HELPING TO TREAT INFLAMMATION AND DEADLY CONDITIONS IN INTENSIVE CARE AND CARDIAC SURGERY

CytoSorbents Corporation

Jefferies London Healthcare Conference – November 2021

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 March 9, 2021 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 Cytokine Storm and other Deadly Conditions
in Intensive Care and Cardiac Surgery using Blood Purification

CytoSorbents At a Glance (NASDAQ: CTSO)

- CytoSorbents is a rapidly growing international NASDAQ-traded medical device company: ~230 employees, $41.9M in TTM product sales & $61.0M in cash (9/30/21)

- CytoSorb® is E.U. approved and commercialized in more than 70 countries as an extracorporeal cytokine adsorber to help treat deadly inflammation where cytokines are elevated (e.g. “cytokine storm”)
- Overall, more than 152,000 cumulative CytoSorb devices utilized to date. Also, treated >6,900 COVID-19 patients in 30+ countries, including in the U.S. under FDA Emergency Use Authorization for use in critically-ill, adult COVID-19+ patients with respiratory failure
- CytoSorb is also E.U. approved to remove the blood thinners Brilinta® (ticagrelor) and Xarelto® (rivaroxaban) during cardiothoracic surgery as well as bilirubin (liver dialysis) and myoglobin (trauma)
- DrugSorb-ATR and CytoSorb are on a parallel path to potential U.S. FDA approval
  - Initiated U.S. STAR-T and soon STAR-D pivotal studies of DrugSorb-ATR under FDA Breakthrough Designation to remove Brilinta®, and Xarelto® and Eliquis®, respectively during urgent cardiothoracic surgery – targeting up to $1 billion total addressable market in the U.S.
  - U.S. REFRESH 2-AKI Trial – 400 patient pivotal study using CytoSorb intraoperatively to reduce post-op AKI
- Partnered with leading companies:

FRESENIUS MEDICAL CARE

B|BRAUN SHARING EXPERTISE

TERUMO CARDIOVASCULAR

Biocon

* CytoSorb has been authorized by the FDA under an EUA for use in COVID-19 patients and will remain active until terminated by the Agency. The CytoSorb device has neither been cleared nor approved for the indication to treat patients with COVID-19 infection

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™

Targets Deadly Conditions That Afflict Millions of People

Critical Care

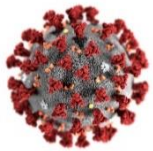
Uncontrolled inflammation can spiral out of control, leading to failure of vital organs and death

Sepsis

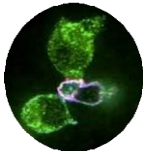
Surgical Complications

Influenza

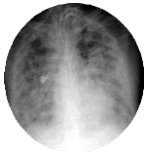
Burn Injury



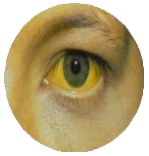
COVID-19



Cytokine Release Syndrome



Lung Injury



Liver Failure

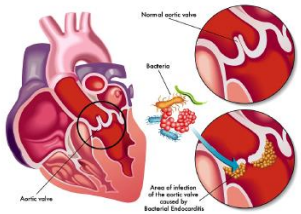
Trauma

Pancreatitis

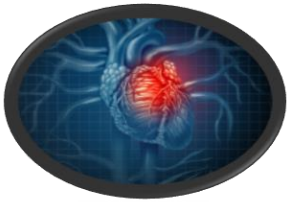
Cardiothoracic Surgery

Highly invasive, with major risk of bleeding, shock, severe inflammation, infection, sepsis, and others

Life-threatening bleeding due to antithrombotic “blood thinners”



Infective Endocarditis



High Risk Procedures

CytoSorbents™

What does CytoSorb do and how does it work?

A Powerful New Approach to Controlling Inflammation

CytoSorb has been used and well-tolerated in more than 152,000 cumulative treatments as a way to treat cytokine storm and reduce the “fuel to the fire” of inflammation

Anti-Inflammatory (too weak)

- NSAIDs
- Aspirin
- Anti-cytokine antibodies
- Anti-integrin antibodies
- Anti-oxidants

Immunosuppressive (too strong)

- Corticosteroids
- Chemotherapy
- Organ transplant Anti-rejection drugs
- Radiation
- Immune system ablation
- Anti-leukocyte Abs

