Biolife Solutions®

Analysts and Investors Day

March 23, 2023

Class-defining solutions for bioproduction workflows

NASDAQ: BLFS

Safe Harbor Statement

Except for historical information contained herein, this presentation contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements include, but are not limited to, statements concerning the expected financial performance of the company in 2023, 2024, and 2025 and our ability to meet our financial objectives during that time frame, including related to our expected shift in product mix over the next three to five years, our ability to implement our business strategy and anticipated business and operations, in particular following our recent acquisitions and the construction and validation of a center of excellence biorepository, our ability to address and resolve ULT freezer issues, the potential utility of and market for our products and services, including the adoption of biopreservation media products for use in the approximately ten additional therapies expected to make regulatory filing submissions in 2023 and the adoption of evo cold chain services by all six currently approved CAR T-cell therapies, our ability to cross sell our products and services, our ability to hire and retain personnel that meet our guiding values, our ability to leverage our proprietary Stirling engine intellectual property via select partnerships to broaden global access to this high-value asset, guidance for financial results for 2023 and aspirational financial goals and objectives for exiting 2024 and 2025, including regarding our expectations for potential revenue growth and changes in gross margin, adjusted gross margin and adjusted EBITDA margin, and potential market expansion, and our plans, objectives, expectations, beliefs and intentions and other statements including words such as "hope," "anticipate," "may," "believe," "expect," "intend," "will," "should," "plan," "estimate," "predict," "continue" and "potential" or the negative of these terms or other comparable terminology. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. These statements are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and assumptions that could cause actual results to differ materially from those described in the forward-looking statements, including among other things, continued market adoption of the company's products, uncertainty regarding third-party market projections, our ability to continue to implement our business strategy, market volatility, competition, the impact of the COVID pandemic and supply chain issues, and those other factors described in our risk factors set forth in our filings with the Securities and Exchange Commission from time to time, including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. We undertake no obligation to update the forward-looking statements contained herein or to reflect events or circumstances occurring after the date hereof, other than as may be required by applicable law.

Preliminary Revenue Legend

These preliminary unaudited financial and other results are subject to revision in connection with the Company's financial closing procedures, including the Company's audit committee's reviews, and finalization of the Company's consolidated financial statements for the year ended December 31, 2022. During the preparation of the Company's consolidated financial statements and related notes and the completion of the audit for the year ended December 31, 2022, additional adjustments to the preliminary estimated financial information presented above may be identified. Actual results for the periods reported may differ from these preliminary results.

Welcome Remarks

Mike Rice

Welcome

Mike Rice
1:30 PM – 1:45 PM

Michael Rice

Chairman & Chief Executive Officer

BS Bus Admin; 16+ years as BLFS CEO; chief visionary of BLFS market opportunities, branding, marketing strategies; 18 years medical device sales, sales management, marketing; patient monitoring, defibrillators, implantable CRM, hearing devices, LAN/WAN; 33 issued (multiple jurisdictions) and 15 pending patents.

Agenda

11:00AM
arrivals at BioLife facility – meet and greet, bathroom break, email catch up

11:30AM - 12:15PM
Facility tour – led by Garrie

12:15PM – 1:00PM
Lunch – informal – in vestibule

1:30PM
Formal webcast presentation begins

4:30PM
adjournment

PRESENTATIONS:

1:30PM – 1:45PM: Welcome and brief remarks: Mike Rice

1:45PM – 2:30PM: CGT Industry Evolution & BLFS Value-Add: Aby J. Mathew, PhD

2:30PM – 3:00PM: Storage Services Platform Overview: Garrie Richardson

3:00PM – 3:15PM: Break

3:15PM – 3:35PM: Quality at BLFS: Karen Foster

3:35PM – 4:00PM: Freezer Platform Recovery Initiatives: Geraint Phillips

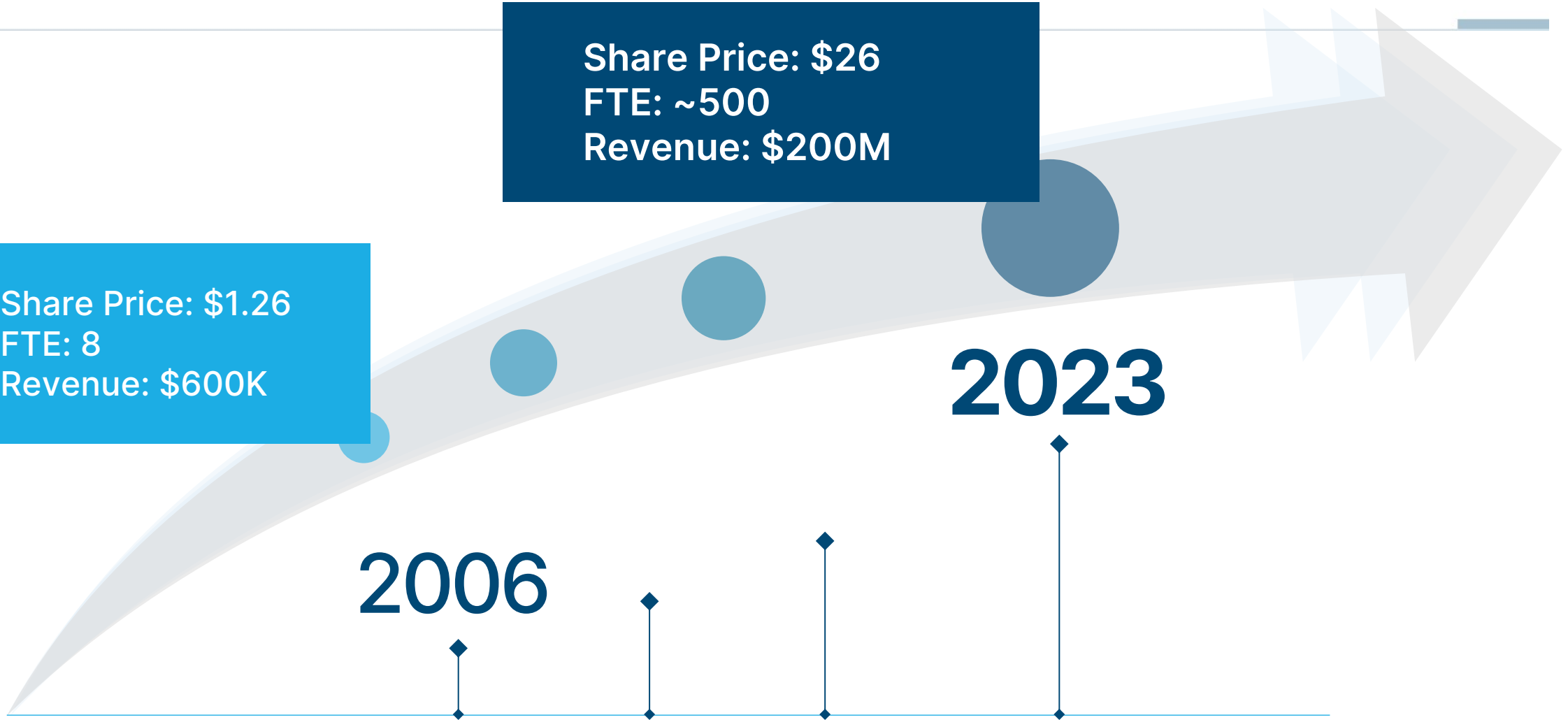
4:00PM – 4:15PM: 2022 Financial recap and 2023 outlook: Troy Wichterman

4:15PM – 4:30PM: extra time for Q&A

17 Year Journey

Share Price: $26
FTE: ~500
Revenue: $200M

Share Price: $1.26
FTE: 8
Revenue: $600K



Company History

IP development
Investigated traditional biopreservation media shortcomings.
Identified cell molecular responses to hypothermia and sub-zero temperatures.
Reformulated media to minimize freeze/thaw cell damage/death.

Refined production batch processes
Sourced USP components
Established cell-based assays/release criteria

Long lead times, higher COGS

Less control of product quality

Shorter lead times, lower COGS

More control of product quality

Early Patents Filed
Research & Product Development

Pilot GMP Production
Small Scale Production

Outsourced Production
Internal Production

1987 1998 2002 2004 2007 2008 2010 2012 2014 2019 2020 2021 2022

Incorporated as a subsidiary of publicly traded **Cryomedical Sciences, Inc.** BioLife Solutions located at the State University of New York at Binghamton

Sale of some Cryomedical Sciences assets; Corporate name change to **BioLife Solutions, Inc.**; ticker changed to **BLFS**

Relocated to Owego, NY

Management change; relocated to Seattle area (Bothell, WA)

Improved Quality System; submitted FDA Master Files for **CryoStor** and **HypoThermosol FRS**
>300 customers

ISO13485; strong product adoption and customer acquisition growth; 12,000 – 20,000 liter annual capacity; custom formulas and packaging

2nd Cleanroom Buildout

Uplisted to NASDAQ

Acquired complementary tools companies:

Astero Bio (ThawSTAR)
SAVSU Technologies (evo)
Custom Biogenic Systems (Freezers)

Acquired **SciSafe**

Acquired **Stirling Ultracold**

Acquired **Sexton Biotechnologies**

Our Mission

We are a leading provider of bioproduction tools and services to the cell and gene therapy and broader biopharma markets. We strive to facilitate basic and applied research and the commercialization of new therapies by supplying solutions that maintain the health and function of biologic source material and finished products during manufacturing, storage and distribution.

Guiding Values

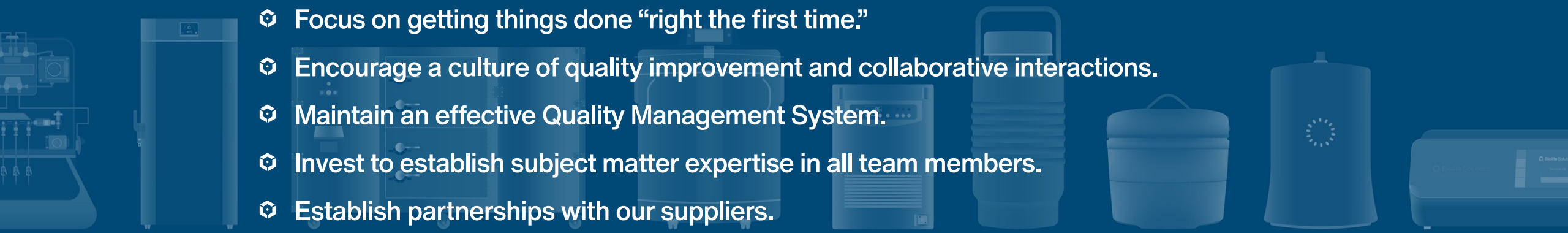
- Our team members are our most important asset.
- We only employ motivated, inspired people who thrive in a performance-based environment.
- Honesty, integrity, and authentic communication are expected and required for continued employment.
- We challenge every team member to continuously exceed customer expectations.
- Our quality environment can and will be continuously improved.

Quality Policy

We are committed to manufacturing products and providing services and customer support in accordance with our Quality Standards, applicable regulations and good manufacturing practices that support customer needs. Every team member in the organization is responsible for ensuring product quality and exceptional customer support championing continuous improvement during the performance of their duties.

We will:

- Provide products and services that consistently meet our quality standards to satisfy customer expectations of quality, safety, reliability, performance and on-time delivery.
- Focus on getting things done “right the first time.”
- Encourage a culture of quality improvement and collaborative interactions.
- Maintain an effective Quality Management System.
- Invest to establish subject matter expertise in all team members.
- Establish partnerships with our suppliers.



Leadership Team

Mike Rice – *Chairman & Chief Executive Officer*
BS Bus Admin; 16+ years as BLFS CEO; chief visionary of BLFS market opportunities, branding, marketing strategies; 18 years medical device sales, sales management, marketing; patient monitoring, defibrillators, implantable CRM, hearing devices, LAN/WAN; 5 issued and 13 pending patents

Troy Wichterman – *Chief Financial Officer*
BBA, MS Accounting, CPA (inactive); 13 years of experience in various finance and accounting roles; most recently served as BioLife's Vice President, Finance since November 2019; integral in six acquisitions. Started with BioLife in 2015 with several positions of increasing responsibility.

Marcus Schulz – *Chief Revenue Officer*
20+ years experience in strategic business development and executive sales leadership roles with companies including Siemens Healthcare, Johnson & Johnson, Abbott Laboratories and most recently, GE Healthcare, with primary management of a $1 billion annual revenue strategic account.

Aby J. Mathew, PhD – *EVP, Chief Scientific Officer*
BS Microbiology, PhD, Cell & Molecular Biology; co-developer of platform HypoThermosol® and CryoStor ® media; in demand industry thought leader in biopreservation of cells and tissues for clinical applications; catalyst responsible for driving regen med market to adopt BLFS clinical grade biopreservation media; 6 issued and 6 pending patents; numerous journal articles

Karen Foster – *Chief Quality Officer*
BS Biological Sciences, MS Zoology, MBA; 25-year career in quality and manufacturing operations including 13 years VP Manufacturing Operations and Site Leader at ViaCord, 2 positions leading 80 member teams; certified Six Sigma Green Belt

Todd Berard – *Chief Marketing Officer*
BS, Biochemistry, MBA; 16 years marketing including leadership of marcom, corporate branding, product marketing, and positioning for Verathon, Physio Control (MDT), tech startups

Leadership Team

Mike Palotta – *Global VP, Hardware and Electrical Engineering*
BS, Mechanical Engineering, MBA; Led effort to introduce new products in the Cell Processing platform with Cook Regentec and Sexton. Held numerous roles at Rolls-Royce Corporation including development of gas turbine engines, mechanical design, technical project management, and systems engineering.

Seth Lilly– *Global VP, Software Engineering*
UCLA Anderson Certified Director with 20+ years experience in information systems, engineering, and technical leadership roles in organizations including EPSCoR and Cisco Systems, providing expertise in modern information system architecture, user experience, and strategic technology development.

Brett Stucker – *Global VP, Information Technology*
25+ years experience in digital media production, digital forensics, network design and installation, and IT leadership supporting 5,000+ users globally in government, public and private companies, and NGO non-profit endeavors. Industries

Geraint Phillips – *Senior Vice President, Global Operations*
BS Physics from Cardiff University, MBA from the University of South Wales. Former COO of Stirling Ultracold, Geraint has over 20 years of operational executive leadership experience that includes previous roles at Azenta Life Sciences and PerkinElmer.

Sarah Aebersold, J.D. – *Global VP, Human Resources*
BA Psychology, JD. Joined BioLife in 2020 with over 15 years of HR leadership experience at various companies in the industries of Biotechnology, Medical Device, Software, and Healthcare.

Garrie Richardson – *General Manager, Storage Services*
With over 15 years of sample management experience, Garrie has overseen the growth of SciSafe's business from three refrigerated chambers to hundreds today. He has intimate, hands-on experience with all aspects of sample management and is driving the company to become the global leader in sample management and integrated cold chain solutions.

Accolades

2013

Seattle Business WASHINGTON'S 100 BEST COMPANIES TO WORK FOR 2013

2015

Seattle Business WASHINGTON'S 100 BEST COMPANIES TO WORK FOR 2015

2020

Deloitte. Technology Fast 500™

Seattle Business WASHINGTON'S 100 BEST COMPANIES TO WORK FOR 2020

2021

Deloitte. Technology Fast 500™

Inc. Best-Led Companies 2021

2022

BioSpace

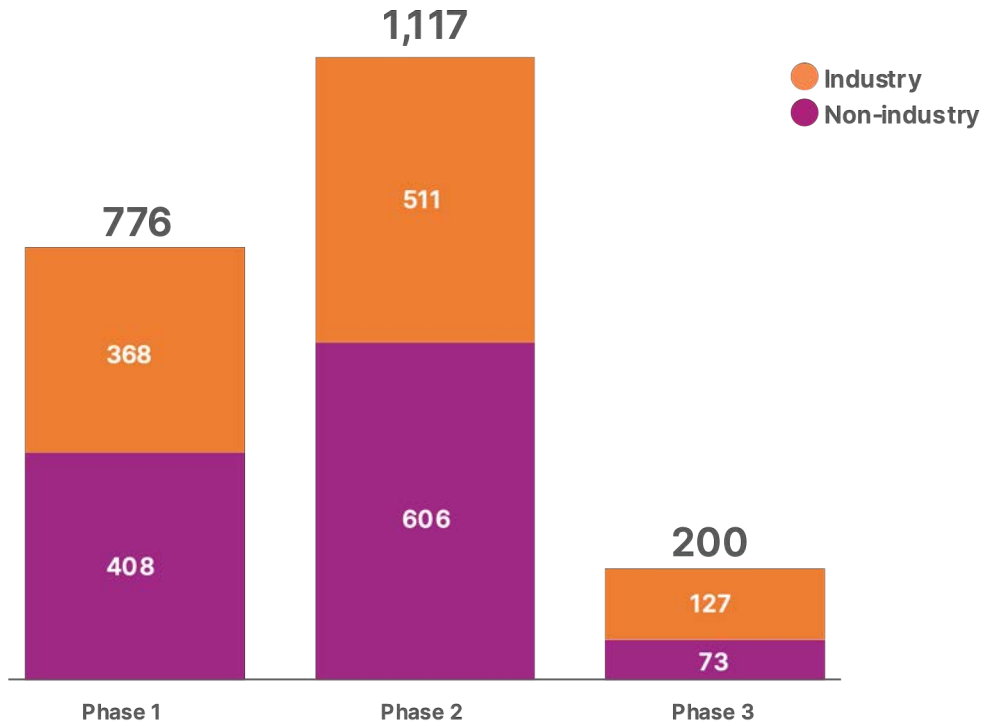
Seattle Business WASHINGTON'S 100 BEST COMPANIES TO WORK FOR 2022

Biolife Solutions®

Global Cell & Gene Therapies Industry

2,093 Active Regenerative Medicine Clinical Trials

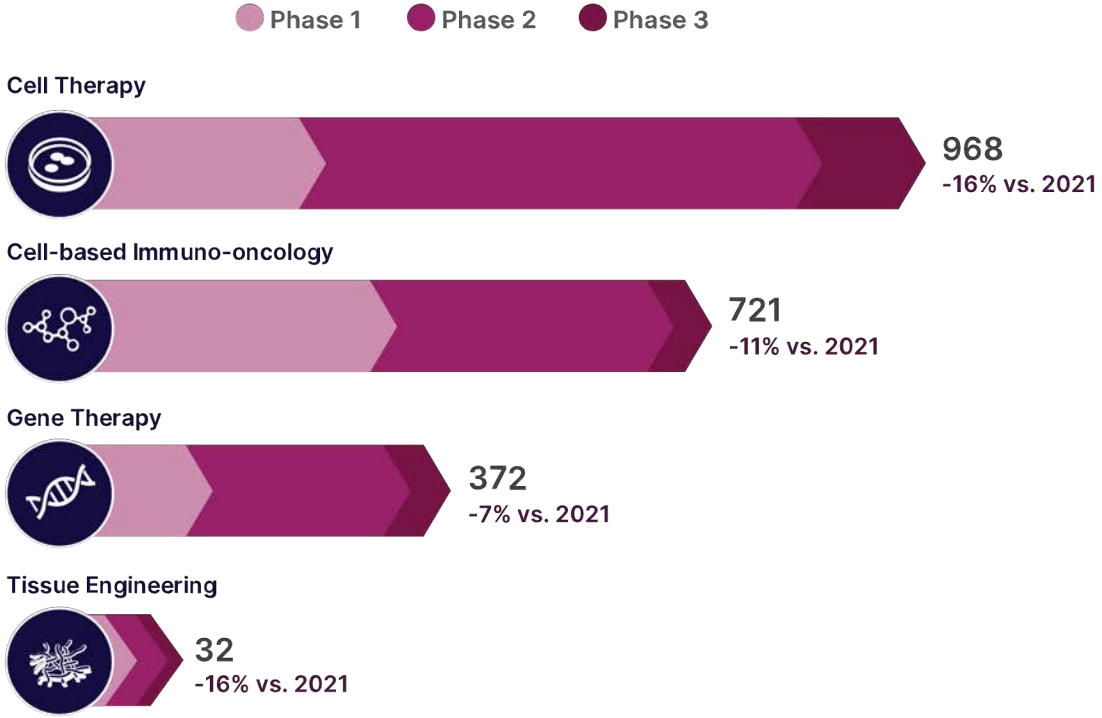
Active Clinical Trials by Sponsor and Phase



