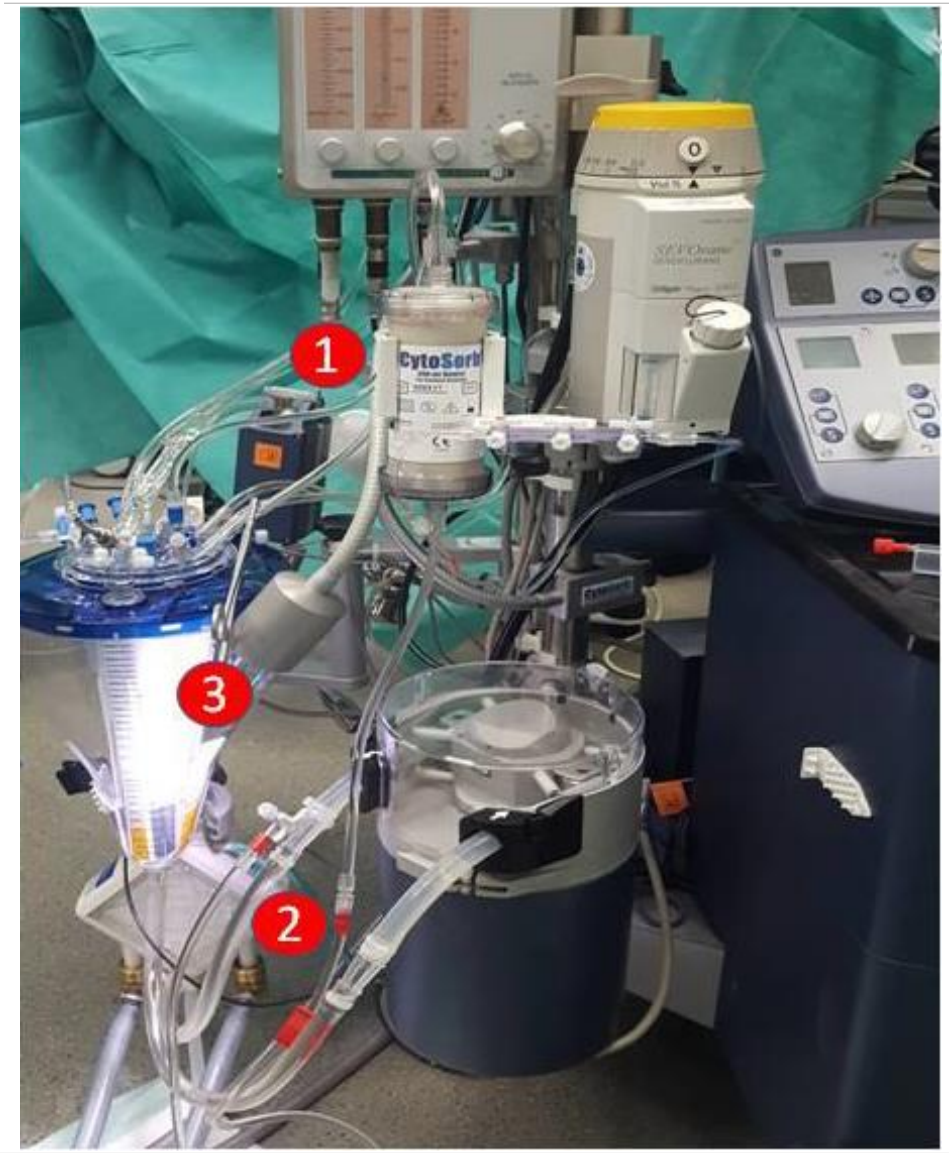
Xarelto® (rivaroxaban – Bayer, Jansenn/J&J) is a blockbuster Factor Xa inhibitor anticoagulant (DOAC) with $7.5 billion in 2022 global sales used as lifelong therapy in patients with atrial fibrillation