GOALS OF TREATMENT

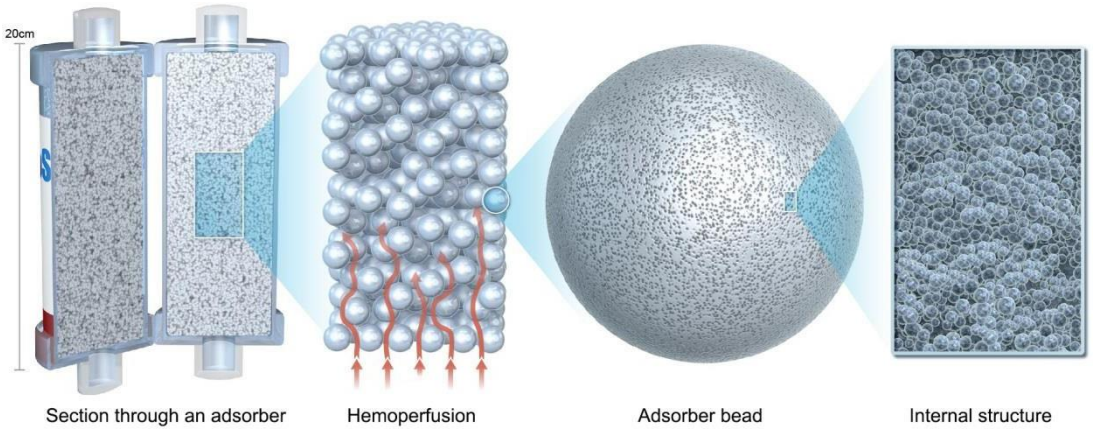
Improve Patient Outcome & Survival

Decrease Costs Of ICU & Patient Care

CytoSorbents™

Patented Blood Purification Technology

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



Each bead is about the size of a grain of salt

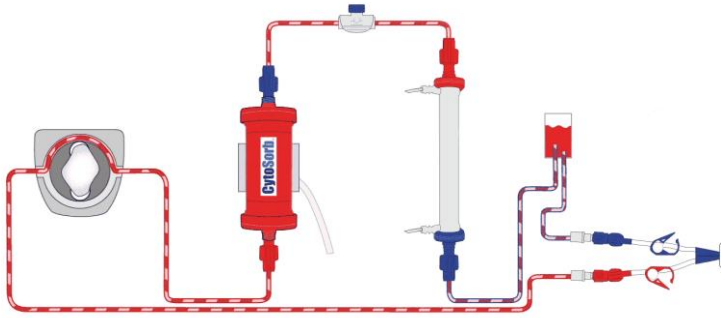
- Proprietary patented technology with 18 issued U.S. patents and multiple patents issued and pending worldwide
- Manufactured at our ISO 13485 certified facility in New Jersey

CytoSorbents™

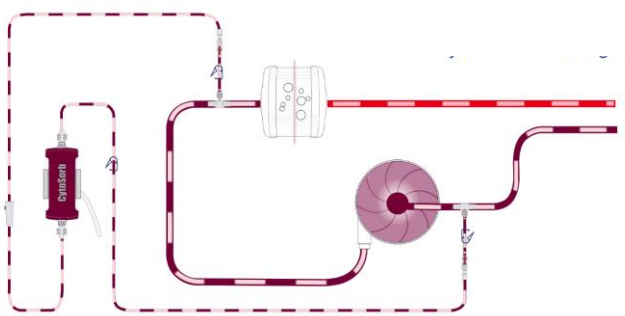
CytoSorb is “Plug and Play” Compatible

Compatible with Existing Blood Pump Infrastructure In Hospitals Today

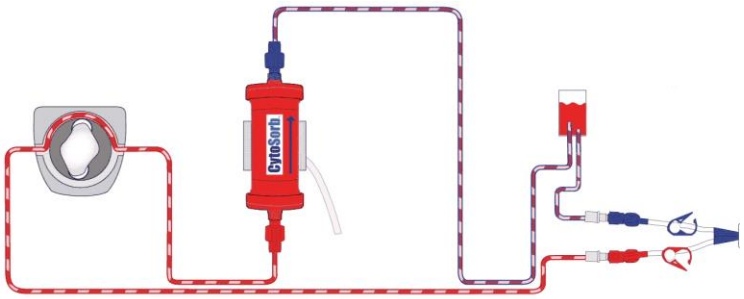
Dialysis or CRRT
(Continuous Renal Replacement Therapy)



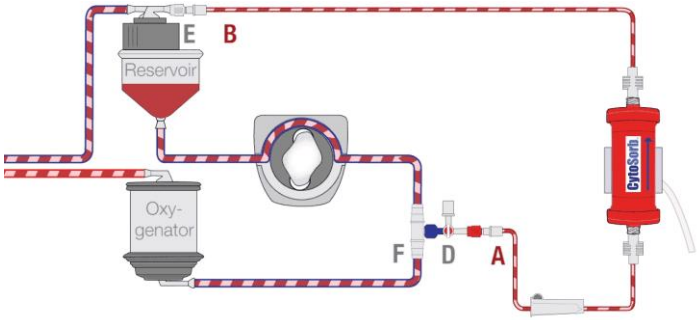
ECMO
(Extracorporeal Membrane Oxygenation)



Hemoperfusion
(Standalone Treatment)



CPB
(Cardiopulmonary Bypass)



CytoSorbents™

What is the Company's business model and financial performance?