- Industry-sponsored: 48%
- Academic- and government-sponsored: 52%

Source: Alliance for Regenerative Medicine 1H 2022 Report

Active Trials by Therapy 2022 H1



- Cell therapies: 46%
- Cell-based immuno-oncology (CBIO): 34%
- Gene therapies: 18%
- Tissue-engineered therapies: 2%

FDA Support

Accelerator of CAR-T clinical adoption

- FDA expects 10-20 new approvals per year by 2025.
- For context, FDA has approved a total of 27 CGT products since 2017.
- To meet the current and anticipated demand in regulatory reviews and audits, the FDA is hiring 132 new staff in FY 2023 and an additional 96 in FY 2024-27

1. Statement from FDA Commissioner Scott Gottlieb, M.D., January 15, 2019
2. “FDA Expands Oversight of Cell and Gene Therapies,” BioPharm International.com, Oct. 12, 2022

Biopreservation Challenges

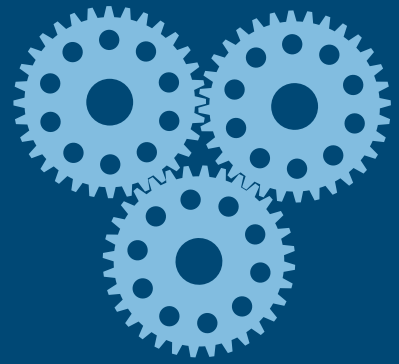
CAR T and other cell therapies MUST be kept alive during manufacturing, storage and shipping to maintain biologic potency

As *Ex Vivo* Time Increases, So Does Risk

Survival
How Long

Viability
How Many

Function
How Well

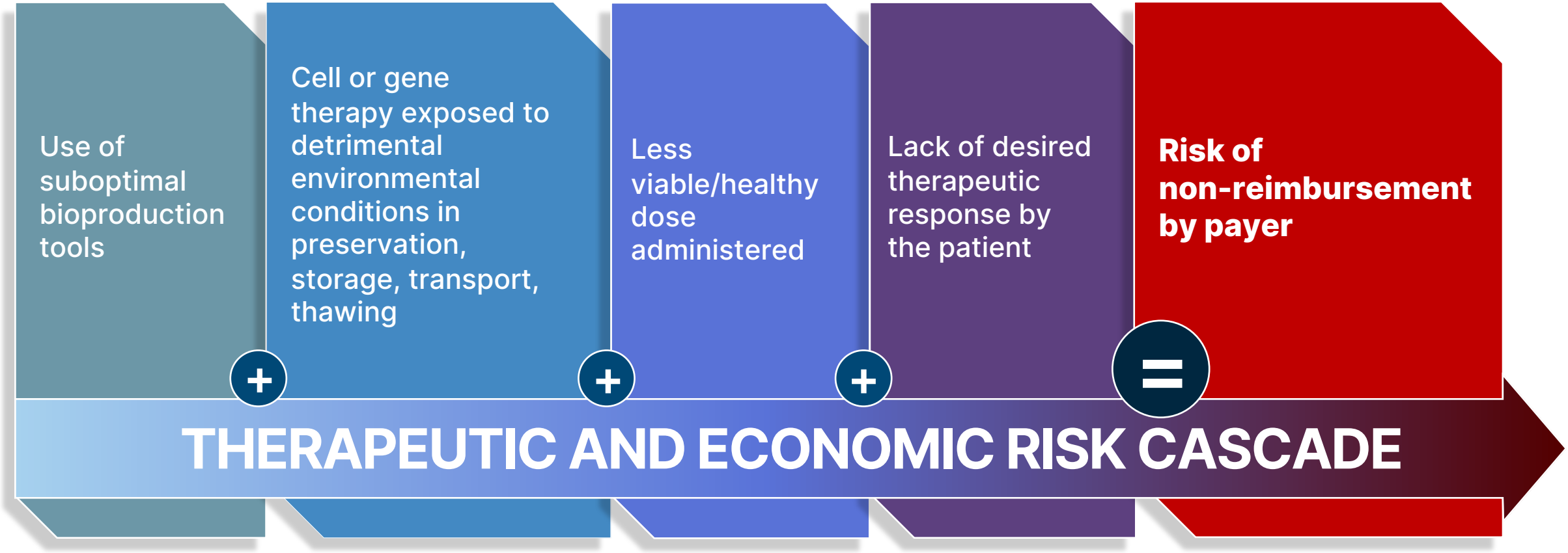


Causes of Reduced Biologic Potency

Poor Preservation ⚠ **Temp Excursions** ⚠ **Mechanical Shock**

Customer Reimbursement Environment

- "Pay for response/cure" paradigm
- Paid out over time only if initial and durable response to treatment is confirmed
- Increased economic risk for our customers



Biolife Solutions®

Product and Services Portfolio

BioLife Solutions Product Portfolio

Cell Processing

SEXTON BIOTECHNOLOGIES

Storage and Services

savsu TECHNOLOGIES

SciSAFE
Biological and Pharmaceutical Storage

Freezing and Thawing

Stirling ULTRACOLD

Custom BioGenic Systems

ASTERO

Our Solutions Embedded in Customer CGT Workflow

Collection

Safely store and transport harvested cells from collection to processing



evo® DI Dry Ice Smart Shippers
evo® LN2 Smart Shippers
evoIS™ Web Application
ModPak™ Packout Kit
BioT™
Intra-campus Transport

Formulation

Stabilize starting materials through expansion and cryopreservation


CryoStor® Freeze Media
BloodStor® Media
HypoThermosol® FRS
Storage & Shipping Media
nLiven PR™ Platelet Lysate
Stemulate™ Platelet Lysate

Fill & Packaging

Minimize variability between samples to ensure batch consistency & maximum recovery



CellSeal® Cryogenic Vials
Signata CT-5TM Closed Fluid Management System
CellSeal® Connect
CellSeal® RF Sealer
CellSeal® AF-500
Automated Fill & Seal

Controlled-Rate Freezing

Ensure maximum viability & efficacy of frozen samples through optimized cooling rate



CBS Cryogenic Solutions
Intellirate ™ Controlled Rate Freezers
Standard, Expanded, and High-Capacity

Storage

Reliably maintain stable minimum safe storage temperature to avoid loss of viability

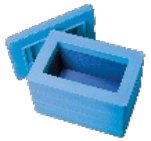


Isothermal LN2 Freezers
Standard LN2 Freezers
Stirling Ultracold ® ULT Freezers
SciSafe® Storage Services

Cold Chain

Ensure the integrity & security of the chain of custody with temperature monitoring and traceability





evo® DI Dry Ice Smart Shippers
evo® LN2 Smart Shippers
evoIS™ Web Application
ModPak™ Packout Kit
BioT™ Intra-campus Transport

Thawing

Safeguard consistent sample viability while minimizing contamination risk during thawing


ThawSTAR®
Water-free, automated thawing systems for bags and vials

Cell Processing Highlights

- >50% growth over 2021
- 102 new customers
- 27 new USA FDA master file cross reference requests
- Embedded in possible 10 newly approved therapies in 2023-24[1-3]
- STEMCELL Technologies (largest distributor) in 2022:
  - 3,410 unique media customers
  - 563 new first time media customers

1. Regenerative Medicine: The Pipeline Momentum Builds, Alliance for Regenerative Medicine, Sept., 2022
2. Eight imperatives for launching cell and gene therapies, McKinsey & Co., Sept., 2022
3. EvaluatePharma

evo® Cold Chain Highlights

In 4 CAR-T approved therapies

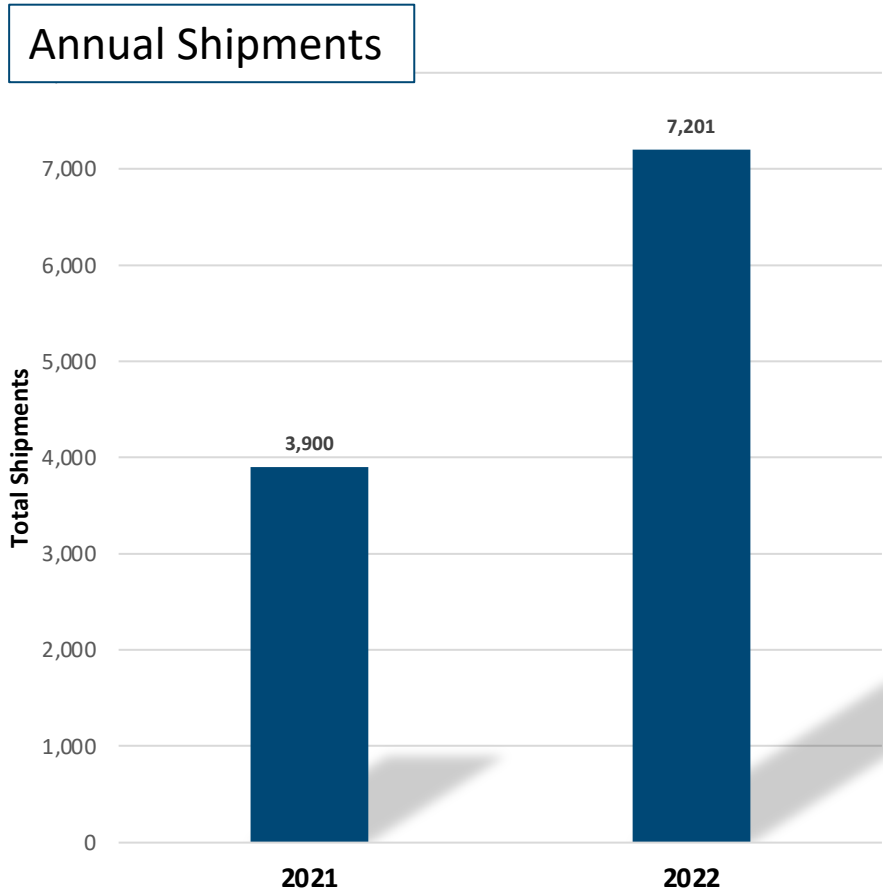
- 43 new end users in 2022
- Accelerating growth: of 13,352 cumulative shipments since evo® introduced – *over half* of those occurred in 2022
- Supporting ~ 100 clinical trials

Upstaza™ (eladocagene exuparvovec)

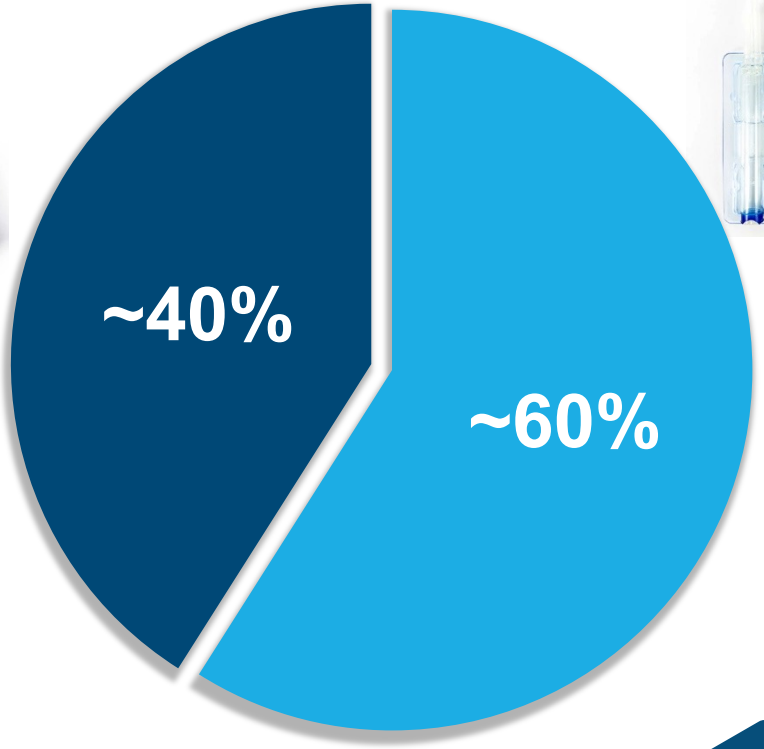
CARVYKTI™ (ciltacabtagene autoleucel) Suspension for IV Infusion

zolgensma® (onasemnogene abeparvovec-xioi) suspension for intravenous infusion

KYMRIAH® (tisagenlecleucel) Dispersion for IV infusion



FY 2022 Recurring vs. Equipment Revenue



Recurring

Equipment

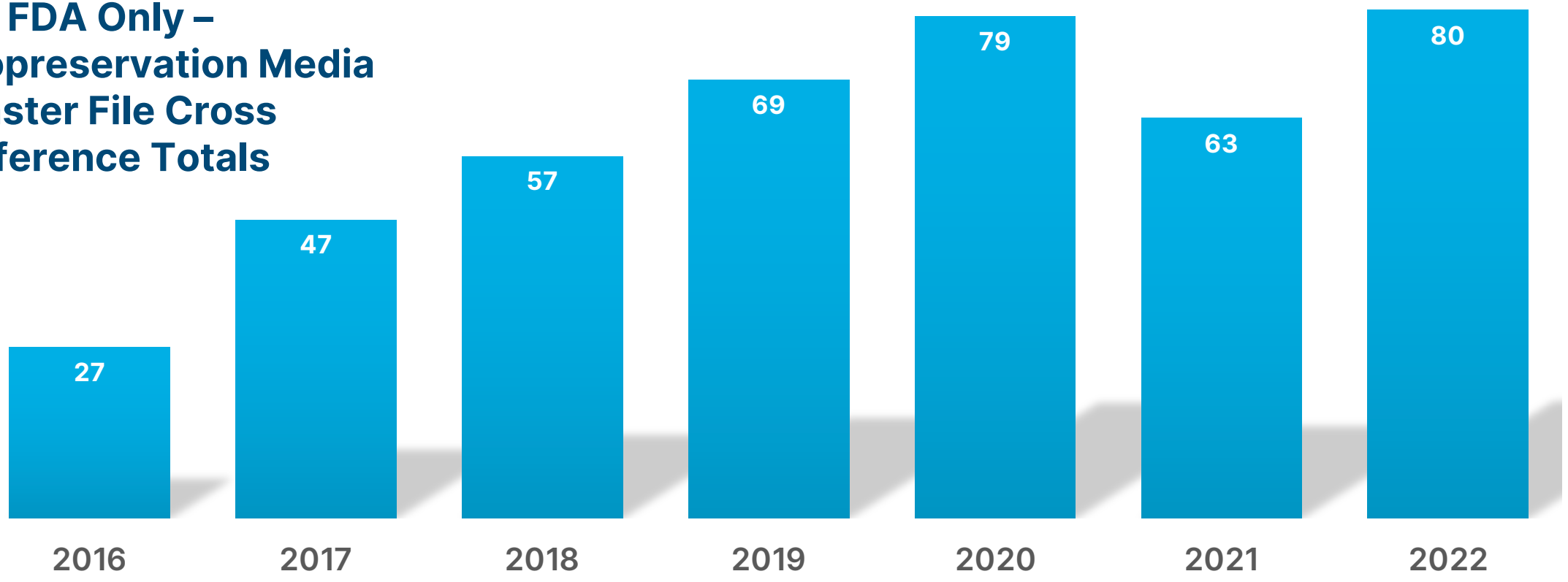
SciSafe® Services

Part of Biolife Solutions®

Biopreservation Media Embedded in >600 Customer Clinical Applications

– up from 450 for 2020

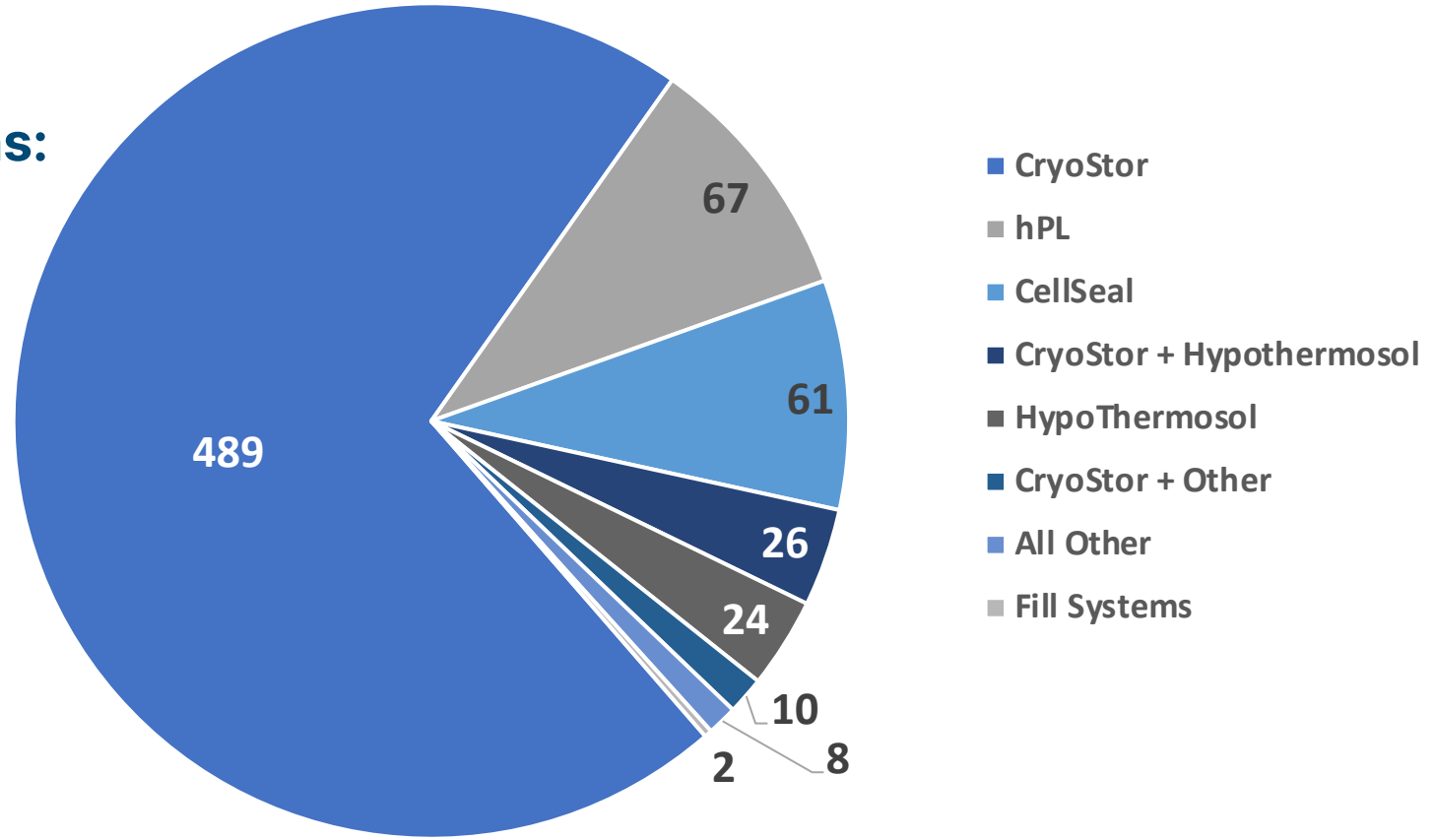
US FDA Only – Biopreservation Media Master File Cross Reference Totals



