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

CytoSorbents™

WORKING TO SAVE LIVES

NASDAQ: CTSO

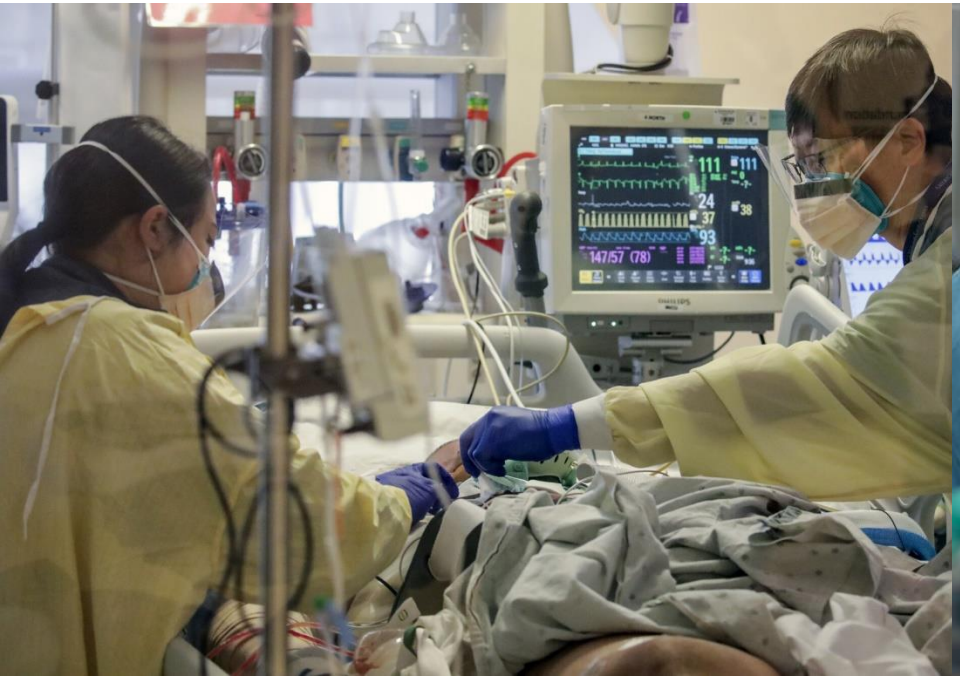
Investor Presentation
September 2022

Safe Harbor Statement

This presentation contains “forward-looking statements” pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include, without limitation, any statement that may predict, forecast, indicate, or imply future results, performance or achievements, and may contain the words "estimate," "intend," "target,” “will," “is likely,” "would," "may," or, in each case, their negative, or words or expressions of similar meaning. These forward-looking statements are found at various places throughout this presentation and include information concerning possible or assumed future results of our operations; business strategies; future cash flows; financing plans; plans and objectives of management; any other statements regarding future operations, future cash needs, business plans and future financial results, and any other statements that are not historical facts. Unless otherwise indicated, the terms “CytoSorbents,” “Company,” “we,” “us” and “our” refer to CytoSorbents Corporation. Any or all of the forward-looking statements included in this presentation are not guarantees of future performance and may turn out to be inaccurate. These forward-looking statements represent our intentions, plans, expectations, assumptions and beliefs about future events and are subject to risks, uncertainties and other factors. Many of those factors are outside of our control and could cause actual results to differ materially from the results expressed or implied by those forward-looking statements. 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 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. In light of these risks, uncertainties and assumptions, the events described in the forward-looking statements might not occur or might occur to a different extent or at a different time than we have described. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of the applicable presentation. You are referred to a discussion of important risk factors detailed in the Company’s Form 10-K filed with the Securities and Exchange Commission on May 10, 2022 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
  - $40.1M in 2021 product sales
  - Historically high (80+%) product gross margins
  - $31.9M in cash (6/30/22)
  - 200+ employees

- Celebrating 10 years of commercialization with >179,000 cumulative CytoSorb devices utilized (6/30/22)
  - Treating cytokine storm and massive uncontrolled inflammation in life-threatening conditions such as sepsis, COVID-19, shock, lung failure, pancreatitis, and many others
  - 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 dual U.S. FDA approvals for DrugSorb-ATR, an equivalent polymer technology to CytoSorb, to reduce perioperative bleeding during cardiac surgery by removing the leading blood thinners, Eliquis, Xarelto, and Brilinta under FDA Breakthrough Device Designation
  - U.S. pivotal STAR-T and STAR-D RCTs are underway with both expected to complete in 2023
  - Targets a $1B total addressable market opportunity in the U.S. alone

Marketed Products and Product Pipeline

Internal development supplemented by strong government support with ~$40M 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