CytoSorbents Has a Strong Hybrid Sales Model

More than 70 Countries Worldwide and >152,000 devices utilized

Critical Care and Cardiac Surgery

Direct Sales ⟺ Distributor and Partner Sales

Direct sales in 10 countries:

Germany, Austria, Switzerland, Belgium, Poland, Netherlands, Denmark, Norway, Sweden, Luxembourg

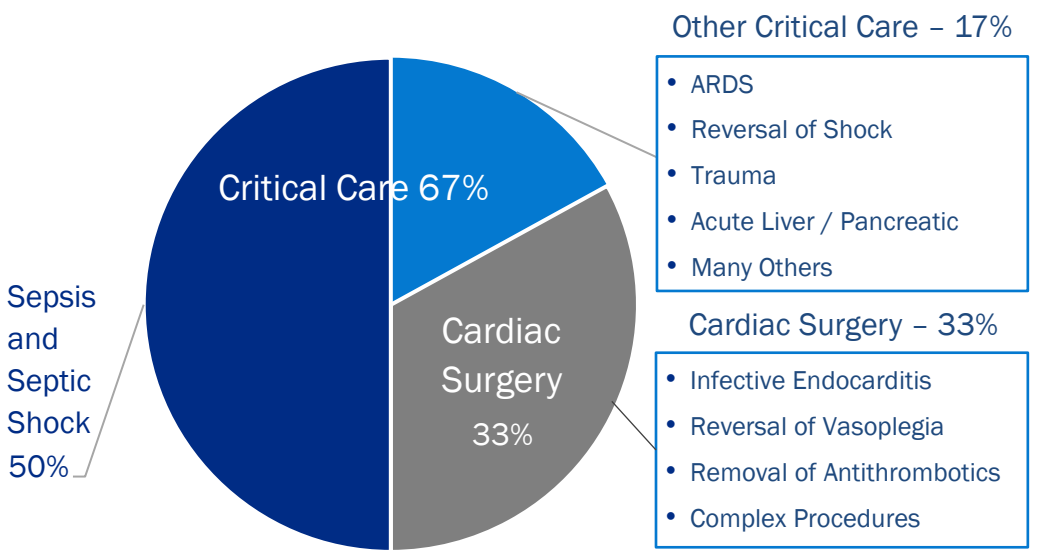
Distributor and Partner sales in >60 other countries

Entered U.S. under FDA EUA, added Mexico and South Korea with partner, Fresenius Medical Care, and expanded extensively in Latin America

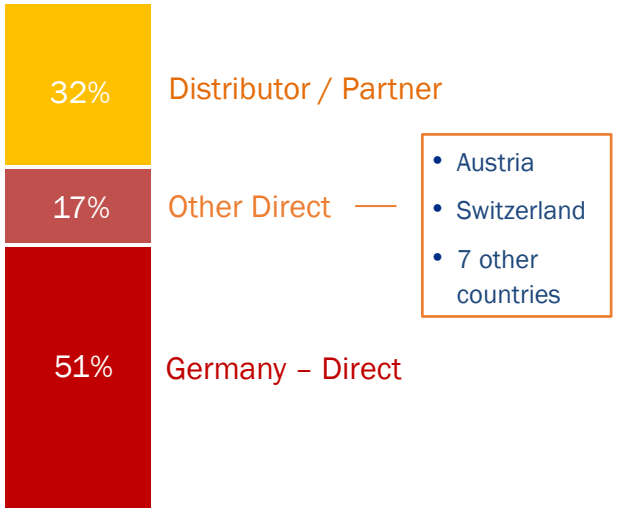
CytoSorbents™

CytoSorb Commercialization Focus

By Market



By Geography



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 gross margins were 82% in Q3 2021, driven by volume production from our new manufacturing facility and manufacturing efficiencies.