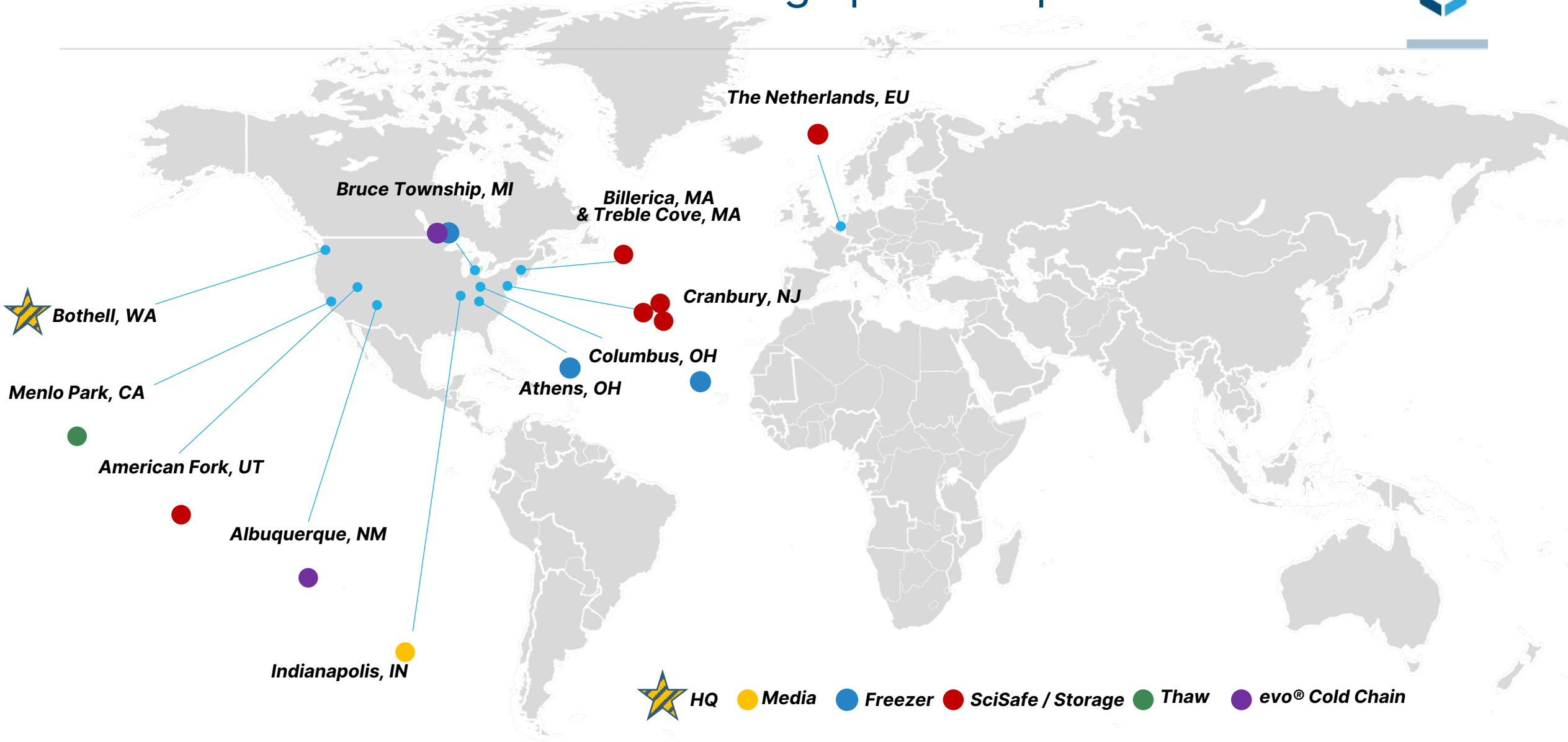
Cell Processing Solutions Embedded in ~ 700 Customer Clinical Applications

687 total customer applications:
Blend of Master File Reference totals plus customer requests documented verbally / in writing

Potential annual revenue:
Each of CryoStor, Sexton Media and Sexton Vials: $500,000 — $2,000,000

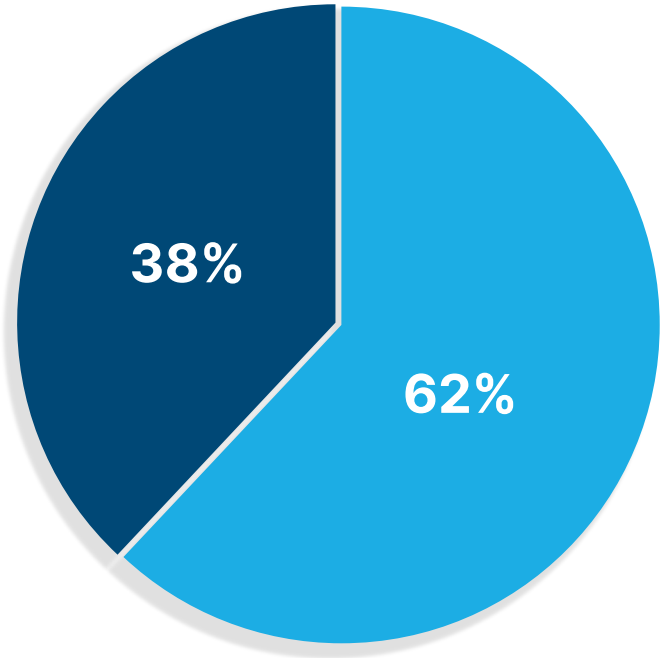


Overview of Facilities — Broad Geographic Footprint

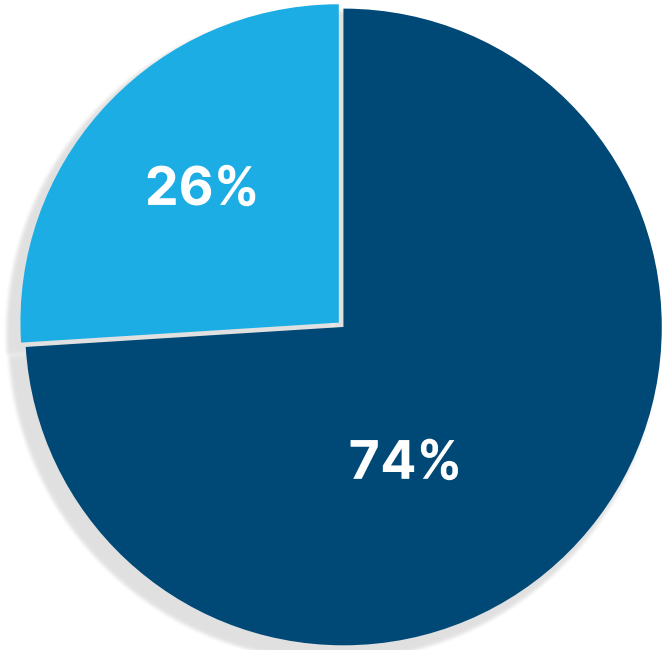


FY2022 Revenue Channels ~ 60% Recurring / High Margin

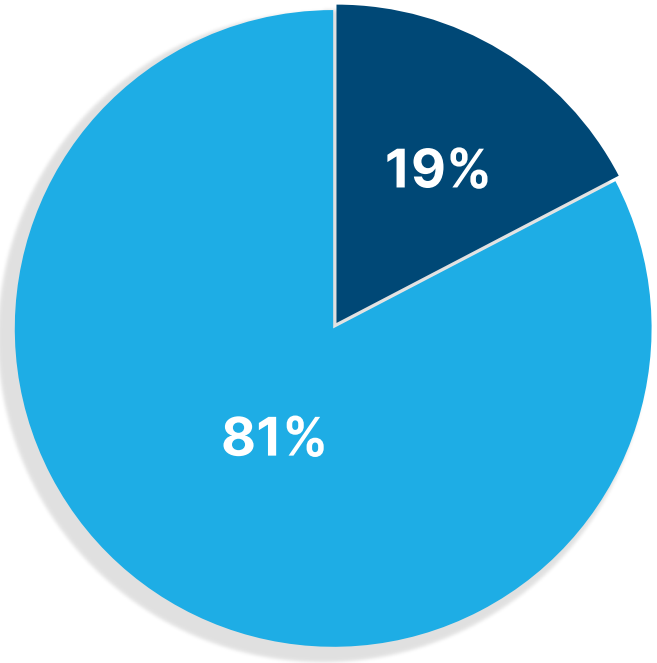
Cell Processing



Freezers & Thaw



Storage & Storage Services



Direct Distributor

Growth Catalysts

Captive marquee base of CGT customers

- Directly and indirectly supplying majority of global pharma companies
- Cell processing solutions embedded in ~ 700 customer clinical applications; Sexton culture media & CellSeal® vials embedded in >60 clinical applications each!

CGT outlook as dominant treatment modality

- Currently serving large disease states; cell processing tools embedded in 12 approved therapies
- Expecting continued expansion of indications, additional geographic approvals and prioritization in the treatment regimen to 1st or 2nd line therapies
- Eventual transition to allogeneic therapies – major increase in manufactured doses

5 New Products & 2 New Services Launched by end of 2024

- High volume/high margin/cell processing consumables
- Freezers, freezer cloud monitoring, global tech services

Allogeneic Opportunity

Accelerator of CAR-T clinical adoption

- **Estimated as few as 20-25% of eligible patients for approved CAR-T therapies receive them due to access barriers[1]**
- **Allogeneic CAR-T addresses major limitations of autologous therapies:**
  - Potentially improved efficacy
    - Shorter time to infusion / faster treatment: no lengthy “vein-to-vein” time
    - Use of healthier, non- pre-treated donor T cells eliminating “harvest failures"
  - Improved economics / access
    - Not constrained to limited number of certified treatment centers - banks of cells can be stored across treatment sites
    - Elimination of complex supply chain
  - Greater quality control in manufacturing process
    - Increased consistency / reduced variability
    - Improved economies of scale, lower COGS

Allogene THERAPEUTICS
PRECISION BIOSCIENCES
ATARA BIO
Fate THERAPEUTICS
CRISPR THERAPEUTICS
ImmunityBio
CARIBOU BIOSCIENCES
cellectis EDITING LIFE

1. Investigators Set Sights on Optimizing CAR T-Cell Therapy in Lymphoma. OncLive, Sept. 4, 2022
2. Off-the-shelf CAR T cells hold ‘huge’ promise for cancer treatment, but more data needed. Healio, Dec. 21, 2022
3. Caldwell, KJ, Gottschalk, S, Talleur, A. Allogeneic CAR Cell Therapy – More Than a Pipe Dream. Frontiers in Immunology, Jan, 2021.

Focus & Strategy

- **Protect and grow** core media franchise
- **Optimize supply chain and manufacturing operations across all platforms**
- **Relentless focus on quality to ensure stellar customer experiences**
- **Leverage reputation and relationships** to cross-sell entire product portfolio
- **Increase customer value add** to capture additional spend for tools and services

2022 HIGHLIGHTS

>50%

CELL PROCESSING & STORAGE SERVICES REVENUE GROWTH

~700

EMBEDDED IN CUSTOMER CLINICAL APPLICATIONS

~5,000

INDIRECT CUSTOMERS

>1,300

NEW CUSTOMERS

Investment Thesis

- **Class-defining** portfolio of bioproduction tools and services designed to improve quality and de-risk cell and gene therapy manufacturing and delivery – pure play picks and shovels
- **Cell processing solutions** embedded in ~ 700 customer clinical applications; each could generate $500K - $2mm annual revenue post approval and scale up
- **Thousands of sticky cell processing customers across the regenerative medicine landscape** to leverage for cross-selling revenue synergies
- **Growing rapidly** organically and via M&A; 2022 unaudited preliminary revenue at $161.9 million; expected to exit 2024 on a $250 million revenue run rate with 30% adjusted EBITDA
- **Anticipating 70%** recurring, high-margin revenue in 2025

CGT Industry Evolution & BioLife Solutions Value-Add

Aby J. Mathew, PhD

CGT Industry Evolution & BLFS Value-Add

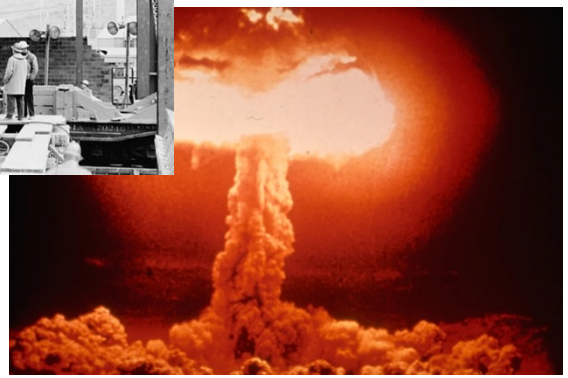
Aby J. Mathew, PhD
1:45 PM – 2:30 PM

Aby J. Mathew, PhD
Executive Vice President and Chief Scientific Officer

BS Microbiology, PhD, Cell & Molecular Biology; co-developer of platform HypoThermosol® and CryoStor ® media; in demand industry thought leader in biopreservation of cells and tissues for clinical applications; catalyst responsible for driving regen med market to adopt BLFS clinical grade biopreservation media; 6 issued and 6 pending patents; numerous journal articles.

Cells As Therapy Before The Industry

Blood Transfusions –
WWI East Sussex.
Photo from Wellcome Images.



In 1958, Georges Mathé and colleagues transplanted bone marrow from several relatives into each of 6 workers exposed to ionizing radiation from a nuclear reactor accident in Vinca, Yugoslavia.

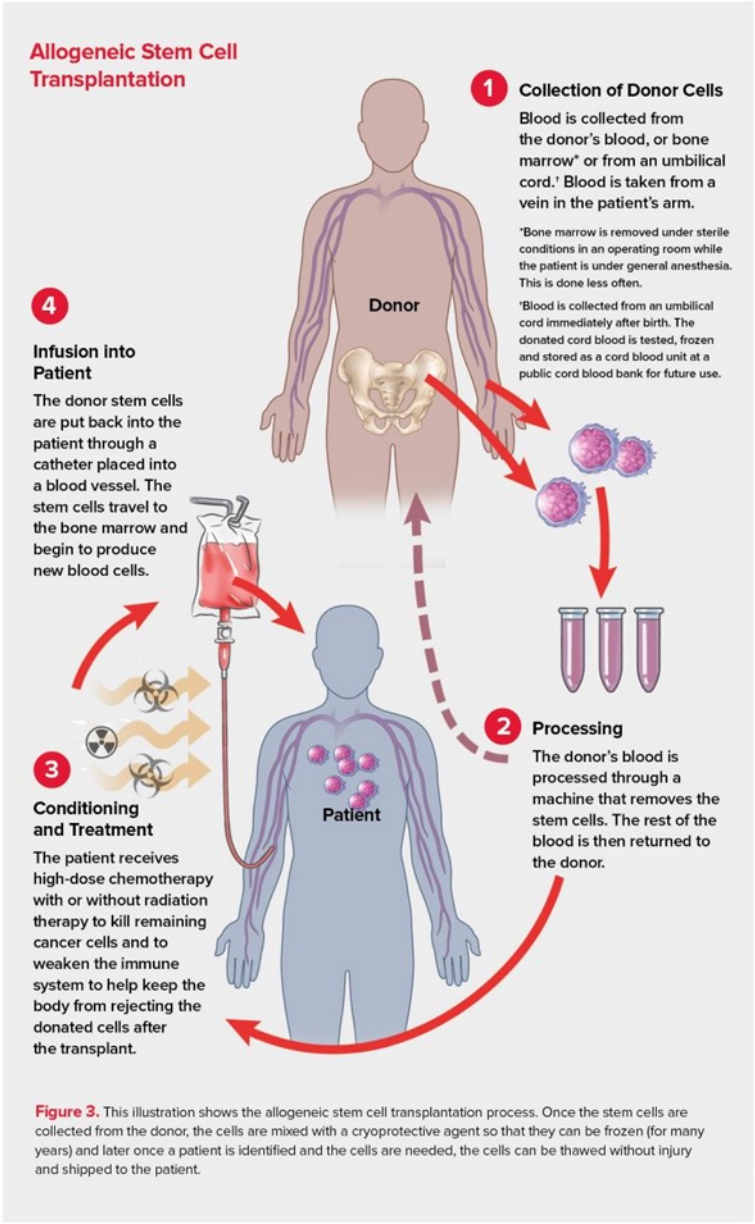
Kraft, Alison. "Manhattan Transfer: Lethal Radiation, Bone Marrow Transplantation, and the Birth of Stem Cell Biology, ca. 1942–1961." Historical Studies in the Natural Sciences 39, no. 2 (2009): 171–218. https://doi.org/10.1525/hsns.2009.39.2.171.

Mathe G. et al. Transfusions and grafts of homologous bone marrow in humans after accidental high dosage irradiation. Rev Fr Etud Clin Biol. 1959; 4: 226-238

Cells As Therapy Before The Industry

- E. Donnall Thomas (Fred Hutchinson Cancer Research Center) – bone marrow hematopoietic stem cell transplantation for cancers and blood conditions
  Practice of medicine (non-commercial). 1950s-1960s.

- Hematopoietic progenitor/stem cell (HPC/HSC) transplants – 1980s.
  Non-Frozen ('fresh')
  Or
  Cryopreserved in clinical center home-brew cocktails.



Cells As Therapy Before The Industry

Steven Rosenberg (NIH) –
adoptive cell therapy; 1980s

Tumor Infiltrating Lymphocytes (TILs)
Genetically Modified T-cells

Practice of medicine (non-commercial)
Non-frozen or clinical center home-brew
freeze media cocktail

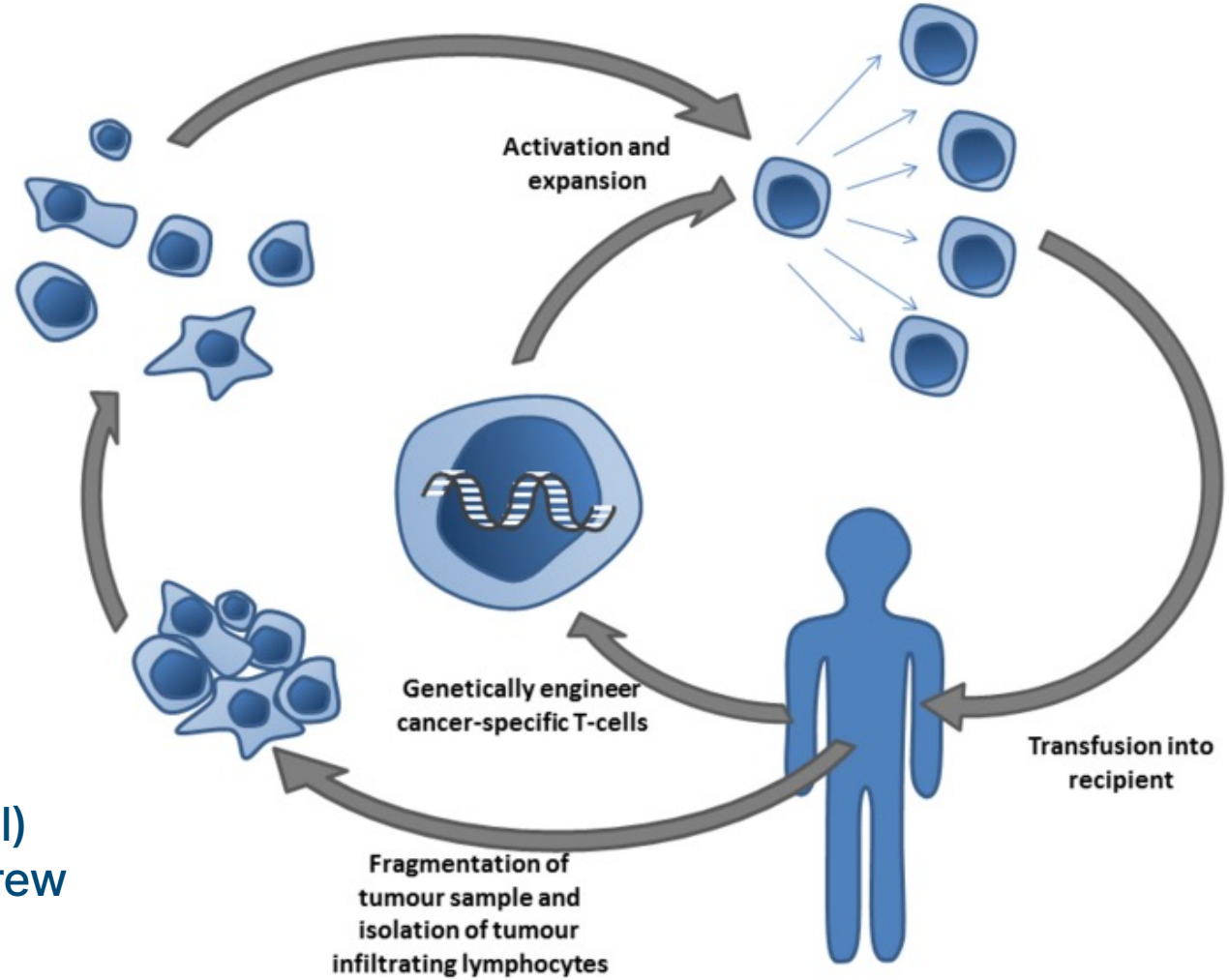
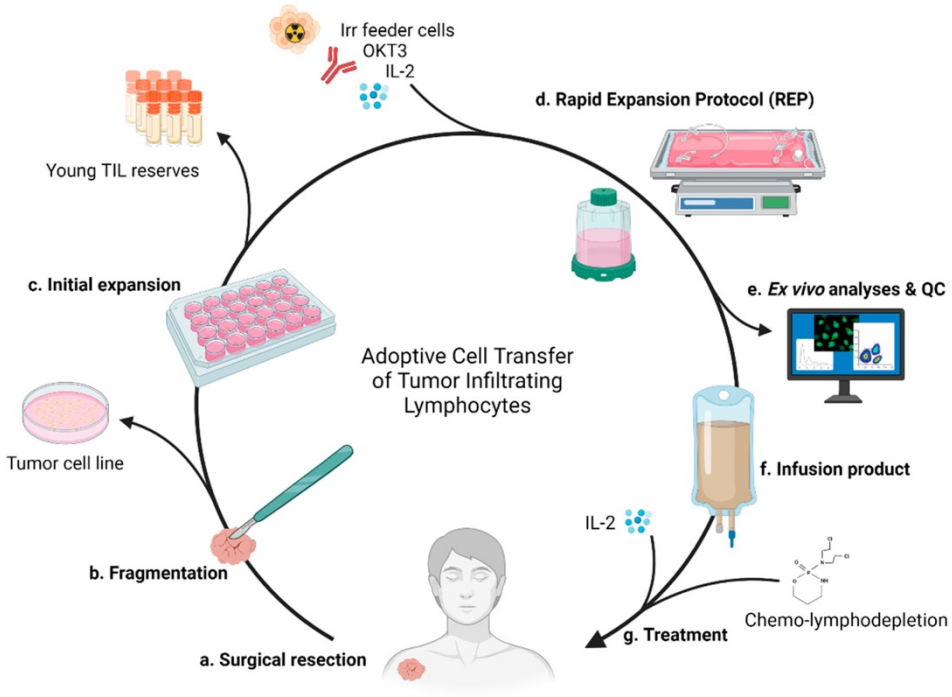