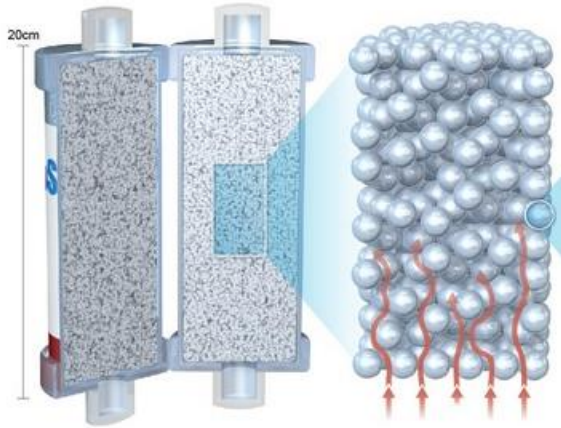
CytoSorbents™

What does CytoSorb do and How does it work??

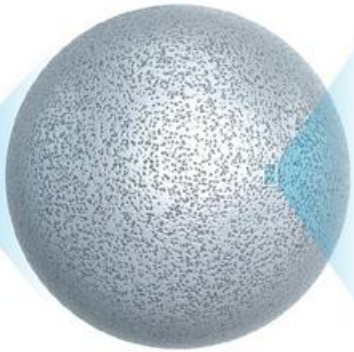
CytoSorbents™

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

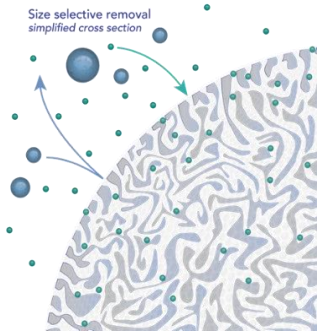


Section through an adsorber



Adsorber bead

Internal structure



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




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

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

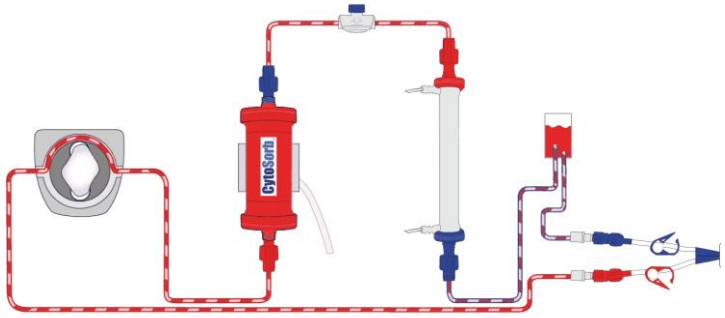
Urea, Ammonia
Electrolytes
Water
Water-soluble drugs

CytoSorbents™

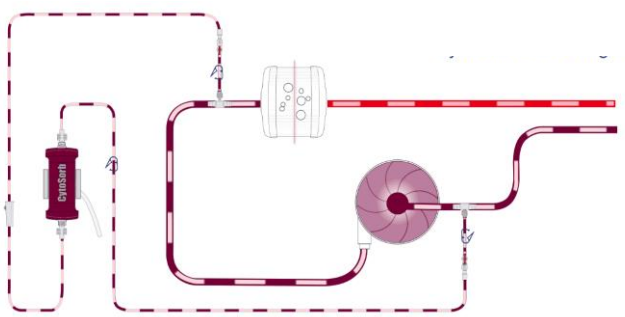
CytoSorb is “Plug and Play” Compatible

Compatible with Existing Blood Pump Infrastructure In Hospitals Today

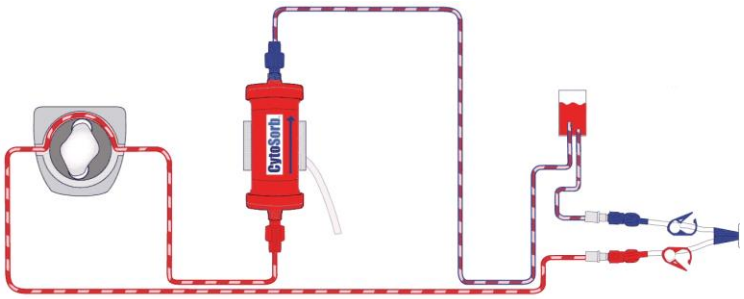
Dialysis or CRRT
(Continuous Renal Replacement Therapy)