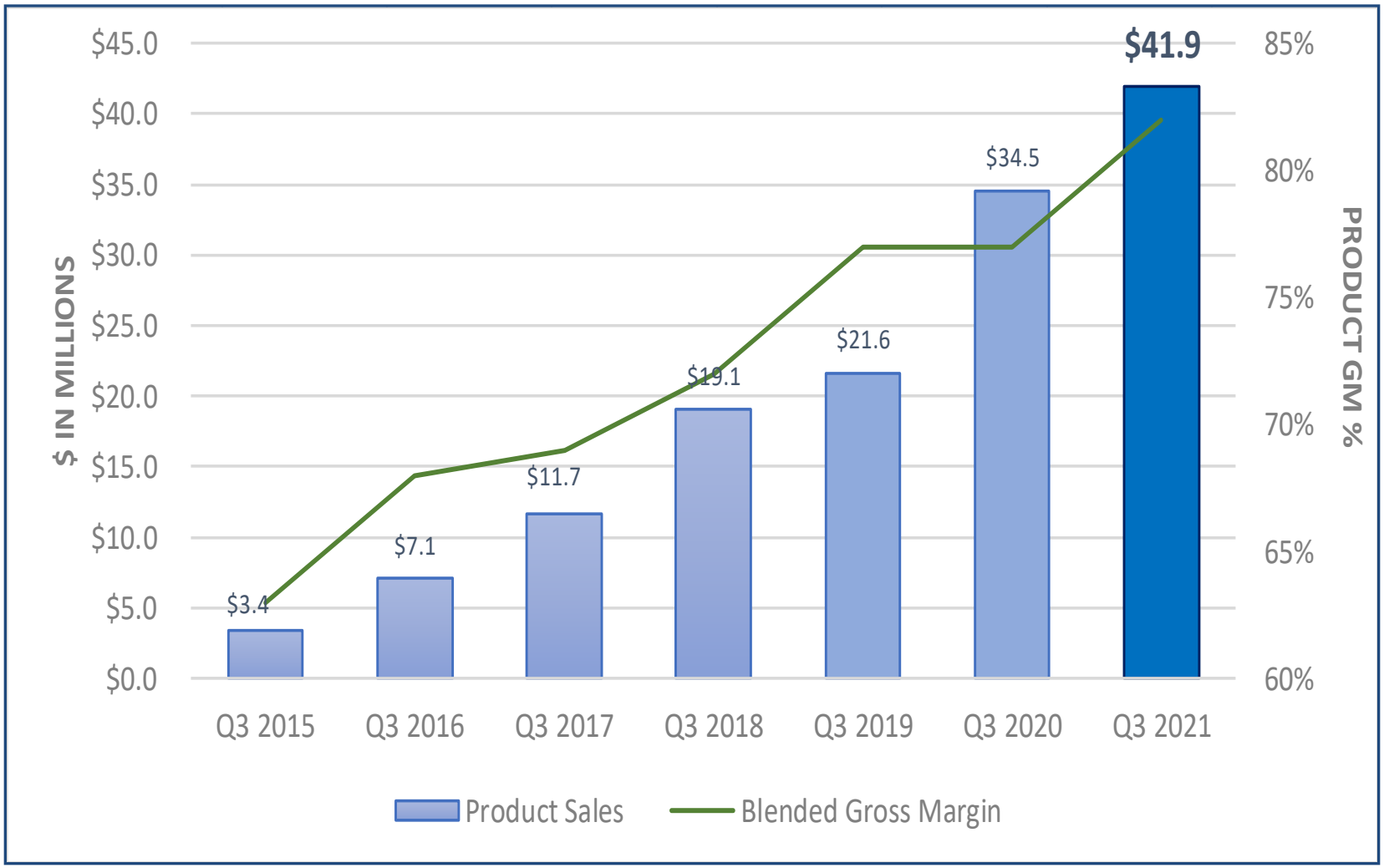
- Average Direct Selling Price is approximately $1,000 per cartridge