Eliquis® (apixaban – Pfizer, BMS) is a Factor Xa inhibitor (DOAC) and the #3 non-COVID pharmaceutical in the world with $18.4 billion in 2022 global sales, for afib, peripheral vascular disease, DVT, and others

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

There is no approved reversal agent in the U.S. or Canada for cardiac surgery

Our Technology Removes the Drug to Stop the Bleeding



CytoSorb

DrugSorb™ ATR

CytoSorbents™

Brilinta and the Use Case for DrugSorb ATR

DrugSorb ATR

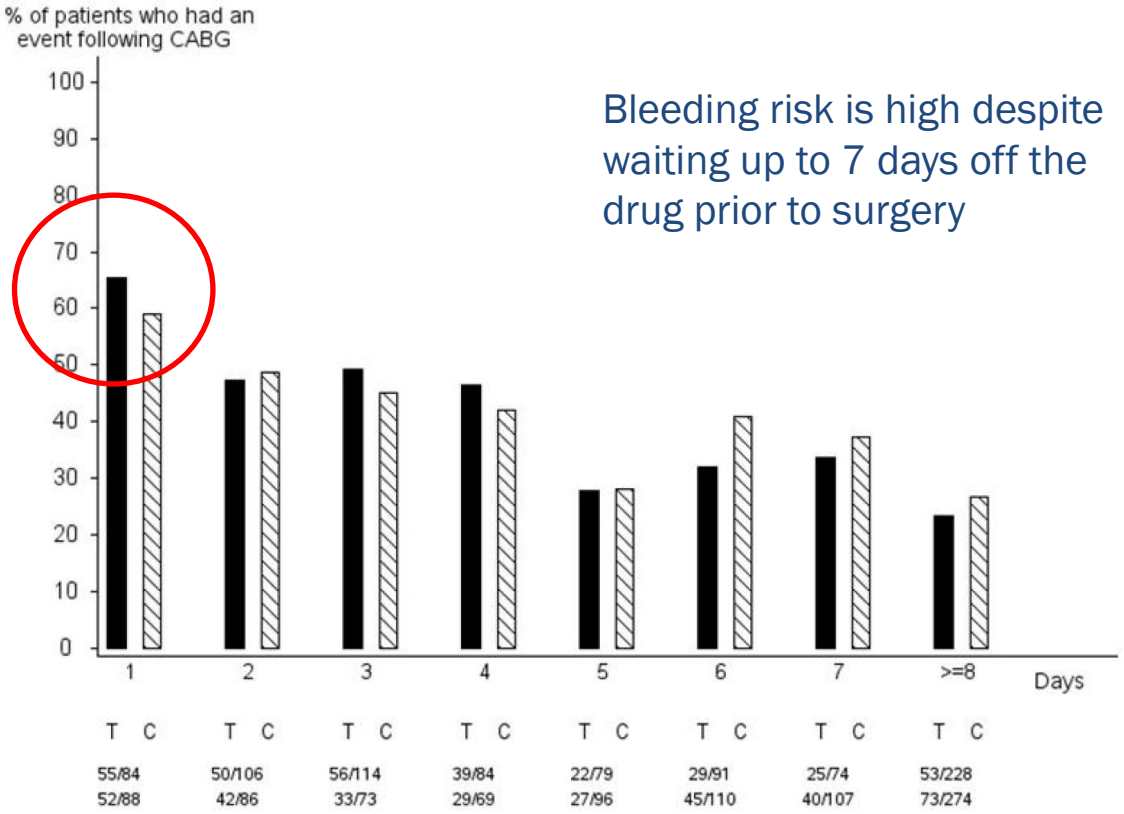
weekly plan						
monday	tuesday	wednesday	thursday	friday	saturday	sunday
	X	X	X	X	X	

The ultimate goal of DrugSorb-ATR is to allow patients to get the critical surgery they need without delay, while reducing or preventing bleeding complications

Risk of Bleeding Is High in CABG Patients on Brilinta

In the Brilinta (ticagrelor) registration PLATO (PLAeIeT inhibition and patient Outcomes) trial, 1,584 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.