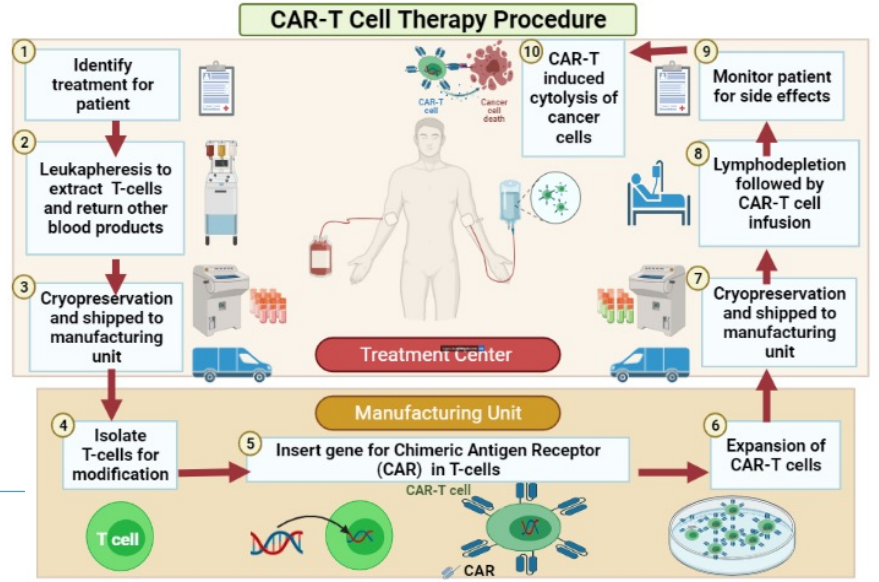
Image by Simon Caulton via Wikimedia

Opportunities for Innovations and Tools

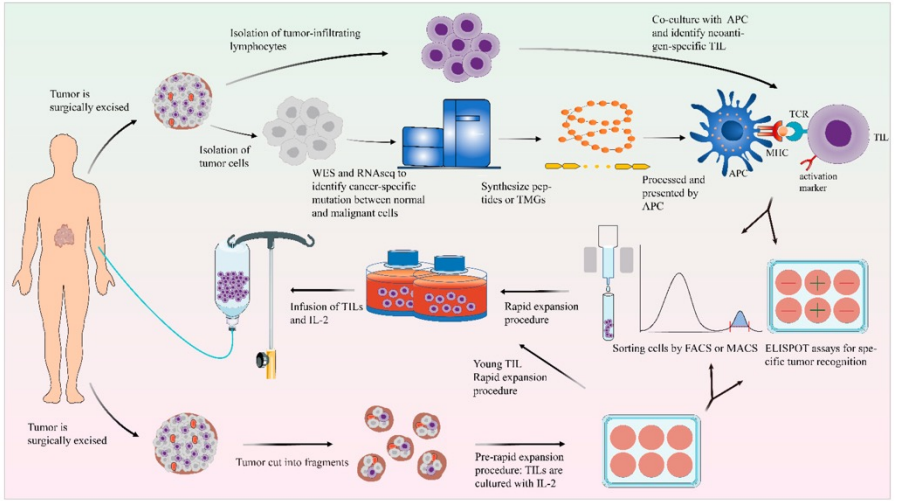
Complexity = Challenges = Opportunities for Innovations and Tools



Immuno 2021, 1(3), 194-211; https://doi.org/10.3390/immuno1030012



Biomedical Research and Therapy. Vol 9 No 2 (2022) / 4920-4929



Cancers 2022, 14(17), 4160; https://doi.org/10.3390/cancers14174160

Industrializing Cells As Therapy

- Steven Rosenberg (NIH) – adoptive cell therapy; 1980s Practice of medicine (non-commercial)
- Tumor Infiltrating Lymphocytes (TILs) – Iovance Biotherapeutics
- Genetically Modified T-cells – Kite Pharma

Lion Biotech: Tumor Infiltrating Lymphocyte Therapy Could Be Paradigm Shift For Treatment Of Melanoma And Other Solid Tumors

Jan. 13, 2014 9:02 AM ET | **Iovance Biotherapeutics, Inc. (IOVA)** | 10 Comments

Lion Biotechnologies, Inc. (LBIO) is an emerging biotechnology company focused on developing and commercializing **adoptive cell therapy (ACT)** using autologous tumor infiltrating lymphocytes **(TILs)** for the treatment of melanoma and other solid tumors.

Kite Pharma Partners With the National Cancer Institute to Develop Novel Cellular Immunotherapy Clinical Products

Oct 17, 2012 12:01am

Kite Pharma Partners With the National Cancer Institute to Develop Novel Cellular Immunotherapy Clinical Products

Penn and Novartis Form Alliance to Expand Use of Personalized T Cell Therapy for Cancer Patients

PHILADELPHIA — In an alliance aimed at bringing a new, personalized immunotherapy approach to patients with a wide variety of cancers, the University of Pennsylvania and Novartis announced today an exclusive global research and licensing agreement to further study and commercialize novel cellular immunotherapies using chimeric antigen receptor (CAR) technologies. The agreement, which follows a Penn research team's 2011 publication of breakthrough results in several chronic lymphocytic leukemia patients treated with this personalized immunotherapy technique, paves the way for pivotal studies that have the potential to expand the use of CAR therapies for additional cancers.

CREDITS
Holly Auer
Writer

DATE
August 6, 2012

SCHOOLS
Perelman School of Medicine

SHARE

Biopreservation Challenges

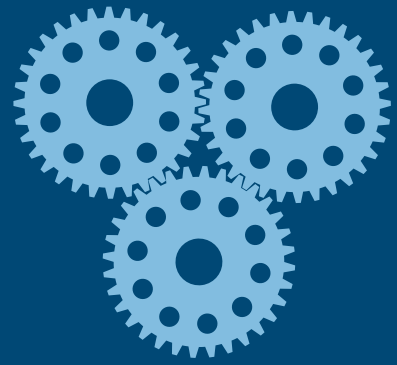
Cell-based therapies MUST be kept alive during manufacturing, storage, and shipping, to maintain biologic potency

As *Ex Vivo* Time Increases, So Does Risk

Survival
How Long

Viability
How Many

Function
How Well



Causes of Reduced Biologic Potency

Poor Preservation ⚠ **Temp Excursions** ⚠ **Mechanical Shock**

Biopreservation Stability is a Challenge
Optimization Is A Choice

6.3 Shelf life

In the insulated container
18 hours.

PROVENGE® (sipuleucel-T)

Dendreon
Targeting Cancer, Transforming Lives®

https://www.ema.europa.eu/en/documents/product-information/provenge-epar-product-information_en.pdf

given the short shelf-life of the product,

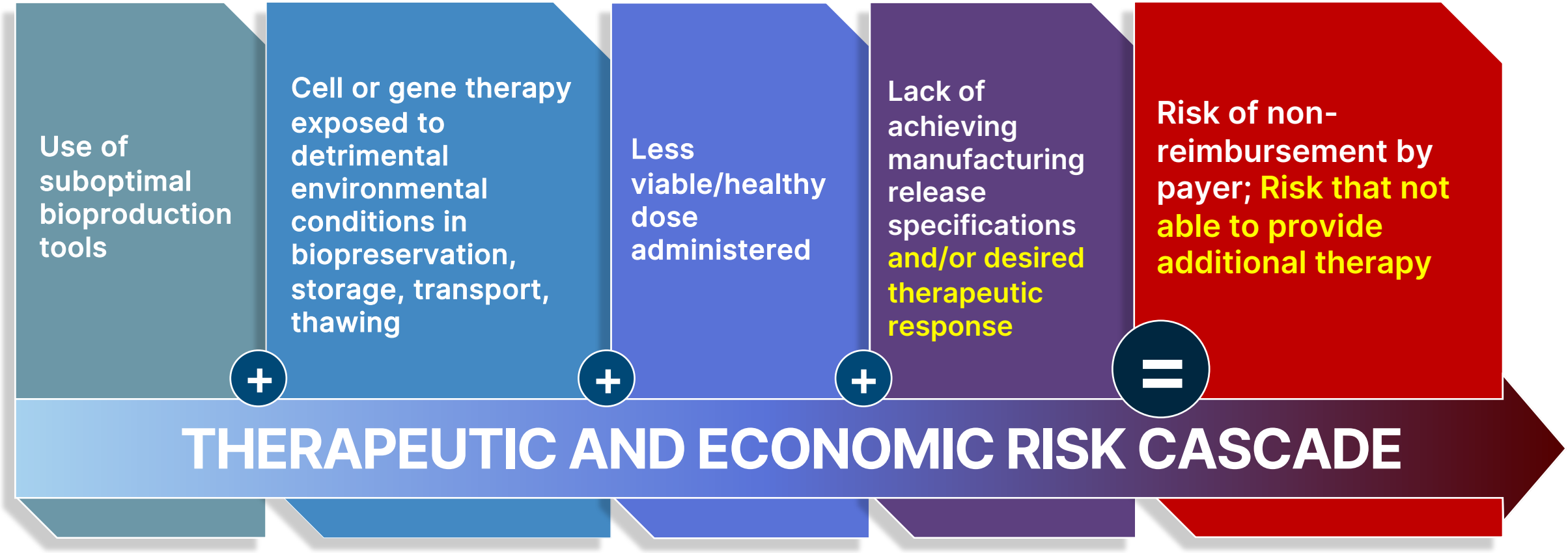
https://www.ema.europa.eu/en/documents/assessment-report/provenge-epar-public-assessment-report_en.pdf

The 18 hour shelf life of Provenge (Sipuluecel-T) meant that multiple GMP manufacturing plants needed to be built to address the geographical constraints of such a short time wondow before expiry of the therapy. Recovery of the extraordinarily high capital costs of building this manufacturing capacity impacted the price of the therapy. In turn, this affected reimbursement rates and prescriptions and, ultimately, the success of the business.

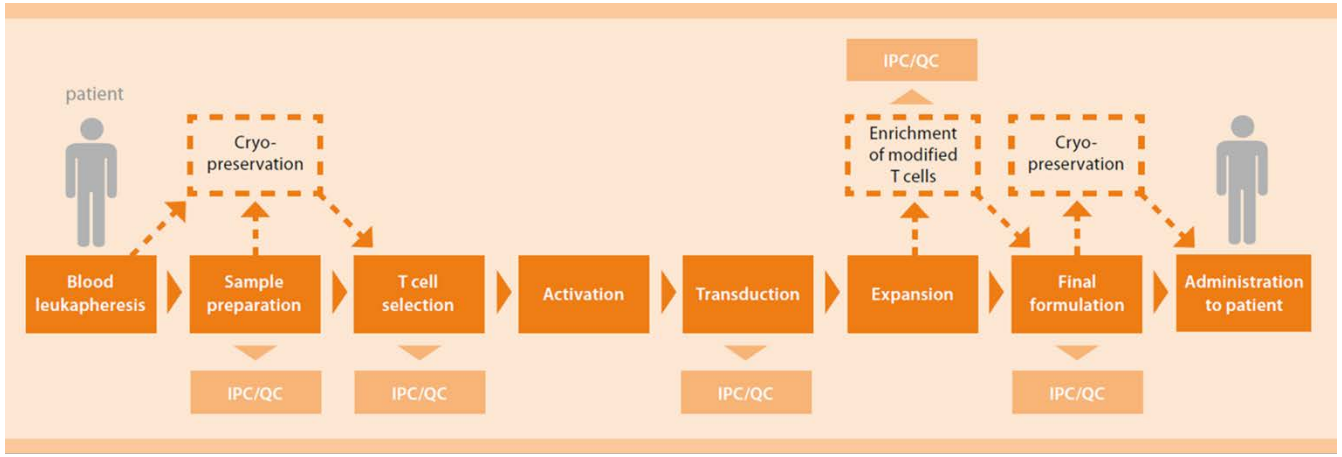
https://www.atelerix.co.uk/extending-the-shelf-life-of-fresh-cell-therapies/

Economic Reimbursement Environment

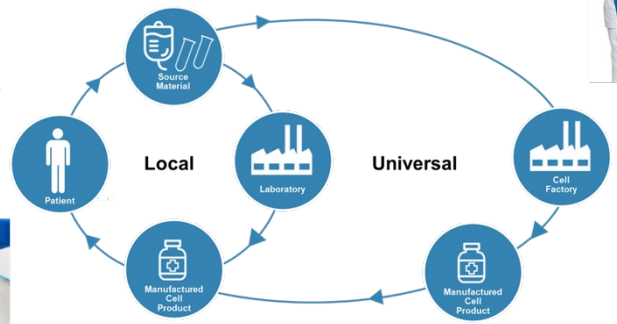
- "Pay for response/cure" paradigm
- Paid out over time only if initial and durable response to treatment is confirmed
- Increased economic risk for Manufacturers/Sponsors



Cell/Gene Therapy Manufacturing Critical Process Parameters



Cancer Gene Therapy **volume22**, pages72–78 (2015)

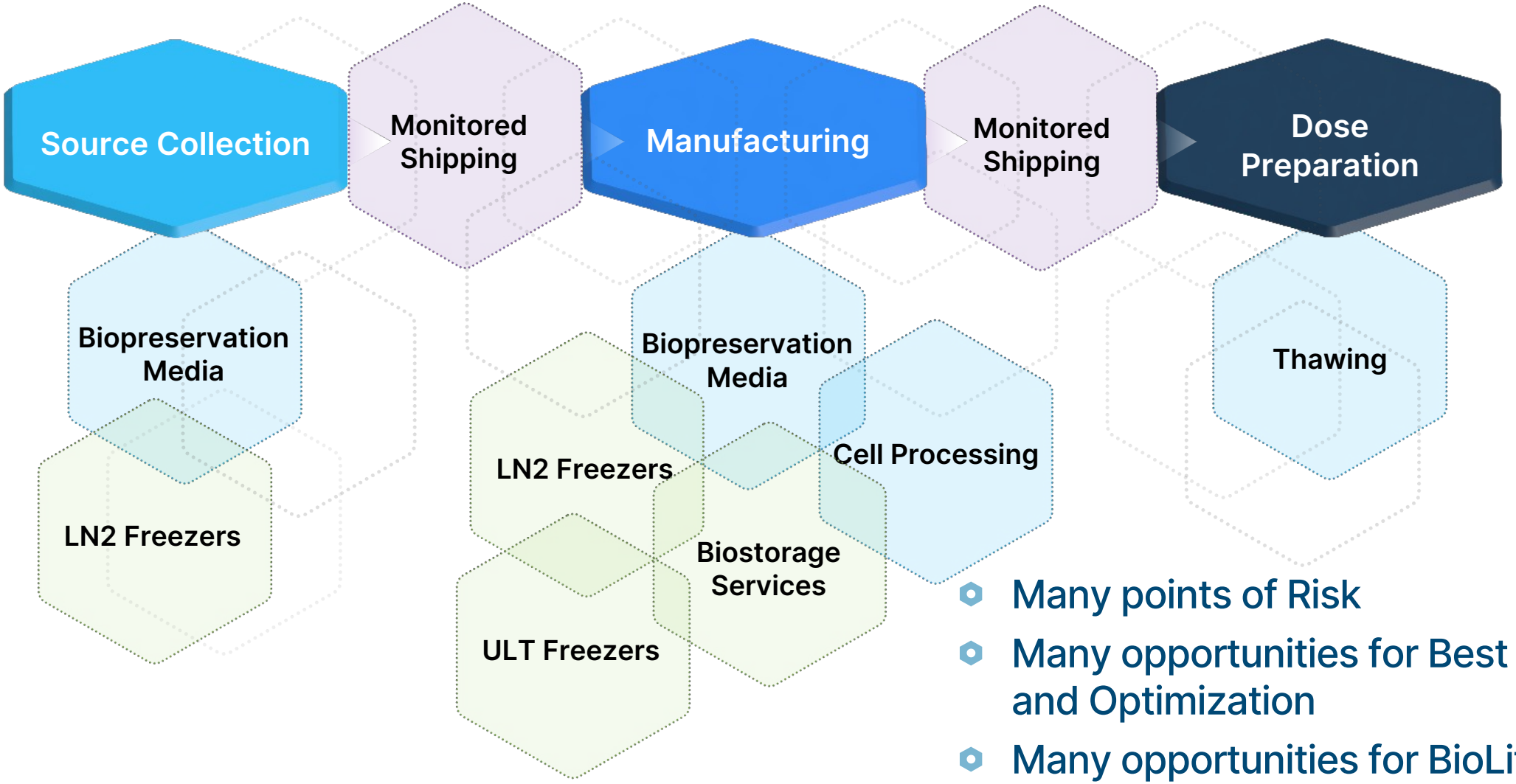


Steps	Culture Harvest	Pre-freeze Processing	Cryopreservation	Storage and transport	Thaw and delivery
CPPs	Time of Harvest Culture characteristics	Wash Volume reduction Cryomedia addition Volume adjustment Fill-Finish	**Formulation** **DMSO content** Freezing device Freezing profile Pre-incubation time and temperature	LN2 storage/ -80°C Transient warming events Temperature fluctuations	Thaw device Thaw rate Wash/re-formulation? **Post-thaw recovery time**