- ~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

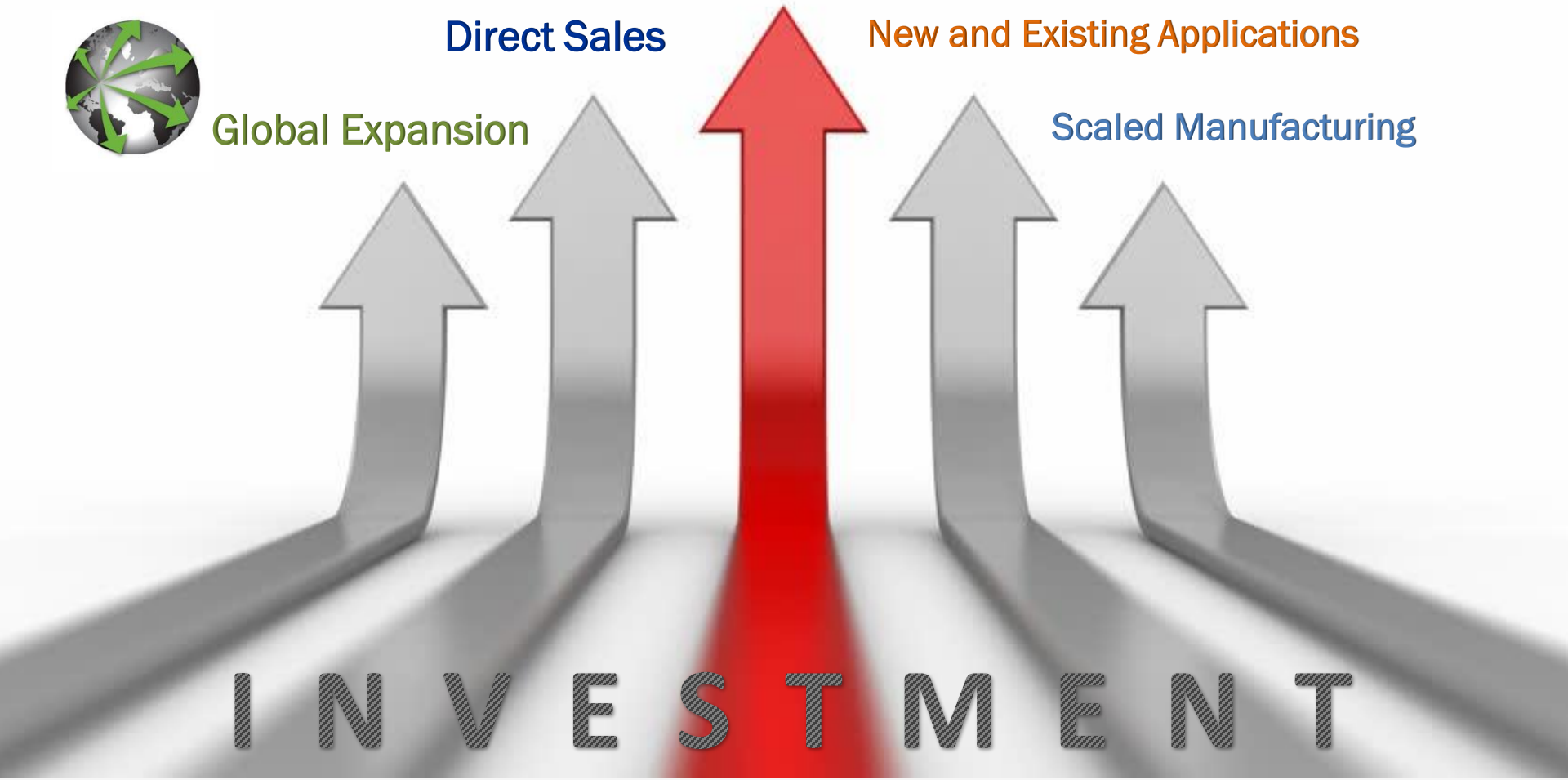
TTM Product Sales & Blended Gross Margins



CytoSorbents™

What are the catalysts for growth?

Strategy For Continued High Margin Growth



CytoSorbents™

COVID-19 Accelerates World Adoption

- COVID-19 has put a spotlight on CytoSorb as a broad spectrum treatment of complications of uncontrolled, severe hyperinflammation, such as ARDS, shock, and kidney failure, caused by cytokine storm and other factors

The New York Times Bloomberg RADIO FOX BUSINESS TheStreet.

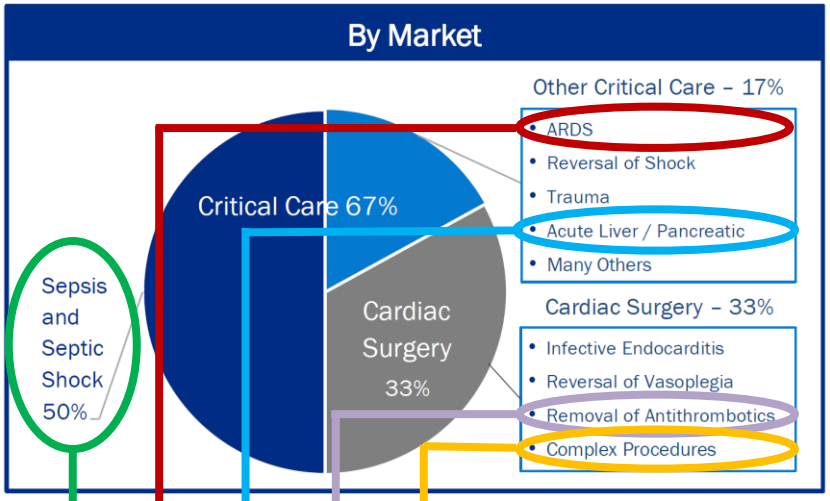
- CytoSorb has been used to treat >6,900 critically-ill COVID-19 patients in 30+ countries, including in the U.S. under FDA Emergency Use Authorization in April 2020
  - Reduction of cytokine storm and inflammatory mediators such as IL-6, ferritin, CRP, and others
  - Improved respiratory function in ARDS and weaning from mechanical ventilation and ECMO
  - Improved hemodynamic stability and reversal of shock