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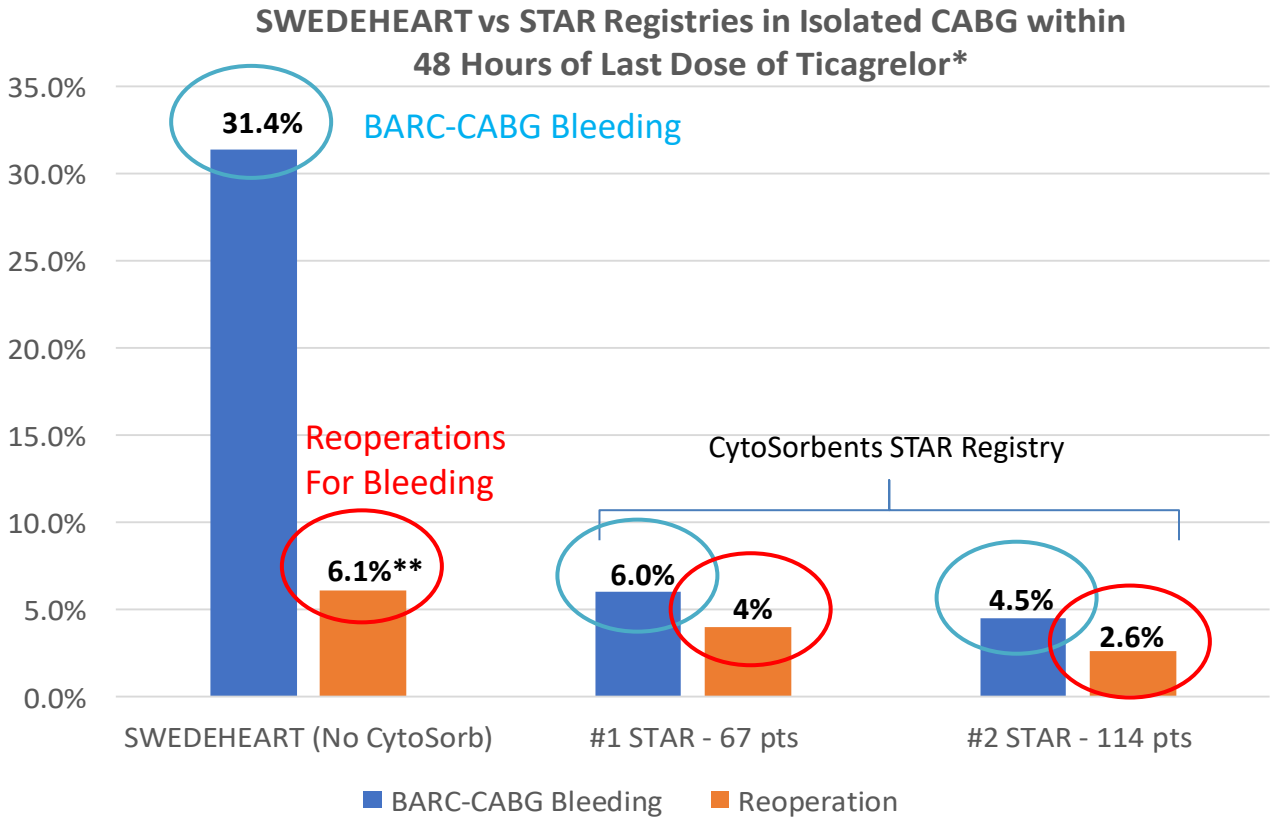
STAR Registry Highlights Low Bleeding Risk in CABG

- The International STAR (**S**afe and **T**imely **A**ntithrombotic **R**emoval) Registry captures high quality data on real-world clinical use of CytoSorb for antithrombotic drug removal (ATR).