Many points of
Risk

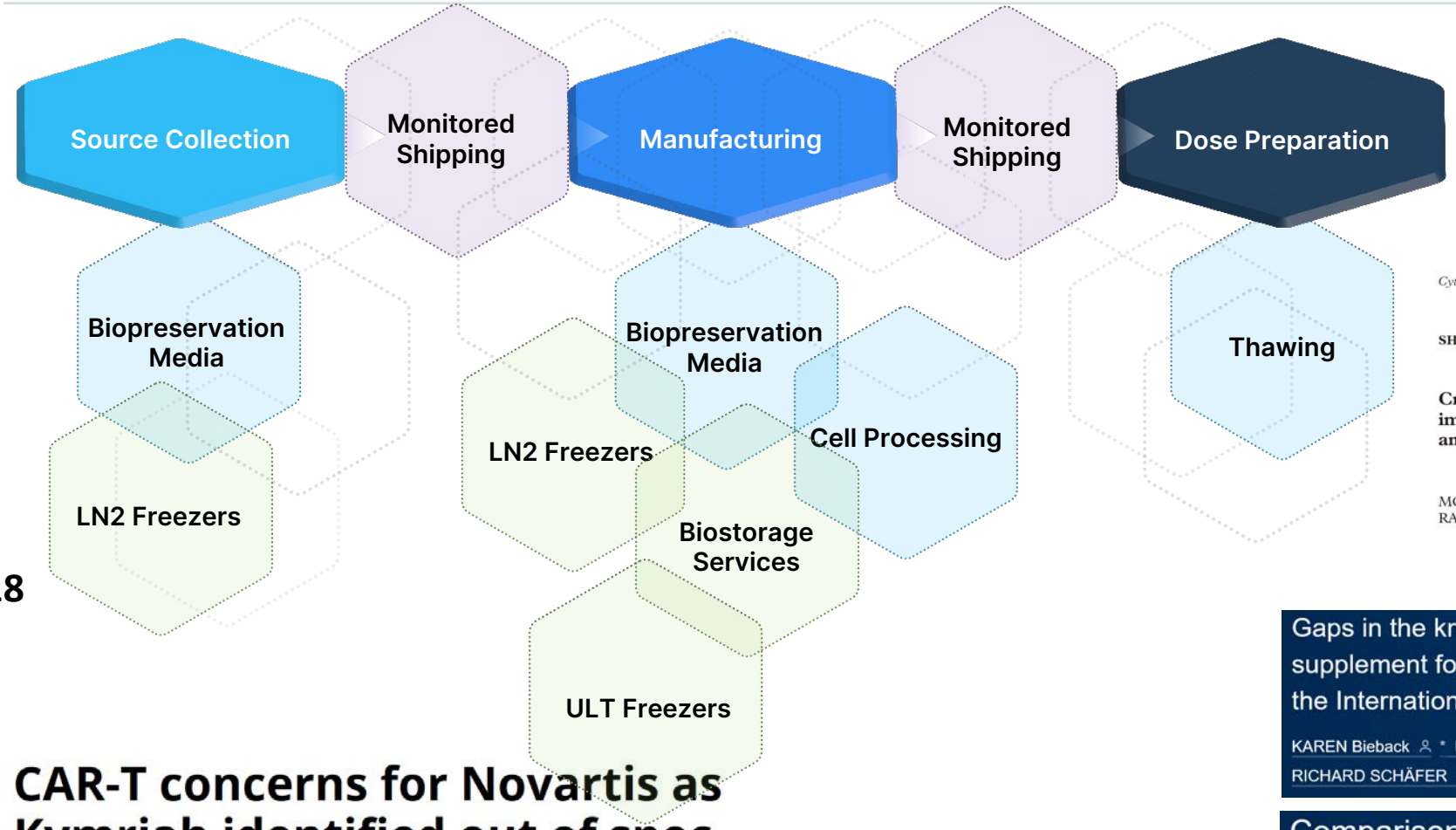
Many opportunities for
Optimization

Biopreservation and Bioproduction Best Practices are Integral to Cell/Gene Therapy



- Many points of Risk
- Many opportunities for Best Practices and Optimization
- Many opportunities for BioLife Solutions

Biopreservation and Bioproduction Best Practices are Integral to Cell/Gene Therapy



2018

CAR-T concerns for Novartis as Kymriah identified out of spec

By Flora Southey

25-Jul-2018 - Last updated on 25-Jul-2018 at 11:30 GMT

Cytotherapy, 2011; Early Online, 1–6

informa healthcare

SHORT COMMUNICATION

Cryopreserved mesenchymal stromal cells display impaired immunosuppressive properties as a result of heat-shock response and impaired interferon-γ licensing

MOÏRA FRANÇOIS[1,2], IAN B. COPLAND[3], SHALA YUAN[2], RAPHAËLLE ROMIEU-MOUREZ[2], EDMUND K. WALLER[3] & JACQUES GALIPEAU[2,3,4]

Gaps in the knowledge of human platelet lysate as a cell culture supplement for cell therapy: a joint publication from the AABB and the International Society for Cell & Gene Therapy

KAREN Bieback * • BEATRIZ FERNANDEZ-MUÑOZ * • SHIBANI PATI • RICHARD SCHÄFER * • Show footnotes

Comparison of rigid polymer vials and flexible bags for cryopreservation of T cells

A.M. Lyness • C. Kraft • S. Hashimdeen • Q.A. Rafiq

DOI: https://doi.org/10.1016/j.jcyt.2020.03.301

Biopreservation Media Platform Foundation

HypoThermosol® FRS
Hypothermic storage & shipping media

BloodStor®
Generic freeze media

CryoStor®
Cryopreservation freeze media

Cell Thawing Media
Generic thaw media

BioLife Solutions Biopreservation Expertise Brand Differentiation

1. **Scientific Technology**
    a. Intracellular-like - not isotonic such as culture media or saline.
    b. Designed for low temperature conditions.

2. **Quality/Regulatory Footprint**
    a. Raised the bar for biopreservation media used in Regenerative Medicine.
    b. Groundbreaking, and facilitated integration into customer clinical manufacturing.

3. **Scientific/Technical Expertise**

a. Experience translating basic science or engineering concepts to the practical application utilized by the Regen Med customer base.
b. Provide expertise on the technology and methods modifications – either at the forefront of the evolving Regen Med manufacturing space or based on unique customer models.
c. The biopreservation expertise related to the development of Biopreservation Best Practices allows for early customer market feedback, and the recognized expertise/relationship(s) feeds back into the customer-supplier purchasing and revenue generation output.

BioLife Solutions is Synonymous with Biopreservation Best Practices

Paradigm Shift – Enabled by BioLife

From saline and home-brew cocktails to HypoThermosol and CryoStor in Customer CGT Therapies.

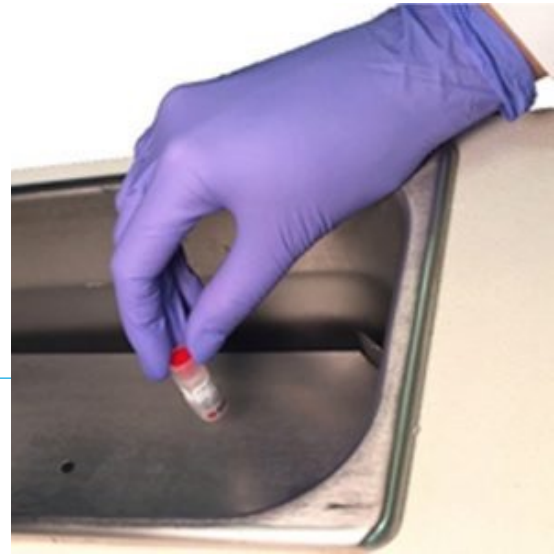
From clinical center home-brew cocktails to clinical centers growing transition to BioLife Solutions biopreservation media.

Paradigm Shift – Enabled by BioLife

From bags to closed system rigid packaging

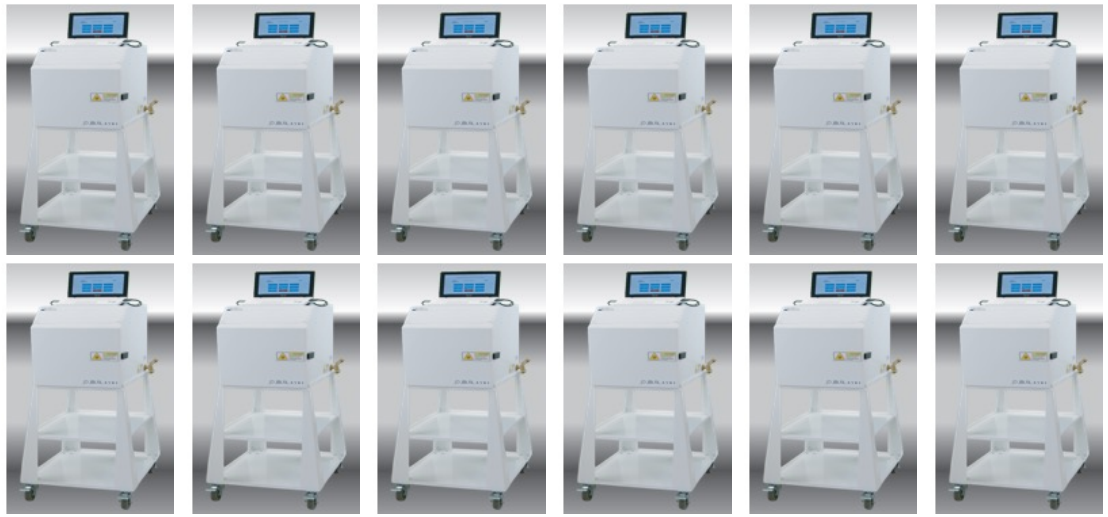
Paradigm Shift – Enabled by BioLife

From waterbath thawing to automated water-free thawing



Paradigm Shift – Enabled by BioLife

From daisy-chaining CRFs to High Capacity Rate Freezers (HCRF)



Multiple Freezers and Freeze Runs to freeze down the samples that One HCRF can run

Or

1 Freezer – 1 Freeze Run

More Than 9 Times the Capacity of a Typical Rate Freezer

Paradigm Shift – Enabled by BioLife

From all-eggs-in-one-basket product storage and stretched internal Customer resources, to dedicated offsite temperature-controlled storage services.

Able to facilitate Regional Depots for Customer therapies without their own CapEx and resources.

Paradigm Shift – Enabled by BioLife

Energy efficient Stirling engine-based technology

Critical tool in Operation Warp Speed for point-of-care storage of COVID-19 vaccines

Paradigm Shift – Enabled by BioLife

Smart Shipper technology with enhanced cloud-based monitoring

BioLife Solutions Tools & Services

Cell Processing

CELL PROCESSING SOLUTIONS

Biopreservation Media

Cell Processing Tools

SEXTON BIOTECHNOLOGIES

Storage and Services

STORAGE SOLUTIONS

Biostorage

SciSAFE Biological and Pharmaceutical Storage

COLD CHAIN SOLUTIONS

Cloud-Connected Smart Shippers

savsu TECHNOLOGIES

Freezing and Thawing

STORAGE SOLUTIONS

Cryogenic and High Capacity Freezers

Ultra Low Temperature (ULT) Freezers

Custom BioGenic Systems

Stirling ULTRACOLD

THAWING SOLUTIONS

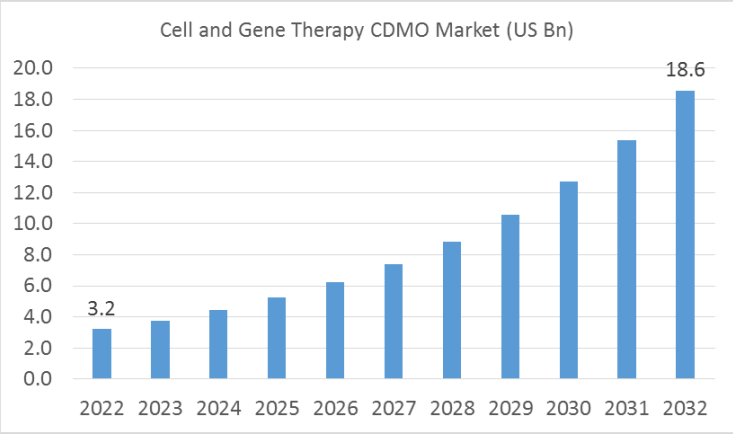
Automated Thawing

ASTERO

Force Multipliers

CDMOs

Clinical Centers as CDMO-lite

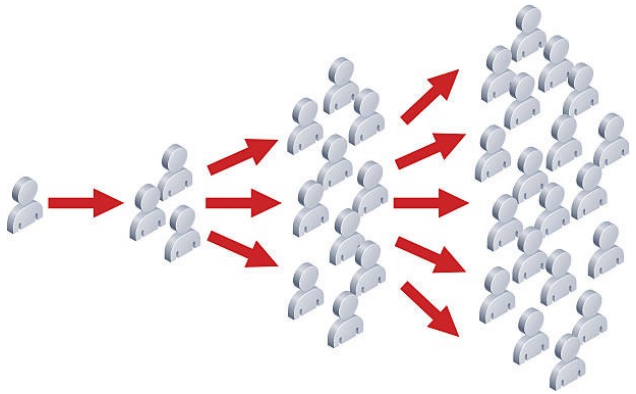


https://www.globenewswire.com/news-release/2023/02/23/2614351/0/en/New-Research-Report-Reveals-Cell-and-Gene-Therapy-CDMO-Market-to-reach-US-18-6-billion-Worldwide-By-PMI.html

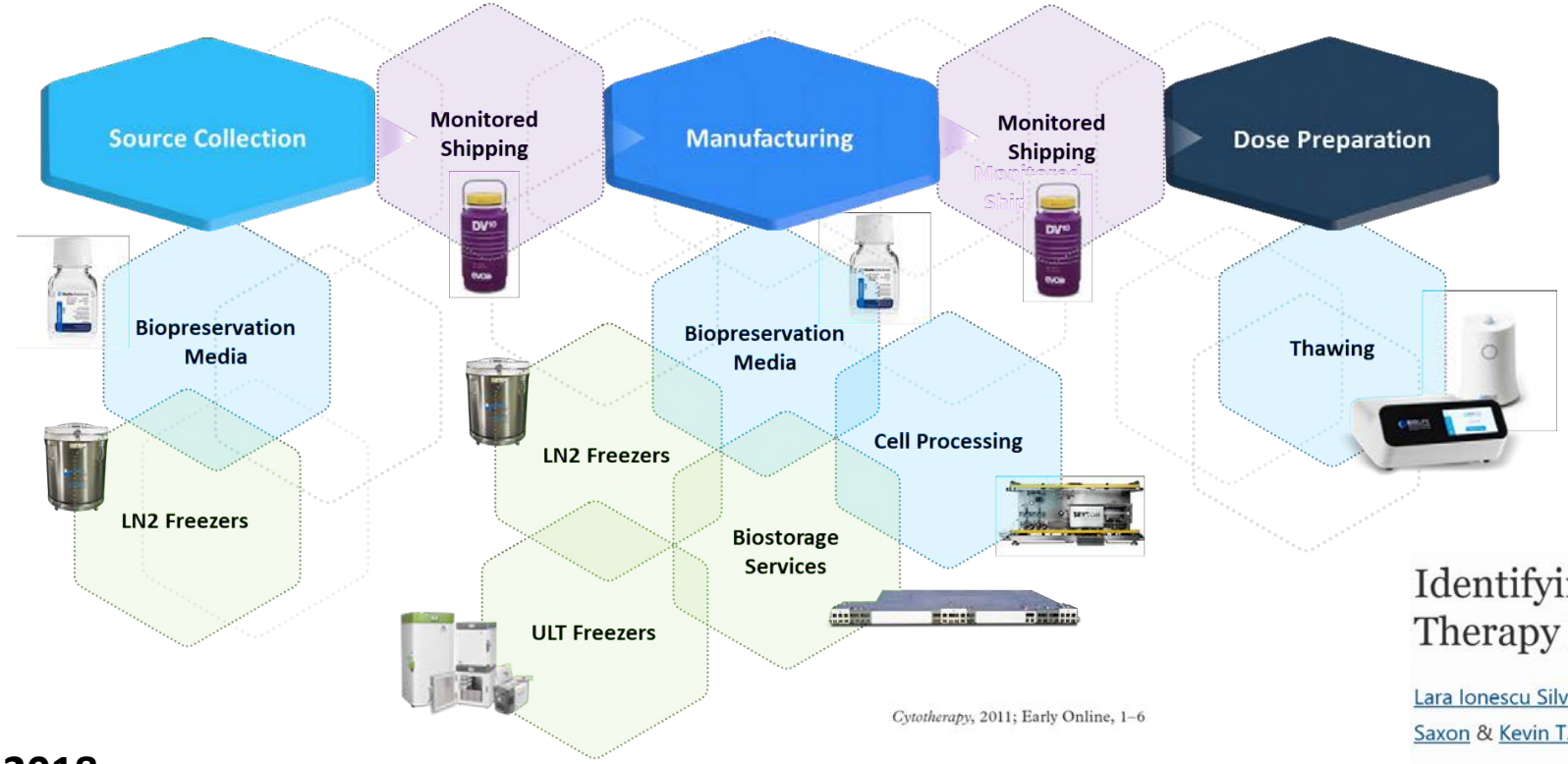
https://bioinformant.com/product/cell-gene-therapy-cdmo/

Customer personnel turnover

BioLife Solutions is often an early reconnection when someone in CGT moves from one organization to another.