- COVID-19 has added approximately $14M in product revenue since the pandemic began, and we have been working grow core non-COVID-19 revenue as COVID-19 is expected to wane

- Although the push and pull of variant-driven COVID-19 waves versus increased vaccinations and lower severity of illness have added uncertainty to our near-term results as we have recently guided, we believe COVID-19 has accelerated uptake across our 70 countries, particularly in the distributor and strategic partner channel, that is expected to fuel continued sales momentum post-COVID-19

* CytoSorb has been authorized by the FDA under an EUA for use in COVID-19 patients and will remain active until terminated by the Agency. The CytoSorb device has neither been cleared nor approved for the indication to treat patients with COVID-19 infection

Company-Sponsored Studies to Help Drive Growth



We expect to have 7 active Company-sponsored clinical trials by the end of this year in key applications that are expected to drive growth, including 3 pivotal trials in the U.S. designed to support FDA marketing approval

PROGRAM	About	Status	Target Completion
PROCYSS RCT Septic Shock	160 patient, RCT in refractory septic shock	Recruiting	2023
CTC Registry COVID-19	U.S. CytoSorb Therapy in COVID-19 (CTC) registry	73% survival on ECMO from 52 pts & 5 U.S. centers	2021
Hep-On-Fire Liver Failure	Single arm alcoholic hepatitis pilot study	Pending	2023
STAR-T Brilinta Removal	120 patient, 20 center pivotal US RCT	Enrolling	2022
CYTATION Brilinta Removal	30 patient, multicenter single arm PK/PD study	Enrolling	2022
STAR-D Eliquis/Xarelto Removal	120 patient, 25 center pivotal US RCT	Pending	2023
STAR Registry Antithrombotic Removal	Registry on ATR removal during cardiac surgery	Enrolling	Ongoing
REFRESH 2-AKI Kidney injury post-CV surgery	400 pt, 25 center pivotal US RCT in high risk	Enrolling	2023
COSMOS Registry All inclusive Critical Care	Critical care CytoSorb treatment registry	Pending	Ongoing

Scaling Manufacturing Capacity to $300-400M

- Our current manufacturing facility has capacity for ~$80M in sales
- Lead time to build out, qualify, and validate from here is approximately 1 more year
- We are currently building out our new headquarters in Princeton, NJ which will house our new manufacturing facility that is expected to increase manufacturing capacity by 5x to $300-400M in annual sales
- Capital expenditures to build out facility is ~$7M, an excellent ROI
- New facility is expected to significantly drive down COGS and expand product gross margins beyond 85% due to volume manufacturing

Unlocking the U.S. Opportunity

EU Approval to Remove Ticagrelor and Rivaroxaban "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

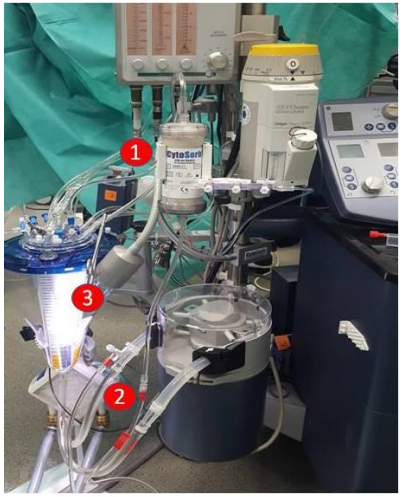
Ticagrelor (Brilinta®, Brilique® - AstraZeneca) is a blockbuster $P2Y_{12}$ anti-platelet agent ("blood thinner") with more than $1.6 billion in worldwide sales, used in patients with acute coronary syndrome