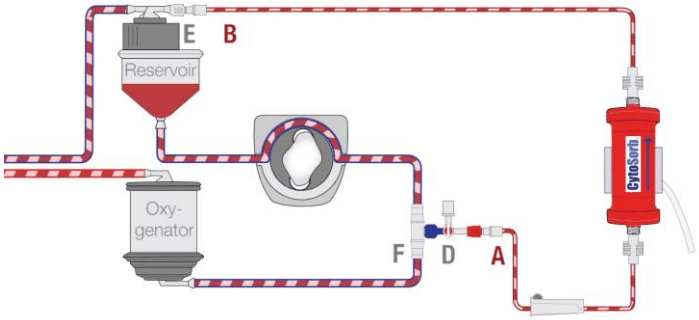
ECMO
(Extracorporeal Membrane Oxygenation)



Hemoperfusion
(Standalone Treatment)



CPB
(Cardiopulmonary Bypass)



CytoSorbents™

Targets Deadly Conditions That Afflict Millions of People

Critical Care

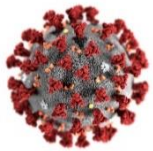
Removes the "fuel to the fire" of massive uncontrolled inflammation that is often associated with organ failure and death

Sepsis

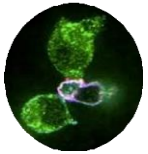
Surgical Complications

Influenza

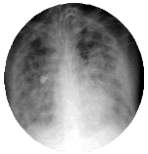
Burn Injury



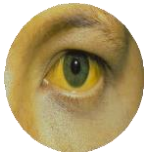
COVID-19



Cytokine Release Syndrome



Lung Injury



Liver Failure

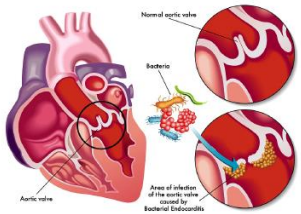
Trauma

Pancreatitis

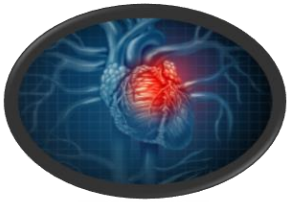
Cardiothoracic Surgery

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™

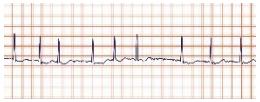
Riding Many Macro Trends in Healthcare

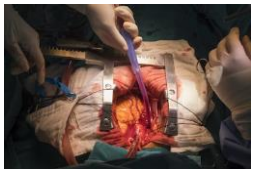
Aging Population is Getting Older

>1 billion
over 60

The Use of Blood Thinners

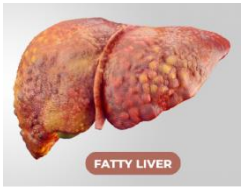
Millions worldwide are on blood thinners to reduce risk of stroke and heart attack

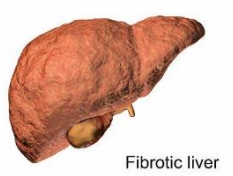


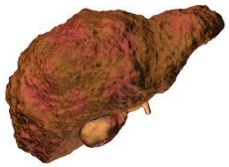


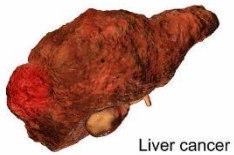
Chronic Liver Disease

Afflicts 1 in 11 worldwide

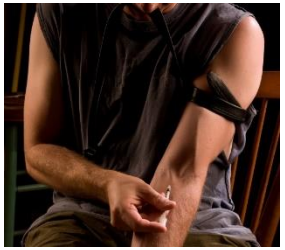


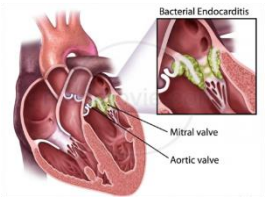






Opiate Crisis & Endocarditis





CytoSorbents™

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

CytoSorbents™

CytoSorbents Has a Strong Hybrid Sales Model

75 Countries Worldwide and >179,000 devices utilized

Critical Care and Cardiac Surgery

Direct Sales ⟺ Distributor and Partner Sales

Direct sales in 15 countries:

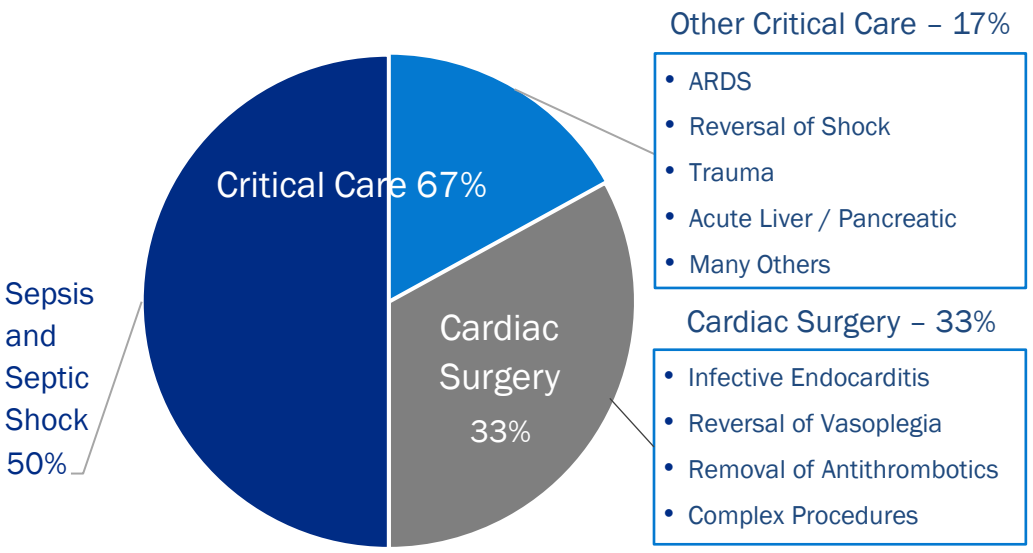
Germany, Austria, Switzerland, Belgium, Poland, Netherlands, Denmark, Norway, Sweden, Luxembourg, England, Wales, Scotland, Northern Ireland, Ireland

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



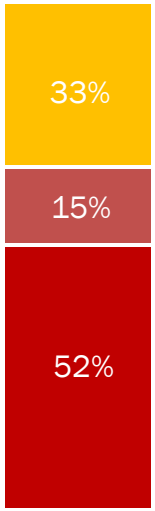
Other Critical Care – 17%

- 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



- 33% Distributor / Partner
- 15% Other Direct
  - Austria
  - Switzerland
  - 10 other countries
- 52% Germany – Direct