Biopreservation and Bioproduction Best Practices are Integral to Cell/Gene Therapy



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Identifying and Managing Sources of Variability in Cell Therapy Manufacturing and Clinical Trials

Lara Ionescu Silverman, Flagg Flanagan, Daniel Rodriguez-Granrose, Katie Simpson, Lindsey Hart Saxon & Kevin T. Foley

Regenerative Engineering and Translational Medicine **5**, 354–361 (2019) | Cite this article

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CAR-T concerns for Novartis as Kymriah identified out of spec

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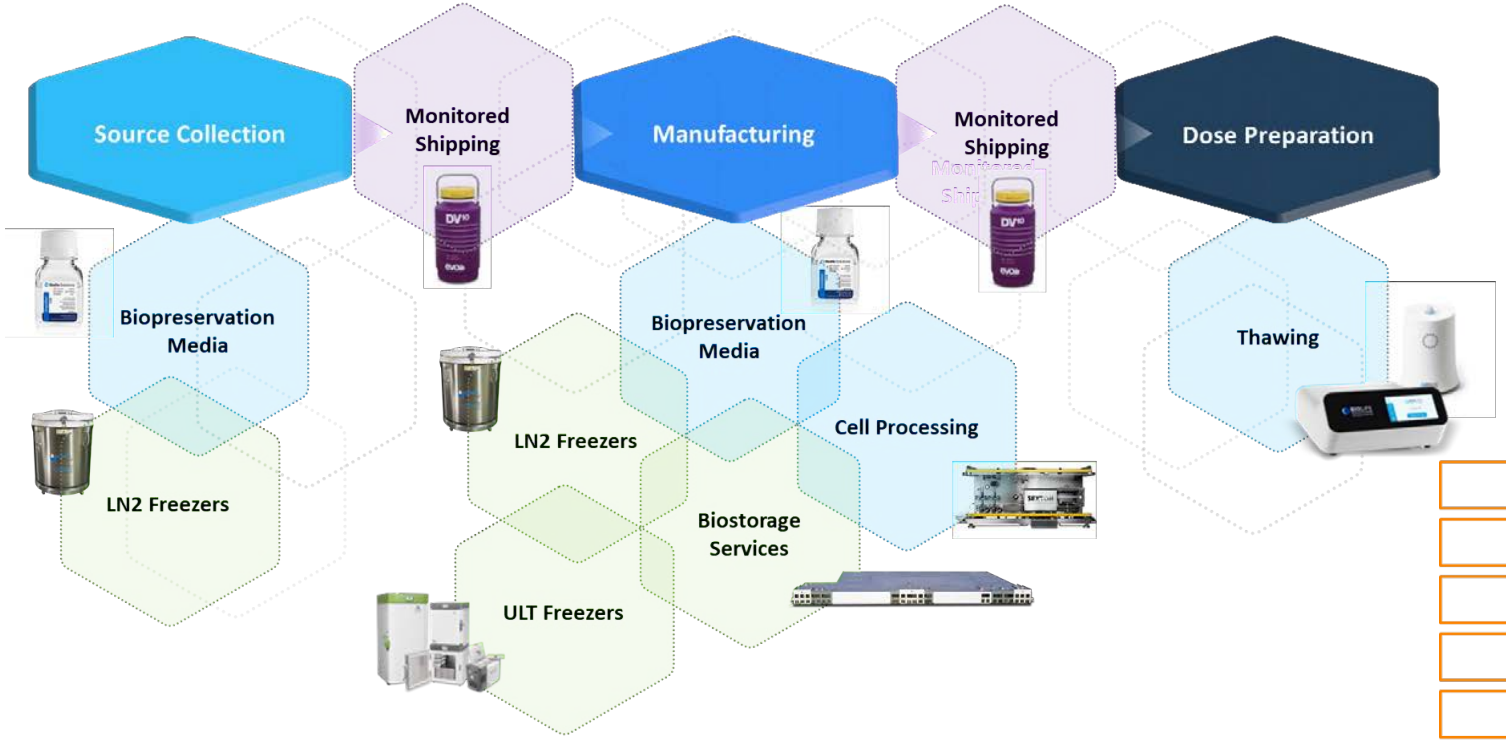
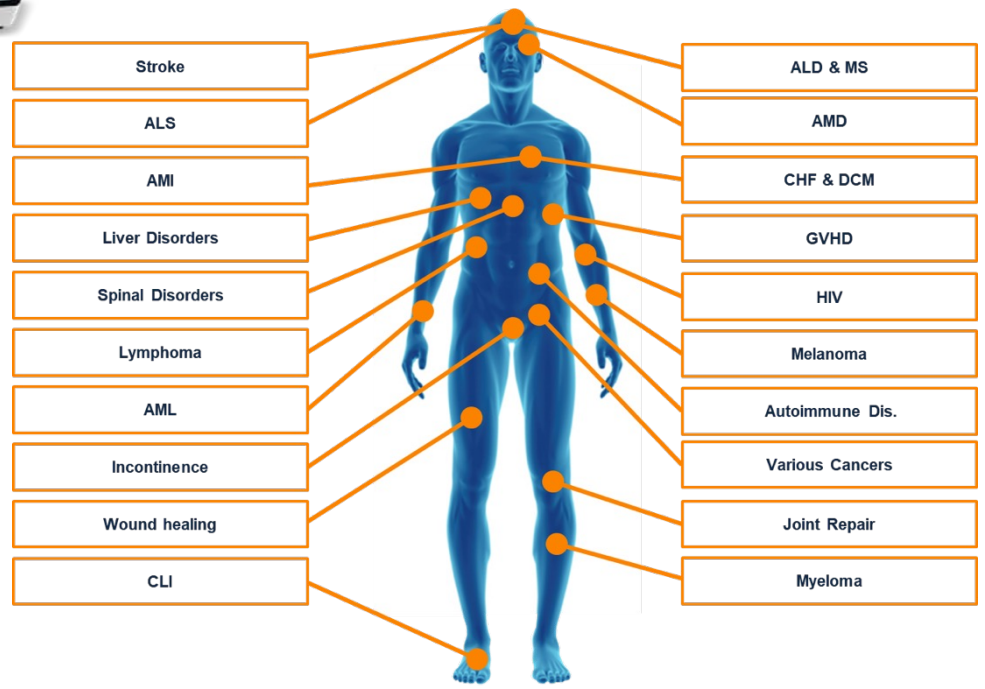
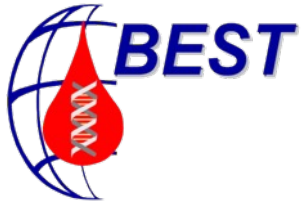
BioLife Solutions is Integral to Customer CGT Processes





Industry Affiliations



Storage Services Platform Overview

Garrie Richardson

Storage Services Platform Overview

Garrie Richardson
2:30 PM – 2:45 PM

Garrie Richardson
General Manager, Storage Services

Garrie heads up SciSafe across all sites and is the founder of the business. With over 10 years of sample management experience, Garrie has overseen the growth of SciSafe's business from three chambers to hundreds today, with further plans for expansion. He has intimate hands-on experience with all aspects of sample management and maintains focus on continuous improvement initiatives. Garrie is responsible for the strategic direction of the organization with a laser focused goal of SciSafe becoming the global leader in Sample Management and Integrated Cold Chain.

Value Proposition

SciSafe's services range from complete customized outsourced biostorage solutions to hybrid-onsite sample management. Whether you have one or millions of samples, we have the expertise and the facilities to meet your unique needs.

Your samples can be stored at all temperatures from -196°C (LN2) to 40°C.

We provide you with hassle-free, predictable monthly pricing – you will not pay extra for sample touches or get locked into long-term contracts

SciSafe By The Numbers & Our Evolution

12
Years

8
Sites

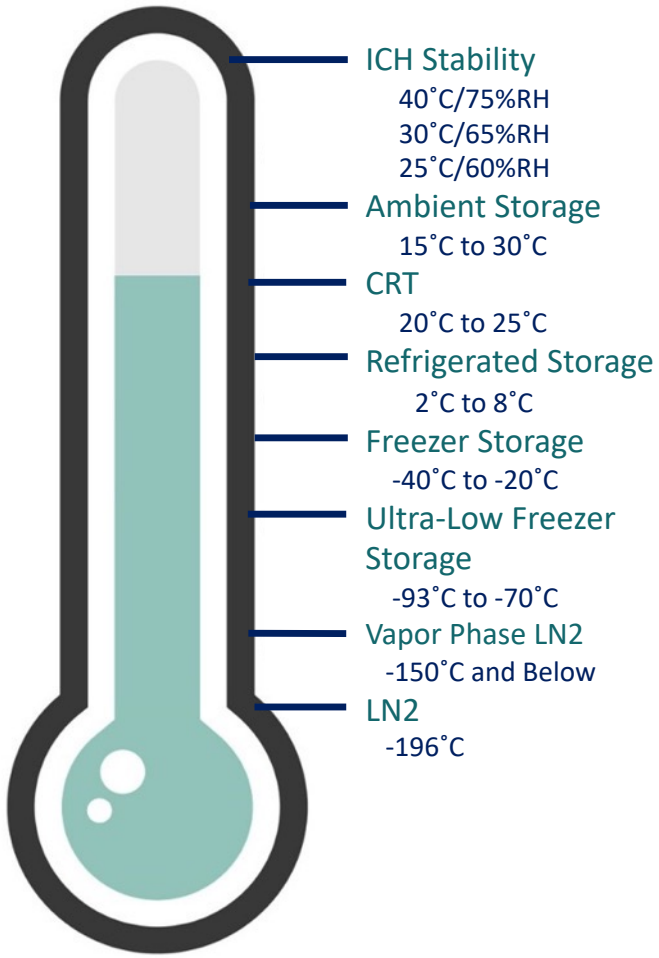
200k+
Square feet

1000+
Freezers and Walk-in Rooms

300+
Clients

50M+
Client Samples

Sample Types and Temperatures We Store…



ICH Stability
40˚C/75%RH
30˚C/65%RH
25˚C/60%RH

Ambient Storage
15˚C to 30˚C

CRT
20˚C to 25˚C

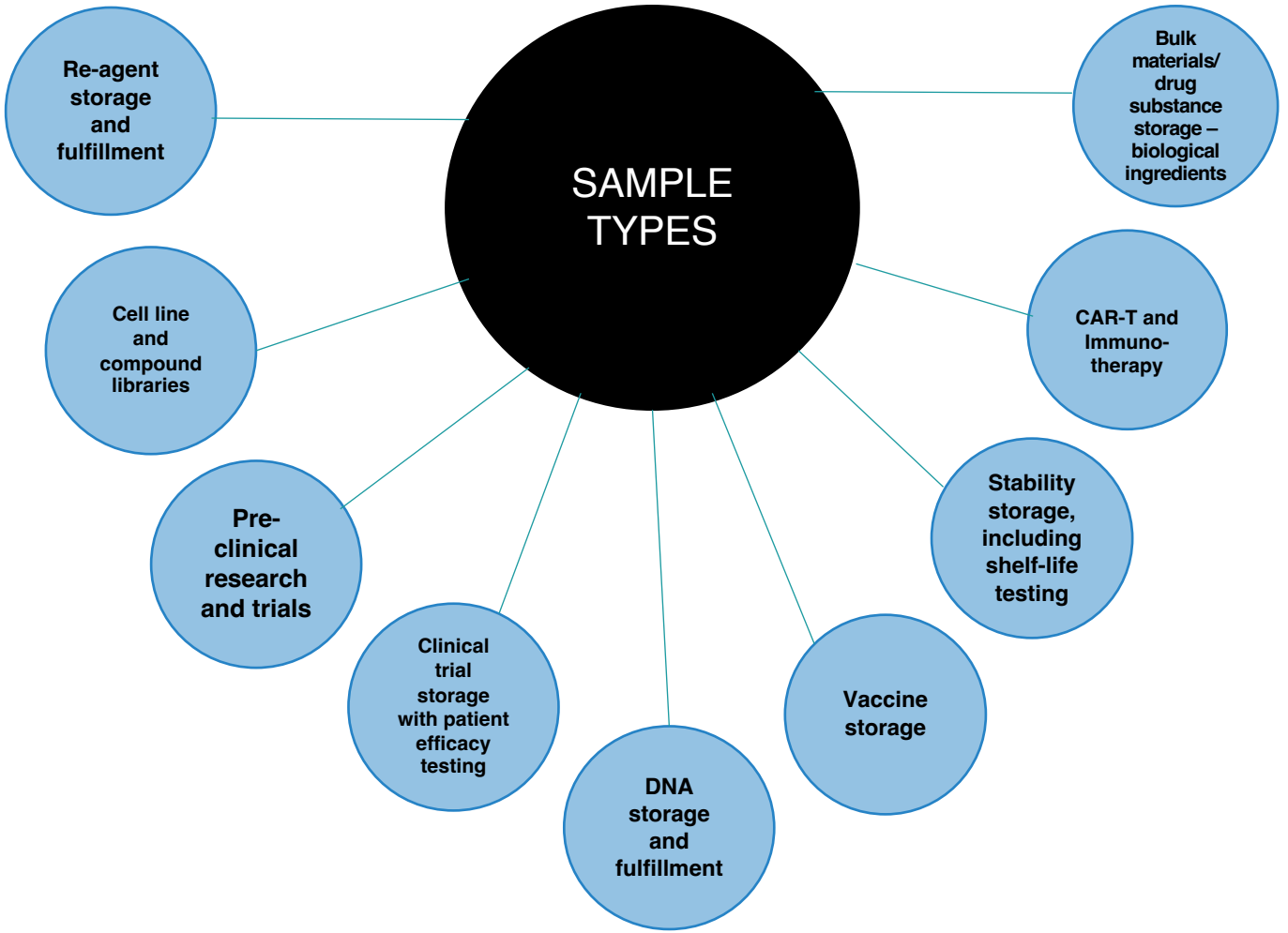
Refrigerated Storage
2˚C to 8˚C

Freezer Storage
-40˚C to -20˚C

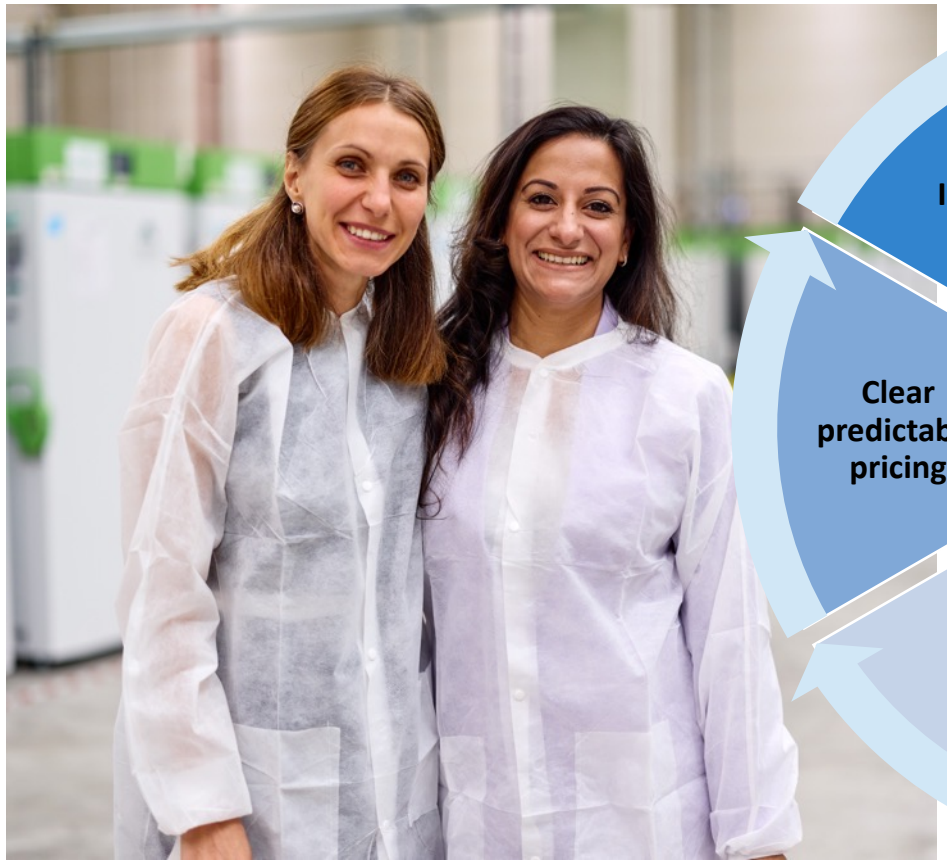
Ultra-Low Freezer Storage
-93˚C to -70˚C

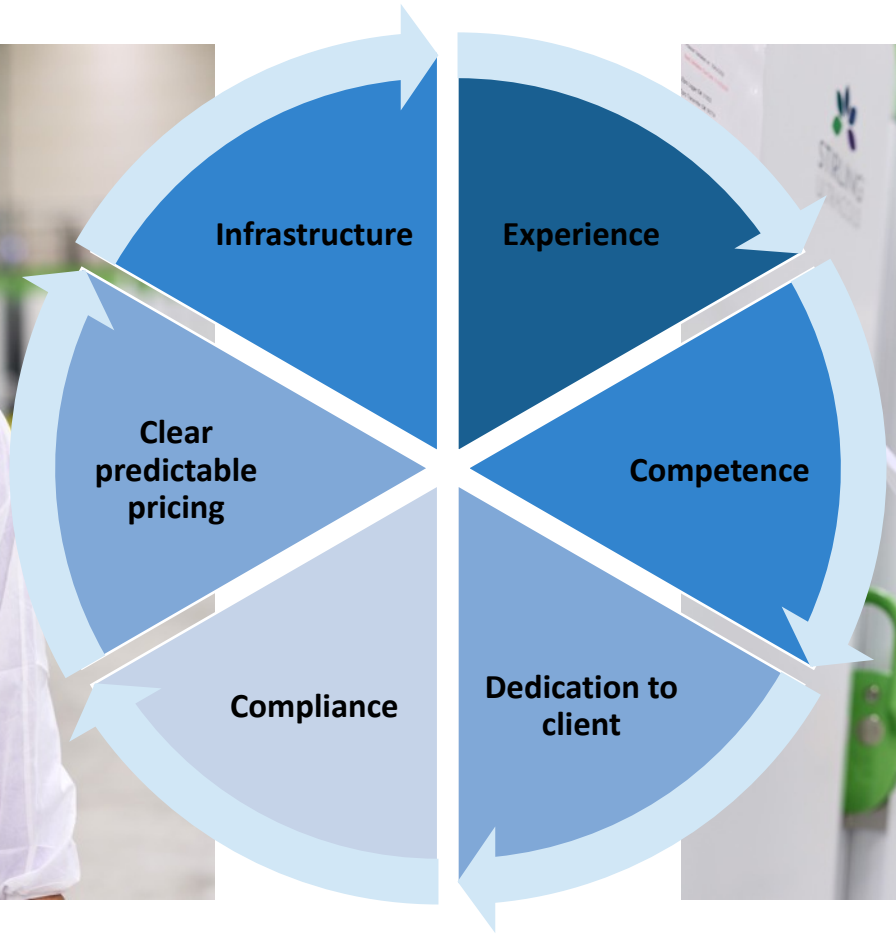
Vapor Phase LN2
-150˚C and Below

LN2
-196˚C

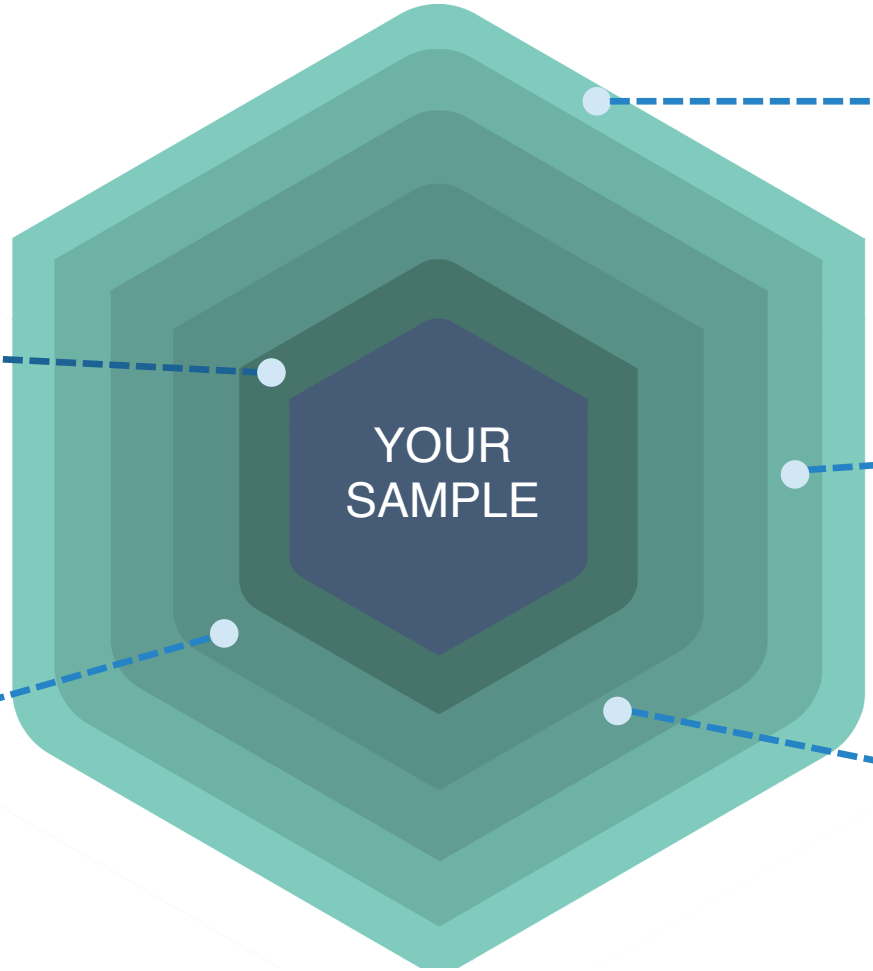


Why We Win: Circle Of Trust





Your Sample is at the Core of our Business



Facility security

- 24/7/365 on-site security – eyes on always
- Card-scanning access
- Schedule 2 alarm system
- Monitoring for intruder, smoke and flood, power and temperature fluctuations
- CCTV

Sample safety measures

- Emails alerting environmental changes
- Automatic power transfer switches
- Automated dial-out alarm for power outage
- Backup data system security
- Cellular backup systems in case of outage

Audit Ready Always

- Independent Quality Team
- Fully compliant cGMP facilities
- 87 Standard Operating Procedures
- ISO 9001, ISO 20387, FDA registered & inspected since 2011 (CDER & CBER), CAP-A, and EU Pharmatek

Infrastructure

- Auxiliary power
- Data systems with robust cybersecurity
- Temperature monitoring
- IT infrastructure
- Redundancy

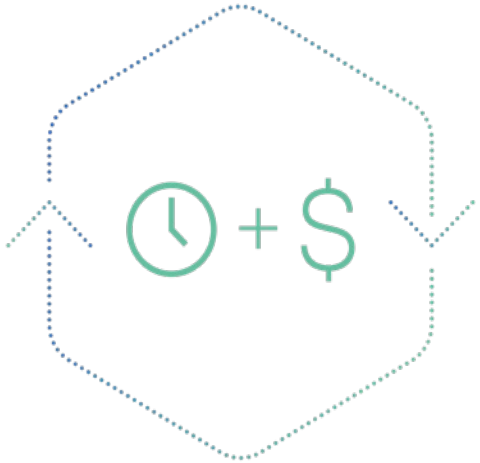
Fully compliant sample management system

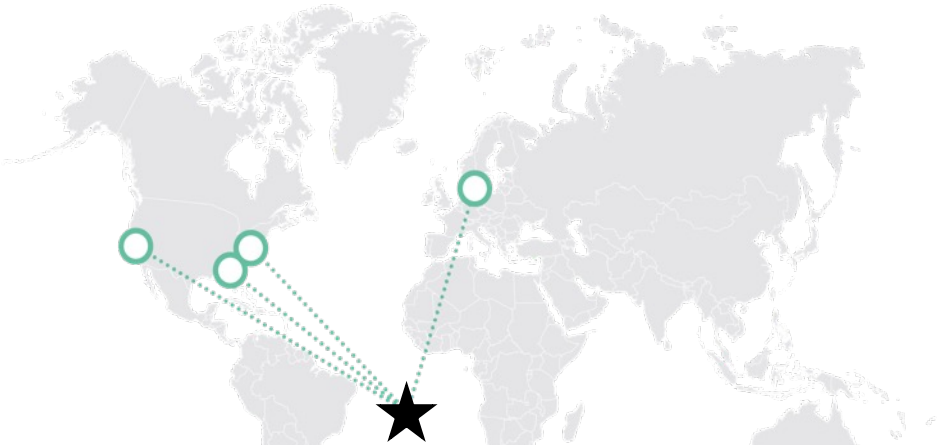
- FDA 21 CFR Part 11 compliant
- Cold chain of custody tracking across freezer and shipper platforms
- Audit trail validation

Outsourcing will save you time and money…

Spend time repeating the cycle below – **OR** – **Store with one of our facilities or let us build a custom solution to fit your needs**

- Equipment
- Equipment Calibration
- Monitoring Systems
- Monitoring Systems Validation
- Backup Power
- Backup Power Service
- Transfer Switch
- Transfer Service Switch
- Personnel 24/7/365
- Sample Management System
- Sample Management System Validation





We currently have 8 storage locations and are growing rapidly.