Rivaroxaban (Xarelto® – Bayer, Jansenn/J&J) is a blockbuster Factor Xa inhibitor anticoagulant ("blood thinner") with ~$7 billion in 2019 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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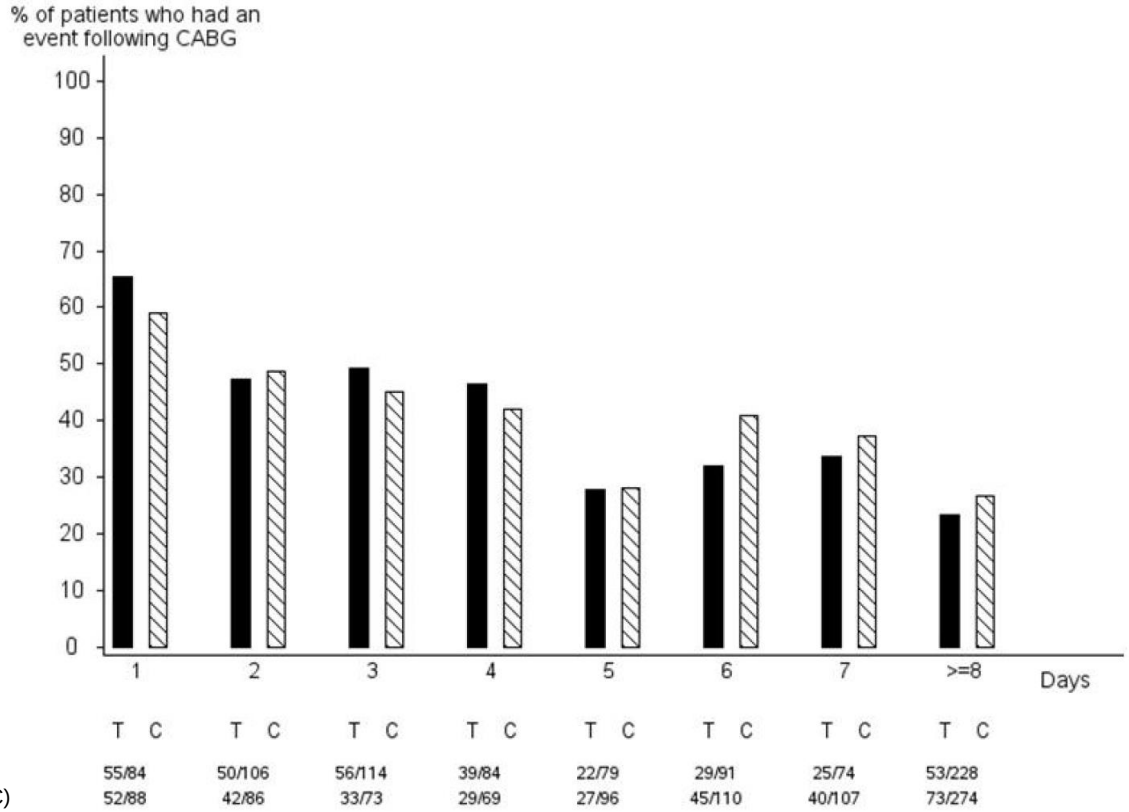
Risk of Bleeding Is High in CABG Patients on Ticagrelor

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

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



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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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™

STAR-T Trial Begins Priority Path to Potential FDA Marketing Approval

FDA Breakthrough Therapy Designation

- In April 2020, the FDA granted Breakthrough Designation to CytoSorbents' technology to remove ticagrelor during cardiopulmonary bypass in emergent or urgent cardiothoracic surgery – a "fast track" for a major unmet medical need
- Received full FDA approval of IDE in July 2021 to conduct the STAR-T (**S**afe and **T**imely **A**ntithrombotic **R**emoval of **T**icagrelor) randomized, controlled trial designed to support U.S. FDA marketing approval of the DrugSorb-ATR™ antithrombotic removal system
- The trial is expected to enroll 120 patients across 20 sites
- The primary endpoint will evaluate whether the use of DrugSorb-ATR with standard of care in patients on ticagrelor undergoing cardiothoracic surgery reduces peri-operative bleeding complications versus standard of care alone
- Methods paper recently published in American Heart Journal
- First patient enrolled into the study in October 2021 and now 8 sites active
- The trial is expected to be complete in 2022

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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 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™