2021

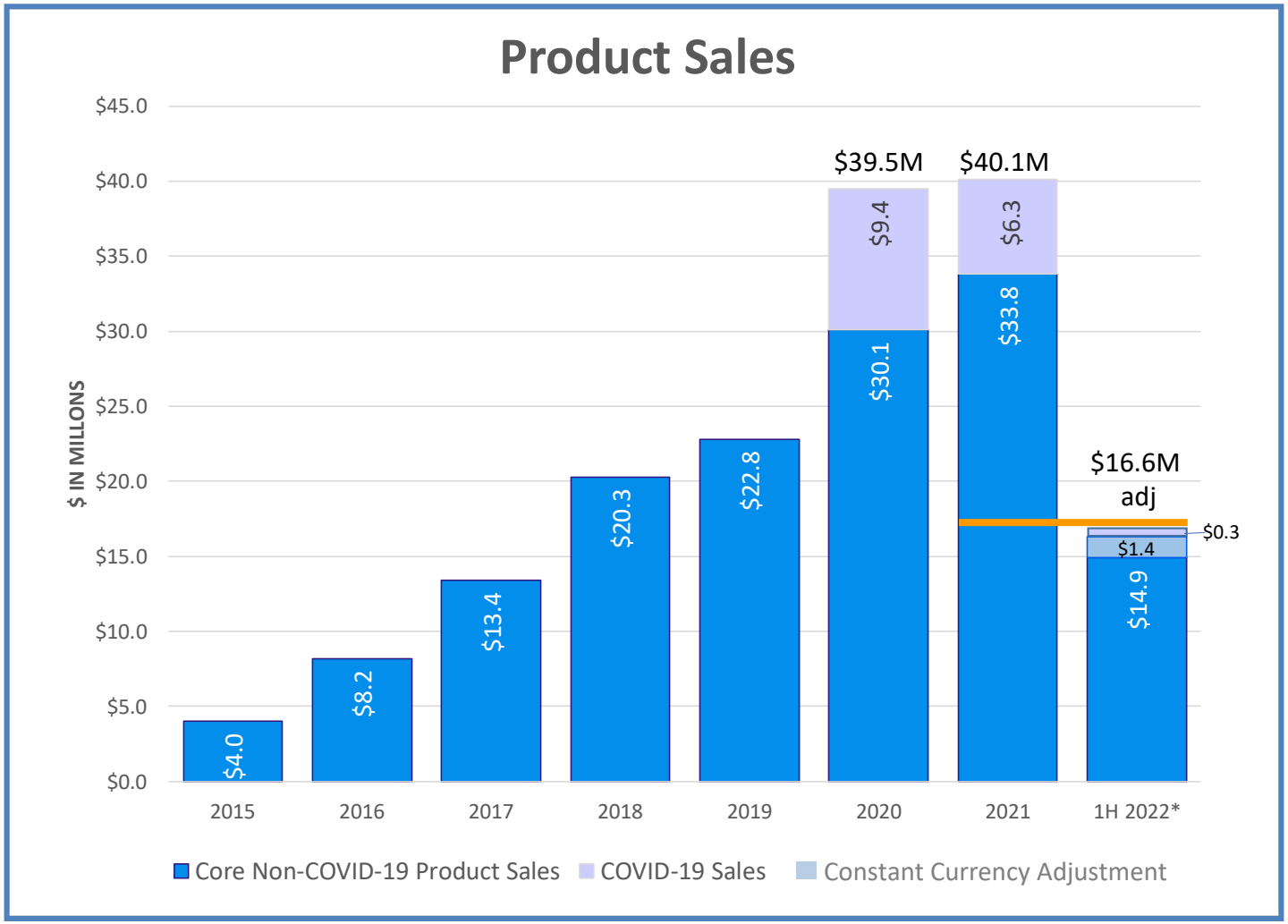
CytoSorbents™

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

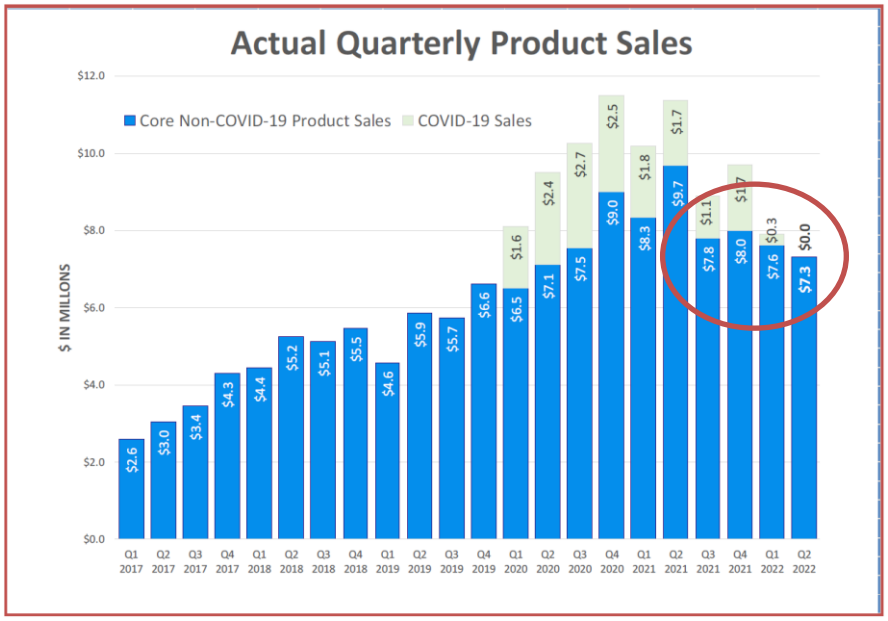
Annual Product Sales

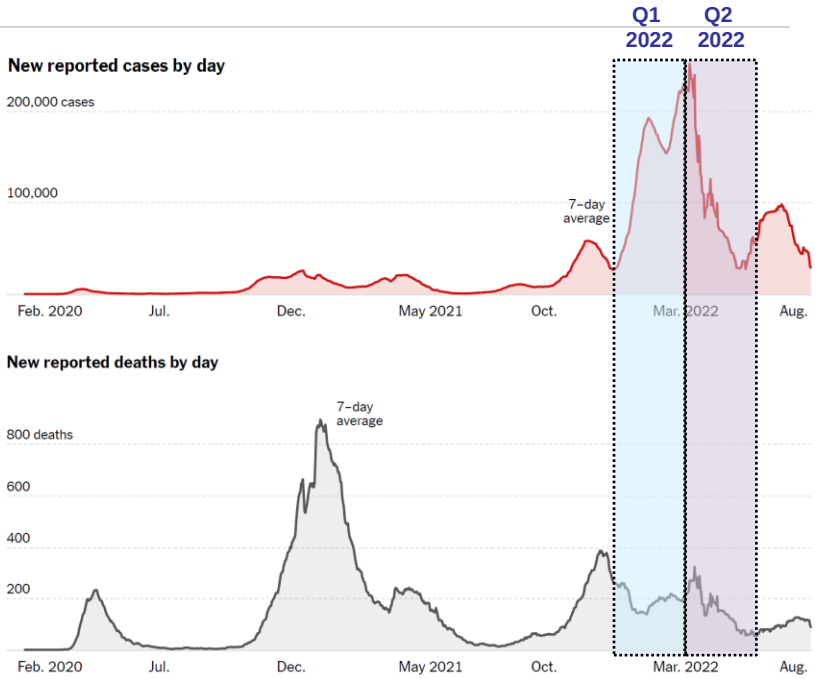
1H 2022 core non-COVID-19 product sales were $14.9M, or $16.3M on a constant currency adjusted basis reflecting a weak Euro, roughly half of 2021 core sales. COVID-19 sales were nominal at $0.3M