- The SWEDEHEART registry captures all patients hospitalized for acute coronary syndrome or undergoing cardiac intervention (e.g. stent/PCI or surgery). No CytoSorb device was used.



**** Includes all patients, including those > 5 days of washout that accounted for 2/3rds of all patients**

* Hansson, EC, et al. EHJ (2016) 37:189-197

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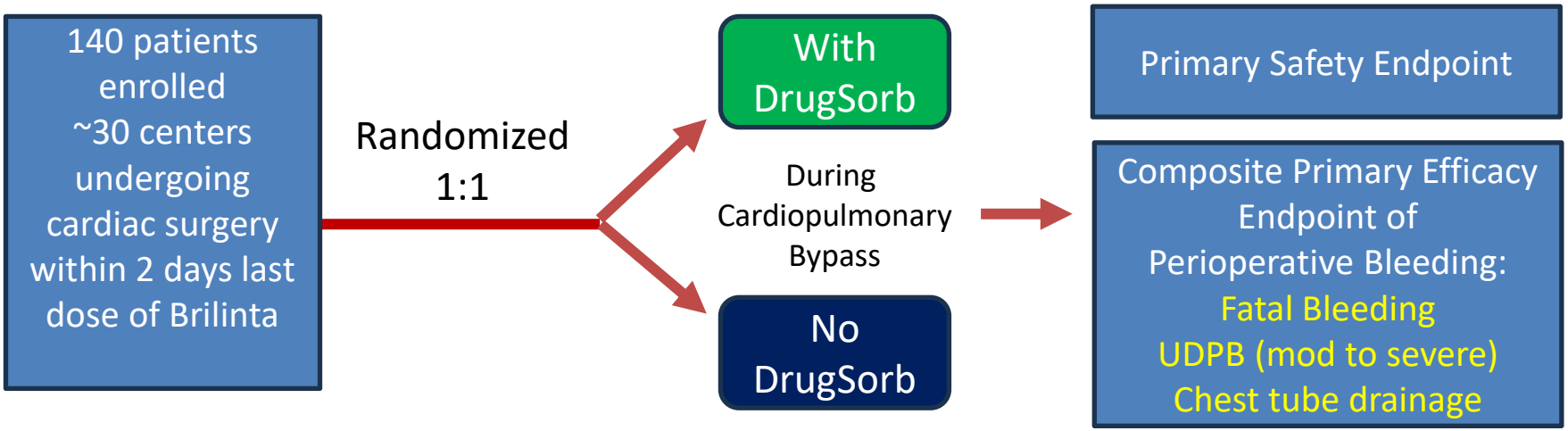
STAR-T Pivotal Trial

DrugSorb™ ATR — Breakthrough Device Status

- We were awarded ***two*** FDA Breakthrough Device Designations for this application –one for Brilinta, one for Eliquis/Xarelto, a "fast track" path for devices addressing major unmet clinical needs
- The STAR-T (**S**afe and **T**imely **A**ntithrombotic **R**emoval – **T**icagrelor) RCT was designed to evaluate perioperative bleeding complications associated with recent Brilinta administration with or without the use of DrugSorb-ATR in the CPB circuit during cardiac surgery.
- STAR-T is a pivotal trial, intended to support U.S. FDA and Health Canada marketing approval of DrugSorb™-ATR



Gibson, CM, et al., Am Heart J., 2022, 245:19-28.