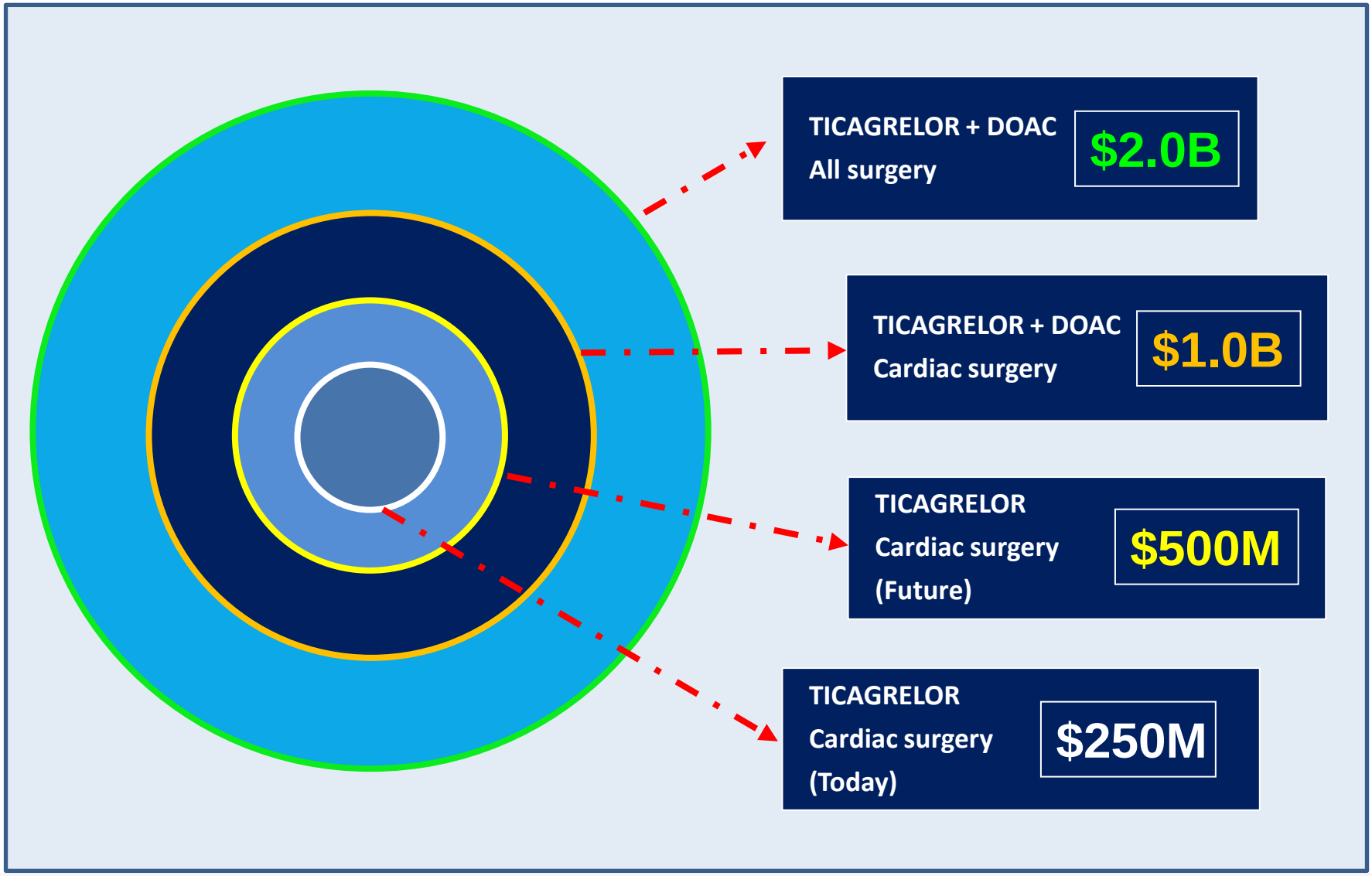
STAR-D Trial Expands Potential of DrugSorb-ATR to be a One-Stop Shop

DrugSorb™ ATR Breakthrough Device Status

- In August 2021, the FDA granted CytoSorbents its second Breakthrough Designation, this time to remove Xarelto and Eliquis during cardiopulmonary bypass in emergent or urgent cardiothoracic surgery – a “fast track” for a major unmet medical need
- Received full FDA approval of IDE in October to conduct the STAR-D (**S**afe and **T**imely **A**ntithrombotic **R**emoval of **D**irect oral anticoagulants) randomized, controlled trial designed to support U.S. FDA marketing approval of the DrugSorb-ATR™ antithrombotic removal system
- The trial is expected to enroll 120 patients across 25 sites
- The primary endpoint will evaluate whether the use of DrugSorb-ATR with standard of care in patients on DOACs undergoing cardiothoracic surgery reduces peri-operative bleeding compared to standard of care alone
- First patient enrolled is expected in Q1 2022
- If successful, we seek to establish DrugSorb-ATR as the new global standard to reduce a broad range of blood thinners during cardiothoracic surgery and other operative procedures

CytoSorbents™

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



CytoSorbents™

Investment Summary

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

- High margin razorblade business model with excellent operating leverage and opportunity for further improvement following increased manufacturing capacity
- Strong foundation and well-funded for potential future growth, with new and existing clinical applications that address major unmet medical needs
- We have extensive validation from physicians around the world, leading strategic partners, U.S. government agencies, and the media
- Focused on driving U.S. FDA approval – a potential major future growth catalyst by leveraging dual FDA Breakthrough Designations for ticagrelor (Brilinta®), apixaban (Eliquis®), and rivaroxaban (Xarelto®) removal. Believe DrugSorb-ATR can become standard of care and address a $750M-$1B opportunity by removing other blood thinners during cardiac surgery

CytoSorbents™

Working to Save Lives Through Blood Purification

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