CytoSorbents™

However, Recent Results Reflect Impact of COVID





- The macro environment has been challenging in Europe and Germany
  - Core business has been stable on a constant currency basis, averaging $8.2M for the past 4 quarters but Germany has been impacted by prior high rates of COVID which has led to lower sales:
    - COVID patients not as sick
    - Limited elective surgeries, staffing shortages, lower ICU capacity, restrictions on sales reps visiting hospitals
  - Ukraine/Russia war has created uncertainty in several markets
  - Inflation & currency exchange volatility: Euro down 17% the past year & below the dollar for 1st time in 20 years
- But we anticipate sales conditions to improve as time passes, and as COVID likely burns itself out this year due to high rates of vaccination and natural immunity to become more like seasonal influenza, core sales are expected to return to growth on a constant currency basis

What are the catalysts for growth?

CytoSorbents™

Laser-Focused on 2022 Strategic Objectives

Despite the short-term impact of COVID-19 and geopolitical and economic events on our business, we continue to be disciplined in our focus and execution to position our company for success with key near-term goals:

Execute on STAR-T and STAR-D to open the U.S. market for DrugSorb-ATR

Restore growth of core CytoSorb sales

Fully transition CytoSorb production to new Princeton manufacturing facility

Forge and expand new and existing strategic partnerships

#1

Open the U.S. Market by Targeting FDA Marketing Approval via STAR-T and –D Pivotal Trials

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

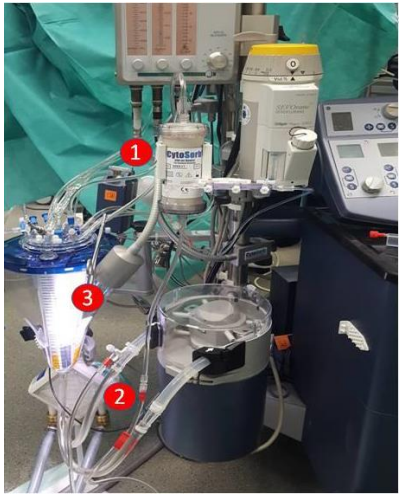
Brilinta® (generic ticagrelor, aka Brilique® - AstraZeneca) is a blockbuster $P2Y_{12}$ anti-platelet agent ("blood thinner") with more than $1.5 billion in 2021 global sales, used in patients with acute coronary syndrome

Rivaroxaban (Xarelto® – 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



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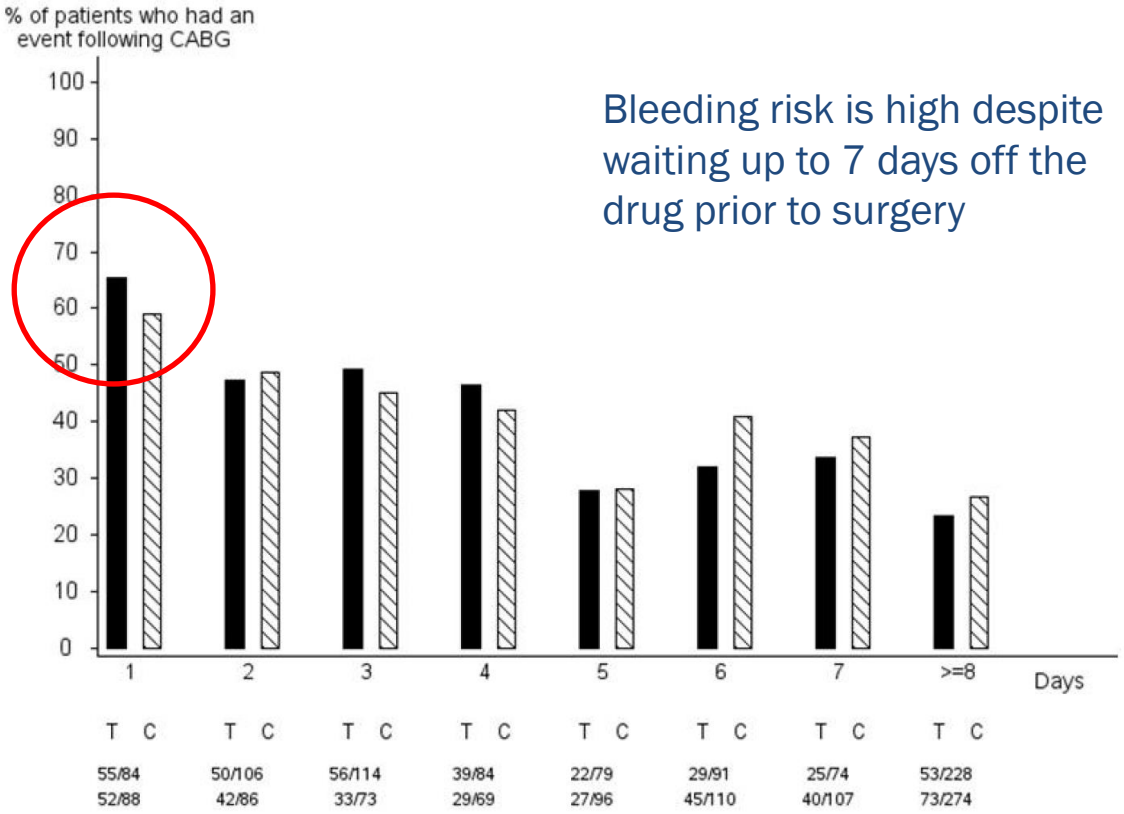
Risk of Bleeding Is High in CABG Patients on Brilinta