Future Outlook

Build The BioLife Brand

Center On Ethos

Run Through The Legs Of Giants

Vertical Integration

Added Sample Services + Last Mile Cold Chain

Market Consolidation

Biolife Solutions®

In 2020, SciSafe became part of BioLife Solutions. BioLife is a publicly traded company revolutionizing bioproduction solutions for the regenerative medicine, biobanking, and pharmaceutical industries with class-defining technology designed to increase the viability of biologics. With greater resources, funding, and best-in-class quality, SciSafe will continue to grow and can now offer these other brands to our client partners.

Cell Processing Solutions	Storage Solutions	Cold Chain Management	Thawing Solutions
CryoStor® Freeze Media	Stirling Ultracold® Part of Biolife Solutions	evo® Smart Shippers Part of Biolife Solutions	ThawStar® Solutions Part of Biolife Solutions
BloodStor® Media	SciSafe® Services Part of Biolife Solutions		
Sexton Biotechnologies® Part of Biolife Solutions	CBS Cryogenic Solutions® Part of Biolife Solutions		

Break

3:00-3:15

Quality at BioLife Solutions

Karen Foster

Quality at BioLife Solutions

Karen Foster
3:15 PM – 3:35 PM

Karen Foster

Chief Quality Officer

MSc Biology and MBA with over 25 years of operational and quality experience with a focus on Continuous Improvement and Team Building in the greater biotechnology industry. Certifications include ASQ OE-QM, Lean Bronze, Six Sigma, and Corporate Governance.

Quality Overview

SIMPLIFY

4 Elements of Quality Planning • Quality as a Business System

Culture	Customer Focus	Consistency and Control	Continuous Improvement
Improve Corporate Training Program	Establishment of Quality Management System for ULT	Process Control	Cost of Quality Program
Recognize Front Line Manager as “Force Multiplier”	Astute attention to right first-time process outcomes through working QMS and Visible Factory	Harmonization of Quality System Procedures: One Company	Build and Reinforce Supplier Management Program
	Support Operational Growth Initiatives	Measure what matters/Data based decision making	Visible Factory
		Support NPI Portfolio with Quality Planning	

BioLife Solutions Quality Policy

We are committed to manufacturing products and providing services and customer support in accordance with our Quality Standards, applicable regulations, and good manufacturing practices that support customer needs. ***Every team member in the organization is responsible for ensuring product quality and exceptional customer support;*** and championing ***continuous improvement*** during the ***performance of their duties***.

We will:

- Provide products and services that consistently meet our quality standards to ***satisfy customer expectations of quality, safety, reliability, performance, and on-time delivery.***
- Focus on ***getting things done*** "right the first time."
- Encourage a ***culture of quality improvement and collaborative interactions.***
- Maintain an effective Quality Management System.
- Invest in establishing ***subject matter expertise in all team members.***
- Strive to establish partnerships with our suppliers.

Guiding Values

OUR CUSTOMERS AND TEAM MEMBERS ARE OUR MOST IMPORTANT ASSETS

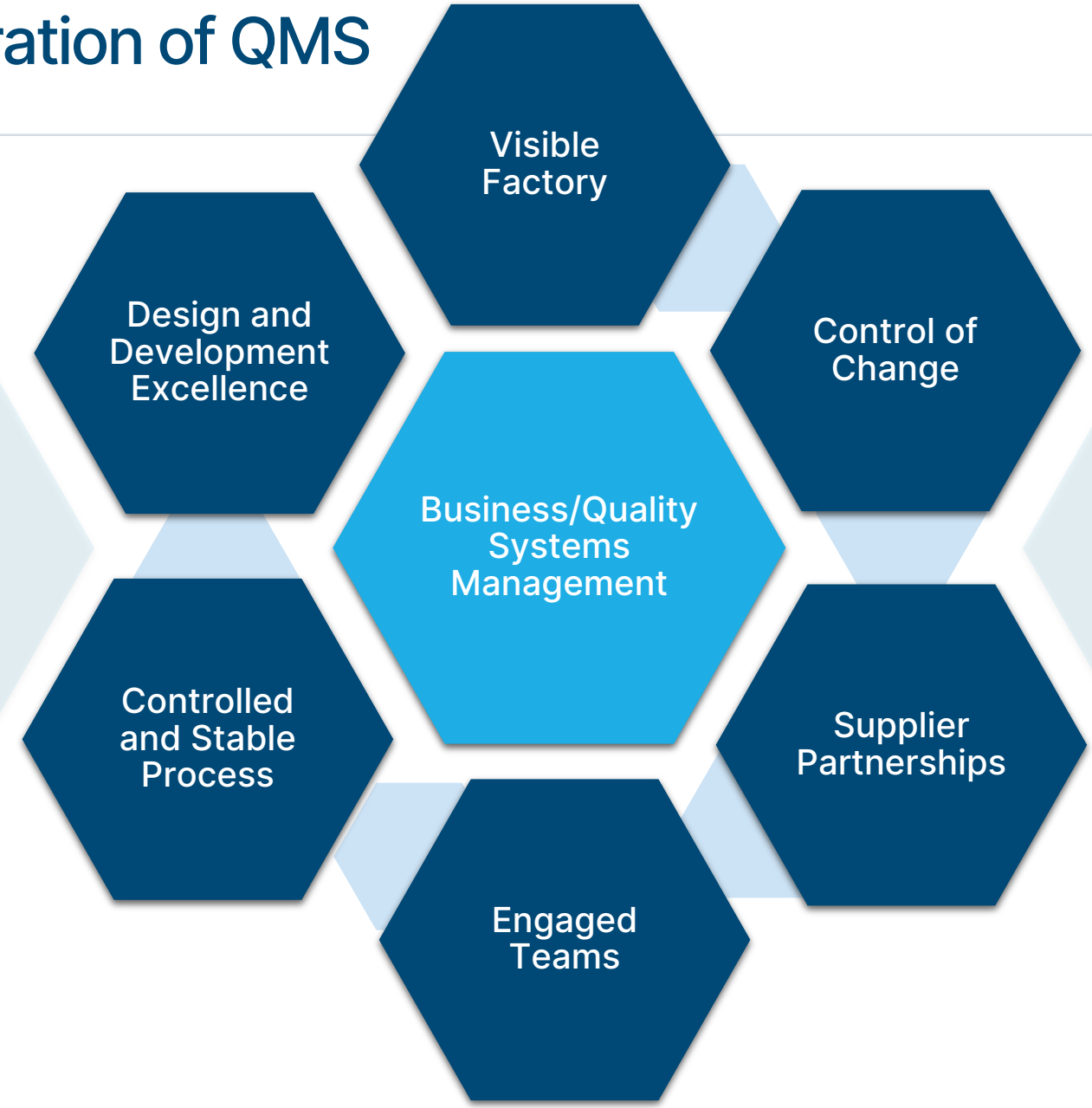
WE ONLY EMPLOY MOTIVATED, INSPIRED PEOPLE WHO THRIVE IN A PERFORMANCE-BASED ENVIRONMENT

HONESTY, INTEGRITY, AND AUTHENTIC COMMUNICATION ARE EXPECTED AND REQUIRED FOR CONTINUED EMPLOYMENT

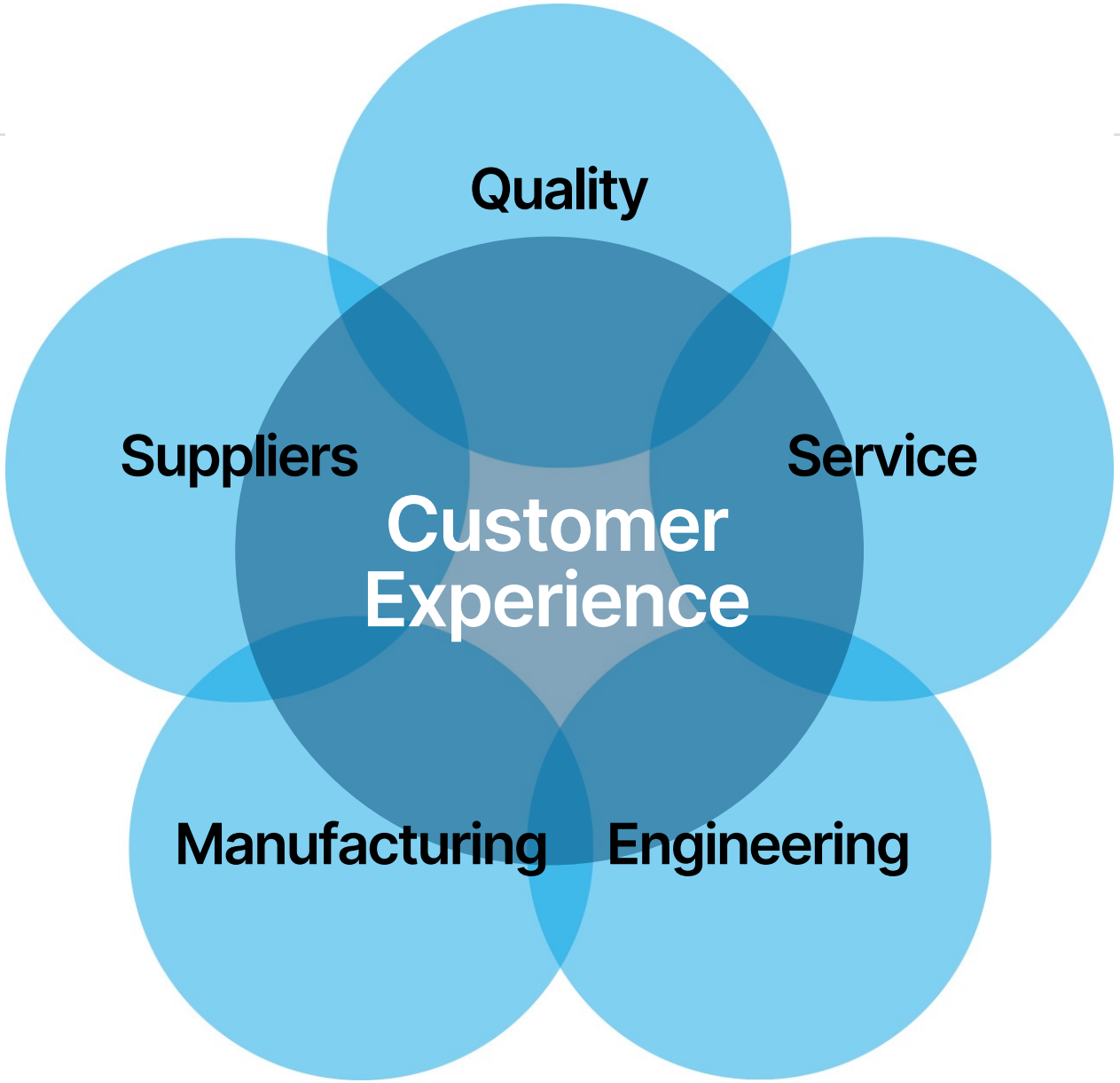
WE CHALLENGE EVERY TEAM MEMBER TO SOLVE CUSTOMER PROBLEMS, EXCEED CUSTOMER EXPECTATIONS, AND DELIVER EXCEPTIONAL CUSTOMER CARE; IN LINE WITH OUR BUSINESS GOALS

OUR QUALITY ENVIRONMENT CAN AND WILL BE CONTINUOUSLY IMPROVED

Harmonization and Maturation of QMS



Integrated Approach



Freezer Platform Recovery Initiatives

Geraint Phillips

Freezer Platform Recovery Initiatives

Geraint Phillips
3:35 PM – 4:00 PM

Geraint Phillips

Senior Vice President, Global Operations

Geraint Phillips assumed the role of Senior Vice President, Global Operations in January 2023. Before his appointment as Senior Vice President, Global Operations, Mr. Phillips has served as Vice President, Freezer Operations, since July 2022. In that role, Mr. Phillips has been responsible for manufacturing, supply chain and engineering activities for all freezer operations. Mr. Phillips joined the Company in April 2021 as Vice President, ULT Freezer Operations upon completion of the acquisition of Global Cooling Inc. Prior to joining the Company, Mr. Phillips served in a variety of strategic operations leadership roles with companies including PerkinElmer (2007-2016, most recently as Vice President of Global Operations, Environmental Health Division), Humanscale (2016-2019, as Vice President, Global Operations), Brooks Life Sciences (2019-2020, as Senior Director of BioRepository Operations) and most recently, Global Cooling Inc. (2020-2021, as Chief Operations Officer).

ULT Freezer Operations

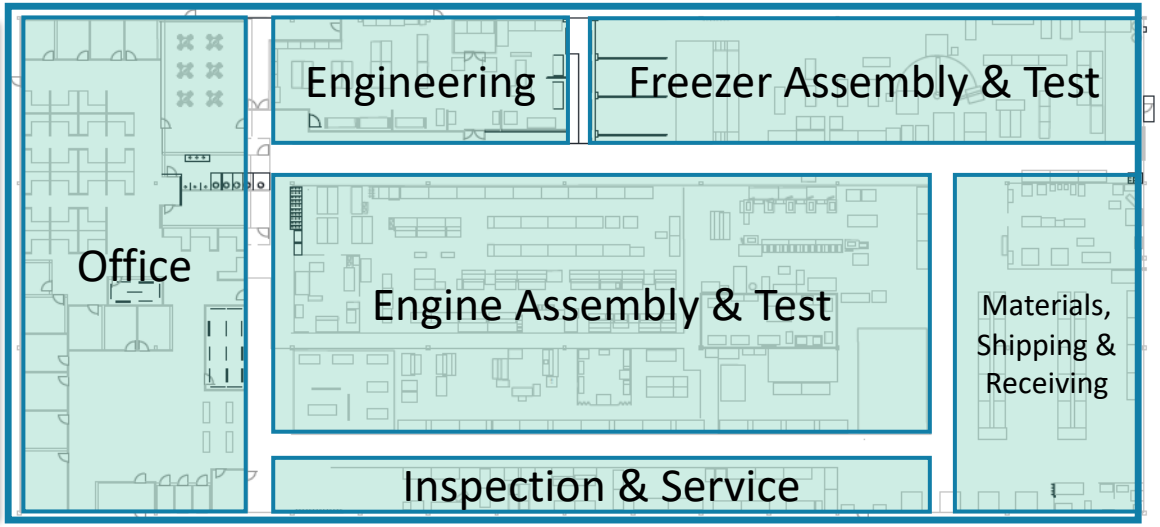
Agenda

- Athens, OH Facility Overview
- Production Output Trends
- COVID Impact on Margin
- Margin Expansion Focus
    - Supply Chain Optimization
    - Manufacturing Optimization
- Future Operational Enhancements

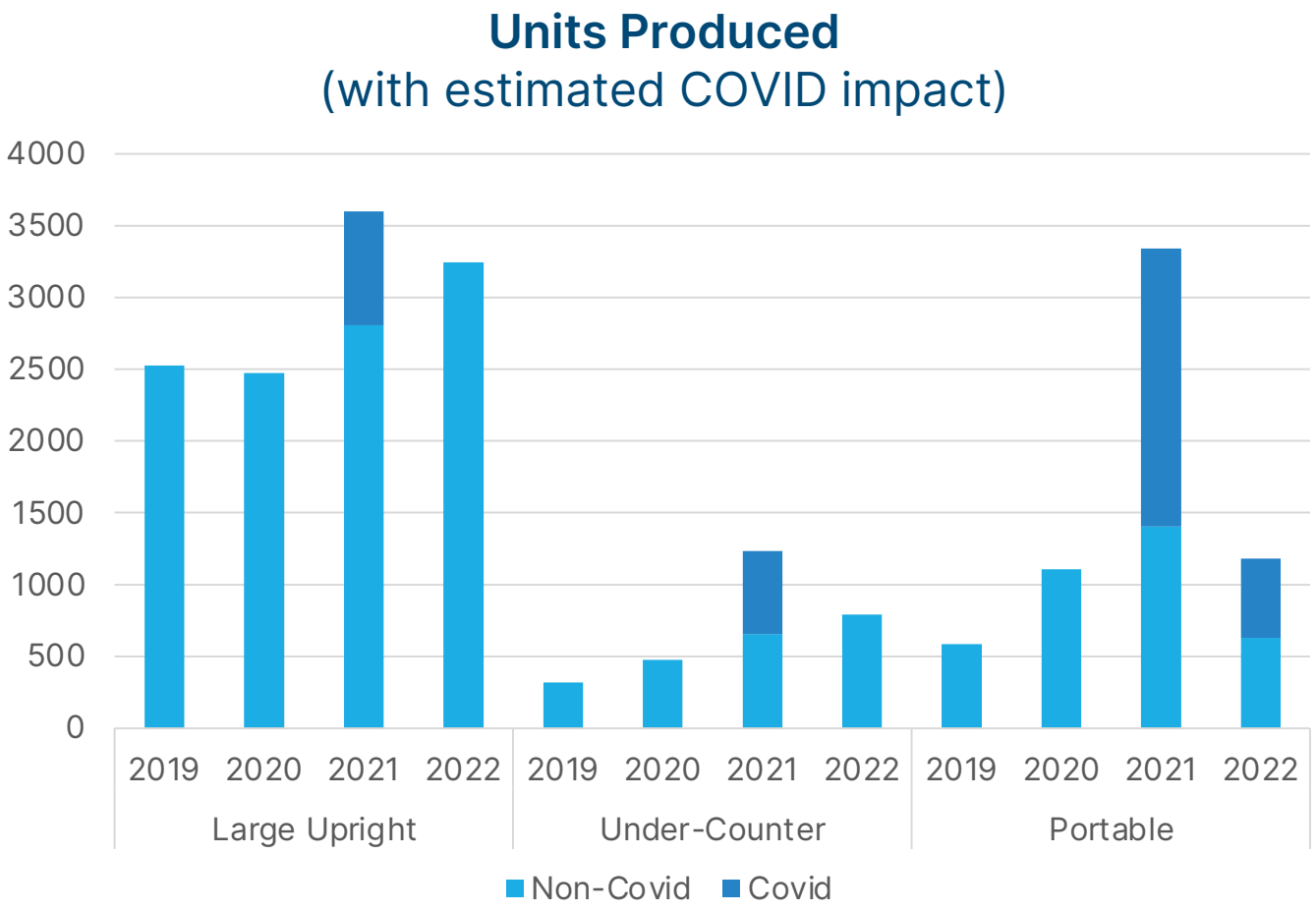
Athens, OH Facility

50,000 square feet

- 40,000 Manufact.
- 10,000 Office / Lab



ULT Freezer Production Volumes



- 2021 surge in demand to support COVID vaccine storage and distribution programs
- 2022 production outputs sustained
  - Additional demand
  - Backlog reduction efforts
  - Non-COVID related growth