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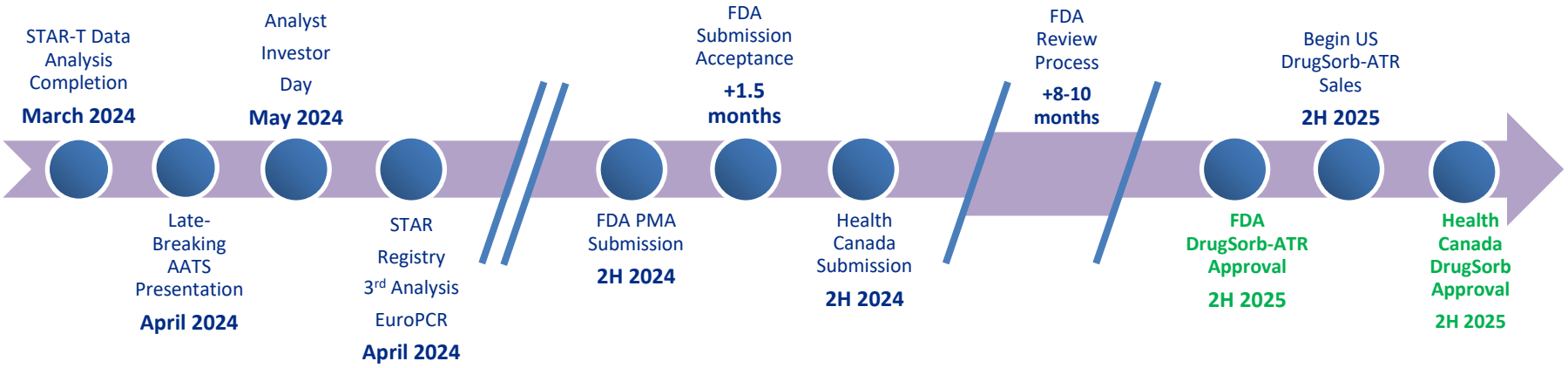
STAR-T Update

DrugSorb™ ATR Breakthrough Device Status

- The STAR-T RCT completed with final patient follow-up in August 2023
- In December 2023, the STAR-T trial met the primary safety endpoint, following the independent Data and Safety Monitoring Board (DSMB) final review of the full unblinded data on all 140 patients, concluding there were no issues with DrugSorb-ATR safety
- In the initial data analysis on the primary effectiveness endpoint on the entire patient population which included patients undergoing different types of surgeries, the STAR-T trial did not meet the primary efficacy endpoint
- However, in the pre-specified isolated coronary artery bypass graft (CABG) surgery population, representing more than 90% of the overall study population, DrugSorb-ATR reduced bleeding complications, including serious bleeding events
- Now having completed additional data analyses, we reaffirm our belief that DrugSorb-ATR has an excellent benefit-risk profile, demonstrates efficacy in reducing serious bleeding risk in the main targeted patient population, and can support regulatory submission to FDA and Health Canada
- STAR-T data have been accepted for a late-breaking presentation at the American Association of Thoracic Surgery (AATS) Annual Meeting in April in Toronto and are currently under data embargo. We will host an analyst/investor event on May 6th led by our study Principal Investigators

Estimated STAR-T Timeline*

DrugSorb™ ATR — Breakthrough Device Status



* These are targeted milestones with projected timing, but there can be no assurance that any or all of these milestones will be met, or met in an acceptable timeframe

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United States & Canada TAM for Brilinta Removal

~65,000 patients on Brilinta needing emergent/urgent CABG surgery annually

X

$5,000 per device

$325M Initial U.S. & Canada Total Addressable Market

Brilinta market share expected to grow

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

$650M U.S. & Canada Total Addressable Market Potential

* 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™

Today: CytoSorb Drives our Growth

- CytoSorb is a powerful single engine of growth that 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 historically ~80% blended product gross margins
  - Strong validation by customers, partners, and government agencies

CytoSorb is designed to address 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

Soon: CytoSorb & DrugSorb™ ATR = Dual Growth Engines

- 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 potential ***second engine of growth***, working in tandem with CytoSorb to drive sales

- At this stage, we believe our Company represents an exceptional value proposition

CytoSorb® Therapy

10 YEARS

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

Dr. Phillip Chan
Chief Executive Officer
pchan@cytosorbents.com

CytoSorbents™
WORKING TO SAVE LIVES

Kathleen Bloch
Chief Financial Officer
kbloch@cytosorbents.com