In the Brilinta (ticagrelor) registration PLATO (PLAeIeT 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. FDA Marketing Approval

DrugSorb™ ATR — Breakthrough Device Status

- We seek U.S. FDA 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 dual pivotal U.S. randomized controlled trials, called STAR-T (to remove Brilinta) and STAR-D (to remove Xarelto and Eliquis), each designed to separately support U.S. FDA marketing approval of DrugSorb™-ATR
  - Each trial is expected to enroll 120 patients across 30 sites
  - The primary endpoint is a reduction in peri-operative bleeding vs standard of care alone
  - STAR-T is expected to achieve its first milestone of 40 patients enrolled this fall and complete enrollment by 1H 2023, and STAR-D 6-months behind
  - FDA marketing approval submission is expected within 3-6 months of completing enrollment
  - If successful, we seek to establish DrugSorb-ATR as the new global standard to reduce a broad range of blood thinners during cardiothoracic surgery

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Co-Principal Investigators of STAR-T

C. Michael Gibson, MS, MD

Interventional Cardiologist

- Professor of Medicine, Harvard Medical School
- President & CEO of non-profit Baim Institute (formerly Harvard Clinical Research Institute) that has led over 1,000 studies, 3,000 manuscripts, and 60 FDA submissions
- Founder, Editor-In-Chief www.wikidoc.org
- Internationally recognized thought leader in cardiovascular clinical trials and regulatory process
- Led Phase 1-4 trials, totaling >180K patients including approval of Effient®, Xarelto®, and Bevyxxa®

Michael Mack, MD

Cardiothoracic Surgeon

- Chairman, Baylor Scott & White The Heart Hospital
- President, Baylor Scott & White Research Institute
- Pioneer in the field of cardiothoracic surgery
- World—renowned clinical research and physician
- Performed > 7,000 cardiac surgeries, > 400 publications
- Instrumental in key advances in therapy of cardiovascular disease

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

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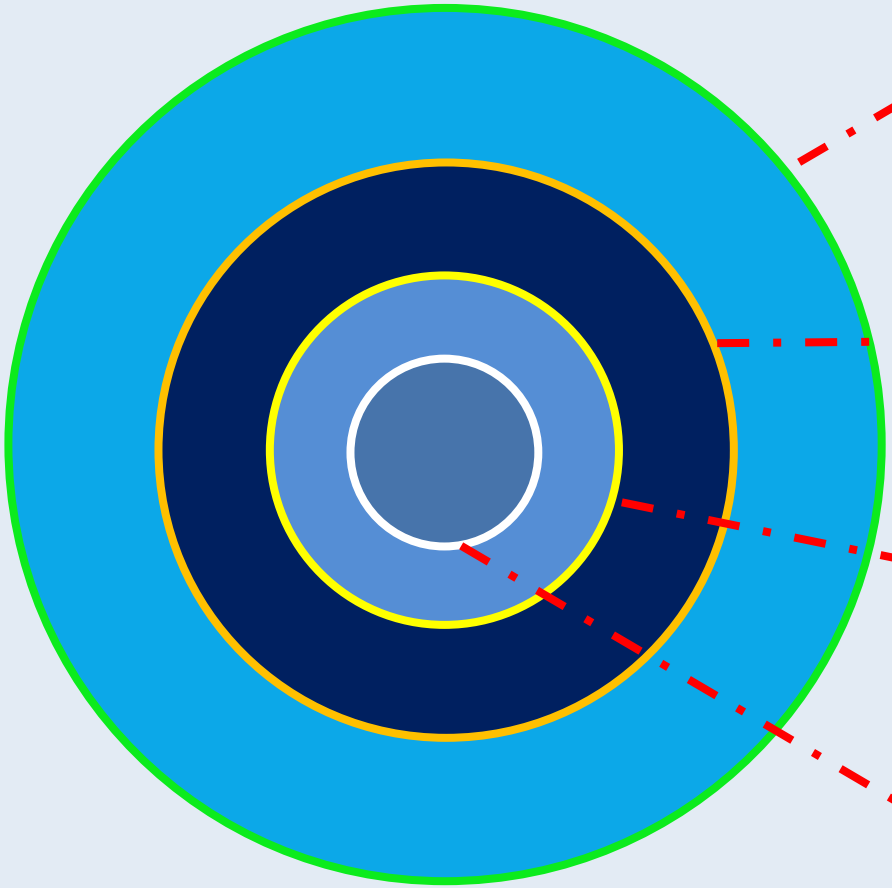
Addressable U.S. Market For Current and Potential Future Indications for Antithrombotic Removal by DrugSorb-ATR



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

#2

Restore Growth of CytoSorb Sales

Early but Encouraging Signs of Market Improvement

Although not yet showing up in our numbers, we see early, but encouraging signs of improvement, including:

- More customer visits in Germany during the quarter

- Continued strong positive support from customers, where the feedback on lower orders in Germany has been primarily due to hospital challenges, such as staffing shortages, budgets, ICU capacity, and lower numbers of severely ill patients

- Strong pipeline of positive data on CytoSorb across both critical care and cardiac surgery

- Improved cross-functional synergy within our company, based on our new therapy area vertical strategy and leadership

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Important Recent Developments

- Expansion of direct sales to U.K.
- New dedicated reimbursement in Israel (cardiac) and Turkey (ICU and cardiac)
- Important recent business developments that have the potential to drive future sales
  - Preferred supplier agreement with Asklepios Group, one of largest private hospital networks in Germany, adding to an existing agreement with Fresenius Helios, the other major private hospital network in Germany

ASKLEPIOS

Helios

  - Positive early response to our standalone blood pump strategy with new partner, Nikkiso, intended to drive easy and earlier CytoSorb use and expand the market for blood purification, with numerous equipment trials occurring or scheduled

  - New, expanded global marketing agreement with FMC, the market leader in dialysis worldwide with headquarters and a stronghold market in Germany, to make CytoSorb the featured technology for cytokine, bilirubin, and myoglobin removal

FRESENIUS MEDICAL CARE

CytoSorbents™

#3

Transition to New Manufacturing Facility

Scaling Manufacturing Capacity to $300-400M

- Relocated to new headquarters in Princeton, NJ with new manufacturing facility that is expected to increase manufacturing capacity by 5x to $300-400M in annual sales, while expanding product gross margins beyond 85% due to volume manufacturing
- Capital expenditures to build out facility are modest (<$10M), an excellent ROI
- Buildout is complete, with commercial devices split between our older production facility and new facility, with final certification expected this year
- Product gross margins in Q2 2022 were 67%, down from 80% in Q1 2022, due to a month-long scheduled shutdown of production as we relocated to the new facility. Product gross margins are expected to return to historic levels (80+%) next year as we end the lease on our old facility, consolidate manufacturing, and drive volume

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#4

More Partnerships

We are Central to Major Therapeutic Areas

Acute Care

FRESENIUS MEDICAL CARE
XENIOS novalung NxSTAGE
B BRAUN
NIKKISO
Biocon
NIPRO MEDICAL CORPORATION
Baxter

Cardiovascular

TERUMO
Medtronic HeartWare
ABIOMED
MAQUET GETINGE GROUP
LivaNova Health innovation that matters
TANDEM LIFE

Organ Transplant

Aferetica Purification Therapies
TransMedics Bringing new life to organ transplant
XVIVO PERFUSION

Summary

CytoSorbents has the potential to become a highly profitable performer in the therapeutics space with superior operating profit margins

- High margin razorblade business model with excellent operating leverage and a solid track record of ex-US growth
- Strong foundation and well-funded for potential future growth, with new and existing clinical applications that address major unmet medical needs and ride major trends in healthcare
- We have extensive validation from physicians around the world, leading strategic partners, U.S. government agencies, and the media
- Focus on 4 key milestones is expected to drive our current and future success
  - U.S. FDA marketing approval based on 2 pivotal U.S. RCTs (STAR-T and STAR-D) for blood thinner removal and dual FDA Breakthrough Device Designations
  - Return to sales growth of CytoSorb as COVID fades
  - Transition fully to new manufacturing facility, increase capacity & gross margins
  - New partnerships and expansion of existing ones

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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