COVID Impacts on Margins

COVID cost/margin impacts fell into 3 main categories:

Category	Cost Driver	Margin Impact
Materials	Steel commodity price increases	Very High
	Premiums to secure critical electronic components	High
	Supplier O/T to secure higher volumes	Med
	Outsourced production for Under-counter and Portable models to increase output	Low
Labor	Hourly rate market adjustments	Med
	Overtime to manage production surge	Med
Warranty	Materials and labor to support field update program	Med

Margin Expansion Focus

Supply Chain Optimization

Initiative	Impact to Margin	Effective Date	% Complete
Sheet Metal Supplier Consolidation (ULT/Cryo)	Very High	Q3 2023	100%
Develop world-class suppliers for current and future products	High	Q4 2023	30%
Electronics, hardware, special components	Med	Q4 2023	50%
Courier services (BLFS-wide)	Low	Q2 2023	100%
Dual sourcing to mitigate risk and optimize cost	High	Q1 2024	30%

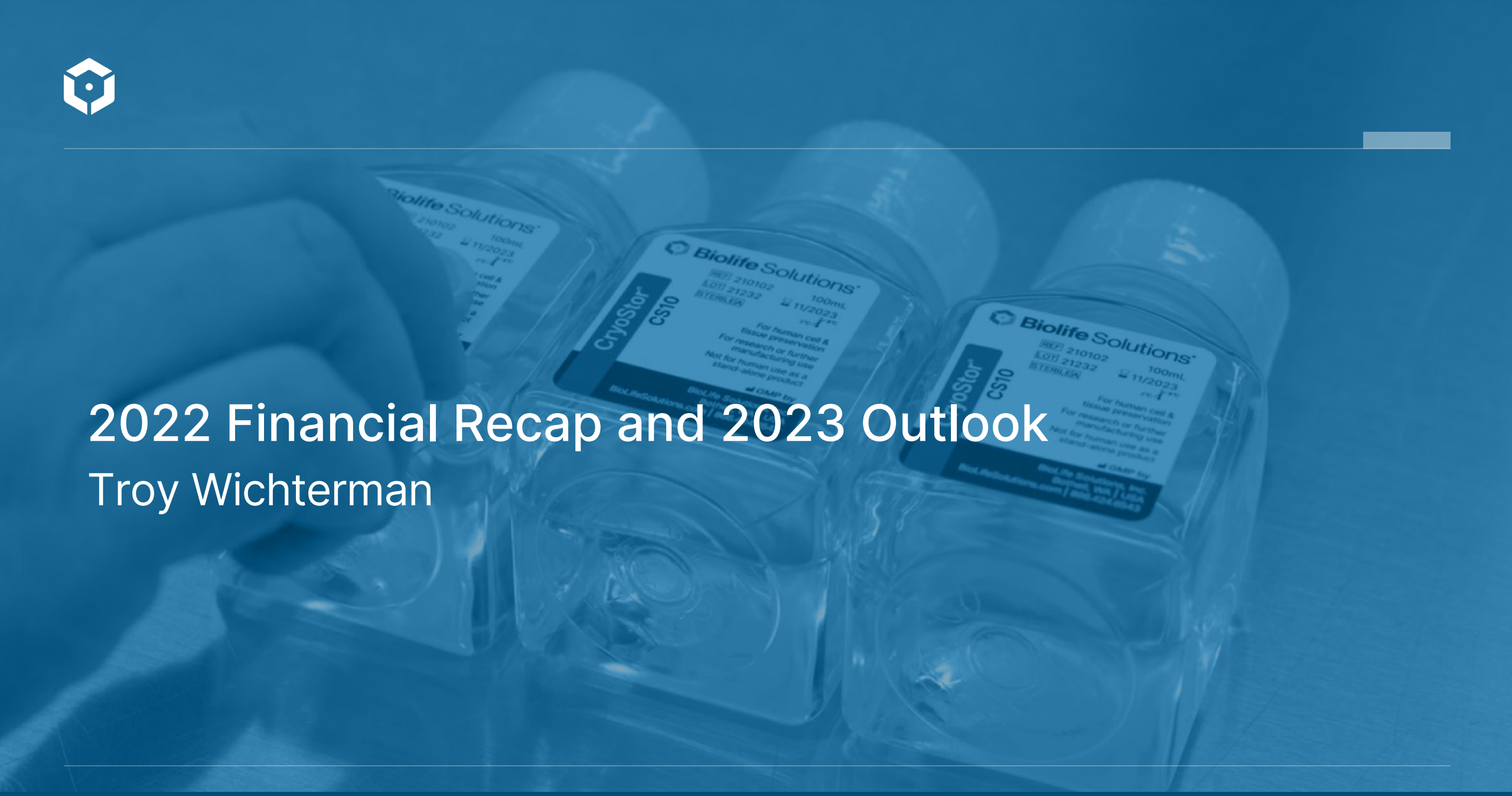
Margin Expansion Focus

Manufacturing Labor Improvements

Initiative	Impact to Margin	Effective Date	% Complete
Lean Manufacturing Kaizen Events	High	Q4 2023	30%
Inventory Accuracy / Reduction Improvements	Med	Q4 2023	30%
Planning & Scheduling System Enhancements	Med	Q4 2023	50%
Supplier/Internal Quality Improvements	Med	Q2 2023	100%
Value / Process Engineering Initiative	Med	Q1 2024	30%

Future Operational Enhancements – Key Focus Areas

Focus Area	Initiatives	Timeline	GM Impact	Customer Impact	Risk Mitigation Impact
Leverage Digital Assets	Supply Chain Planning & Optimization	Q4 2023	H	M	H
	Service Predictive Analytics	Q1 2024	M	H	H
Expand Use of Automation	Assembly and alignment	Q1 2024	M	L	H
	Test Processes	Q1 2024	M	L	H
Sustainability	Supplier Localization	Q4 2023	H	L	H
	Product Sustainability / Recyclability	Q2 2024	M	H	L
Supply Chain Resilience	Expanded Supplier Audit Program	Q1 2024	M	H	H



2022 Financial Recap and 2023 Outlook

Troy Wichterman

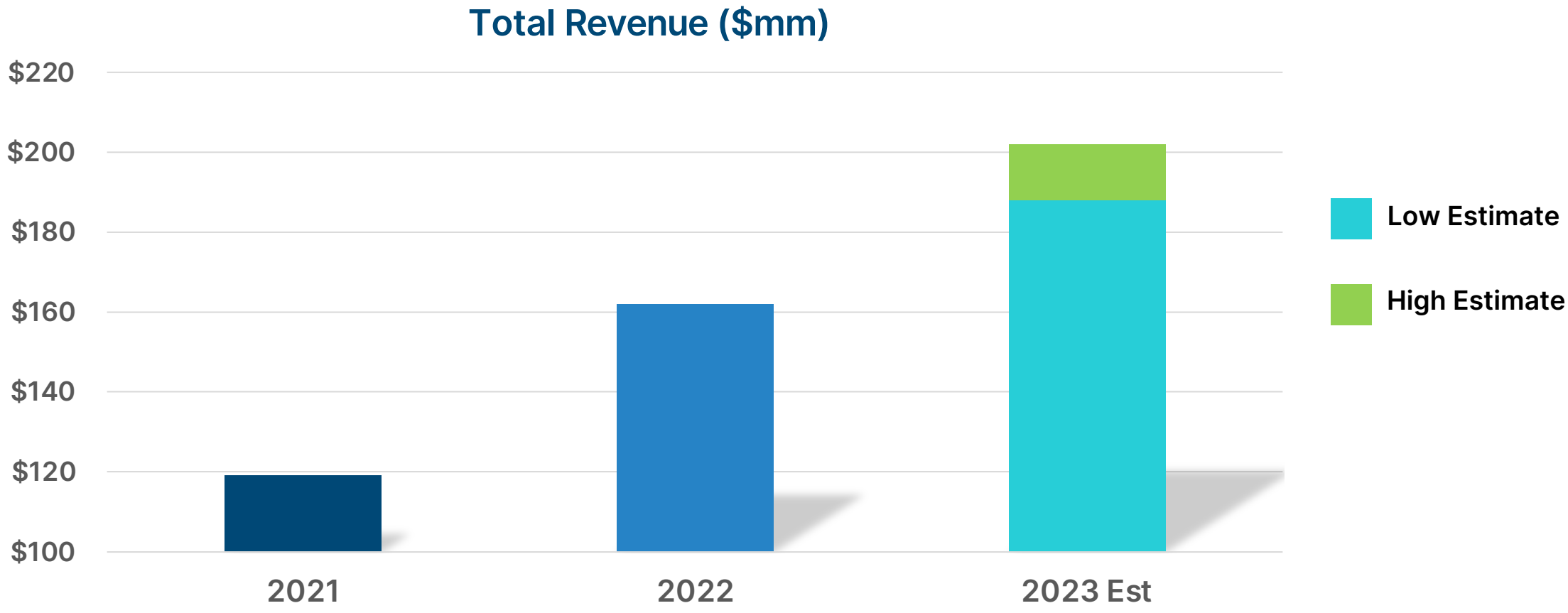
2022 Financial Recap and 2023 Outlook

Troy Wichterman
4:00 PM – 4:15 PM

Troy Wichterman
Chief Financial Officer

BBA, MS Accounting, CPA (inactive); 13 years of experience in various finance and accounting roles; most recently served as BioLife's Vice President, Finance since November 2019; integral in six acquisitions. Started with BioLife in 2015 with several positions of increasing responsibility.

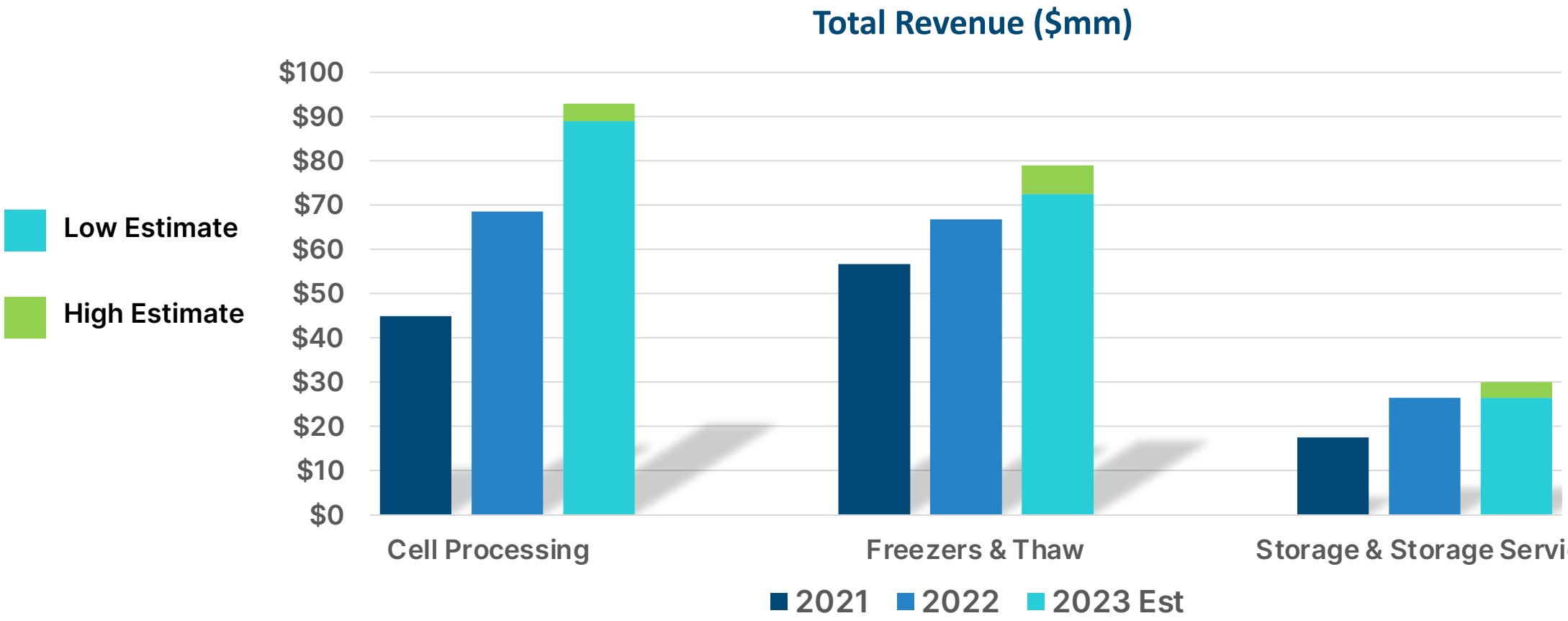
High-Growth Bioproduction Tools Business



	2022*	2023L	2023H
Total Growth	36%	16%	25%
Ex-COVID Organic Growth	30%	26%	35%

*Preliminary Unaudited

Three Complementary Value Platforms



	2022*	2023L	2023H	2022*	2023L	2023H	2022*	2023L	2023H
Total Growth	53%	30%	35%	18%	9%	18%	51%	0%	13%
Ex-COVID Organic Growth	45%	N/A	N/A	5%	13%	23%	12%	64%	86%

*Preliminary Unaudited

Preliminary Unaudited 2022 Revenue

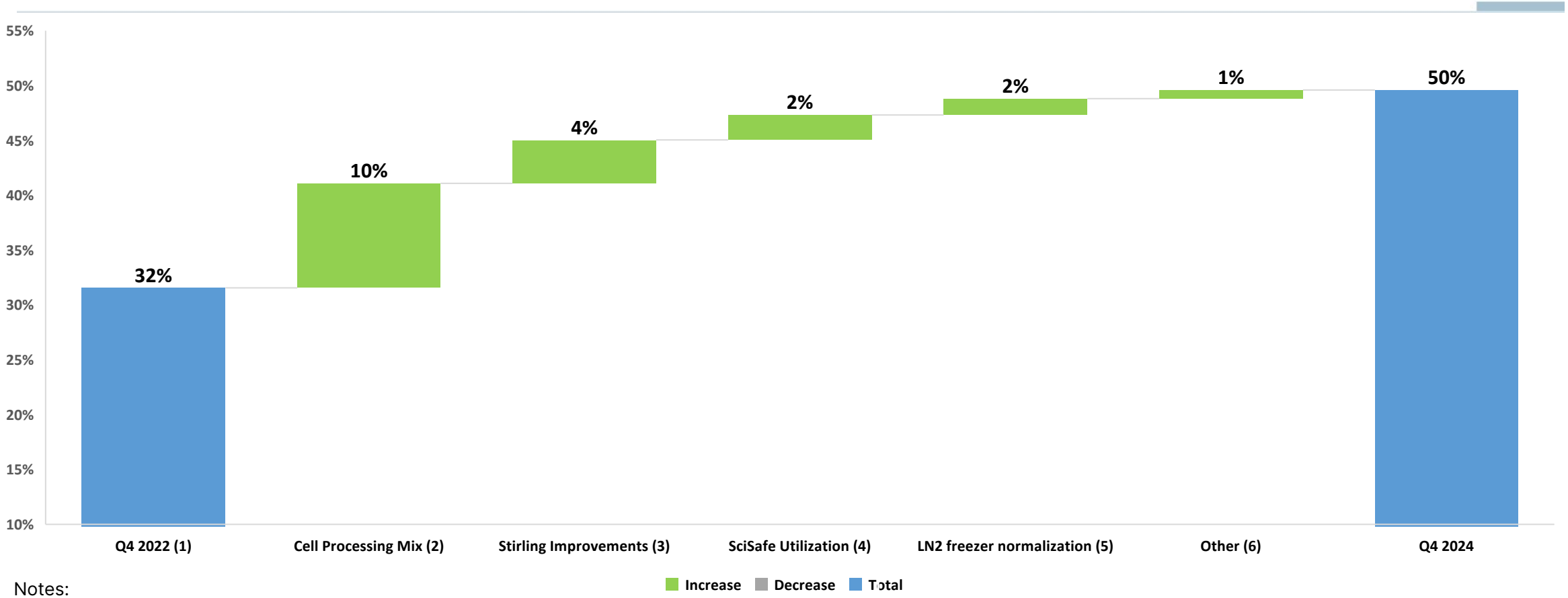
Segment Revenue ($millions)	Q4 2022	COVID %	Y/Y Growth	FY2022	COVID %	Y/Y Growth	Organic Growth
Cell Processing (Biopreservation media & Sexton)	$20.2	0%	36%	$68.5	0%	52%	45%
Freezers & Thaw (CBS, Stirling & ThawSTAR®)	$17.4	3%	5%	$66.8	4%	18%	9%
Storage & Cold Chain (SciSafe & evo® Cold Chain)	$6.7	21%	15%	$26.5	39%	51%	51%
Total	**$44.3**	**5%**	**19%**	**$161.8**	**8%**	**36%**	**38%**

Initial 2023 Revenue Guidance

Segment Revenue ($millions)	Low Revenue	High Revenue	Low Growth	High Growth	Ex-COVID Low Growth	Ex-COVID High Growth
Cell Processing (Biopreservation media & Sexton)	$89.0	$93.0	***30%***	***35%***	***N/A***	***N/A***
Freezers & Thaw (CBS, Stirling & ThawSTAR®)	$72.5	$79.0	***9%***	***18%***	***13%***	***23%***
Storage & Cold Chain (SciSafe & evo® Cold Chain)	$26.5	$30.0	***0%***	***13%***	***64%***	***86%***
Total	**$188.0**	**$202.0**	**16%**	**25%**	**26%**	**35%**

- Approximately 45% of 2023 total revenue is expected in the first half of the year and approximately 55% in the second half of the year, reflecting typical seasonality.
- Revenue guidance for 2023 does not include any COVID related revenue.
- Management expects full year positive Adjusted EBITDA and Adjusted EBITDA growth in 2023.

Q4 2022 to Q4 2024 Adjusted Gross Margin Improvement Walk



Notes:

1. Includes approximately $1.8mm in Stock Comp or 4% of Q422 revenue
2. Includes new product introduction in 2024 from Sexton, margin/revenue impact in 2025 and later
3. Includes new product introductions (PCM and service revenue 2023, new upright freezer and cloud revenue 1/1/2024); upside for material cost reductions to achieve historical margins
4. Loss of Q4 2022 COVID revenue without infrastructure reductions; expect to normalize in second half 2023
5. Q422 gross margin for LN2 freezers significantly lower than historical due to customer/product mix. Impact from new steel and tank supplier in 2H of 2023
6. Primarily fixed overhead leverage and less scrap at evo

Q&A

Thank You.

Supplemental Financial Information

Q4 2022 Adjusted Financial Results (non-GAAP)

($'s in millions, except percentage and basis point figures)	Three Months Ended December 31, 2022	December 31, 2021	Change	% Change
Revenue	44.3	37.3	7.0	19%
Gross Margin % (adj.)	32%	17%	1,500 bps	n/a
OPEX (adj.)	22.1	19.2	2.9	15%
Operating Profit (adj.)	(8.2)	(13.1)	4.9	38%
Net Income (adj.)	(8.2)	(12.9)	4.7	37%
EBITDA (adj.)	1.7	(5.9)	7.6	129%

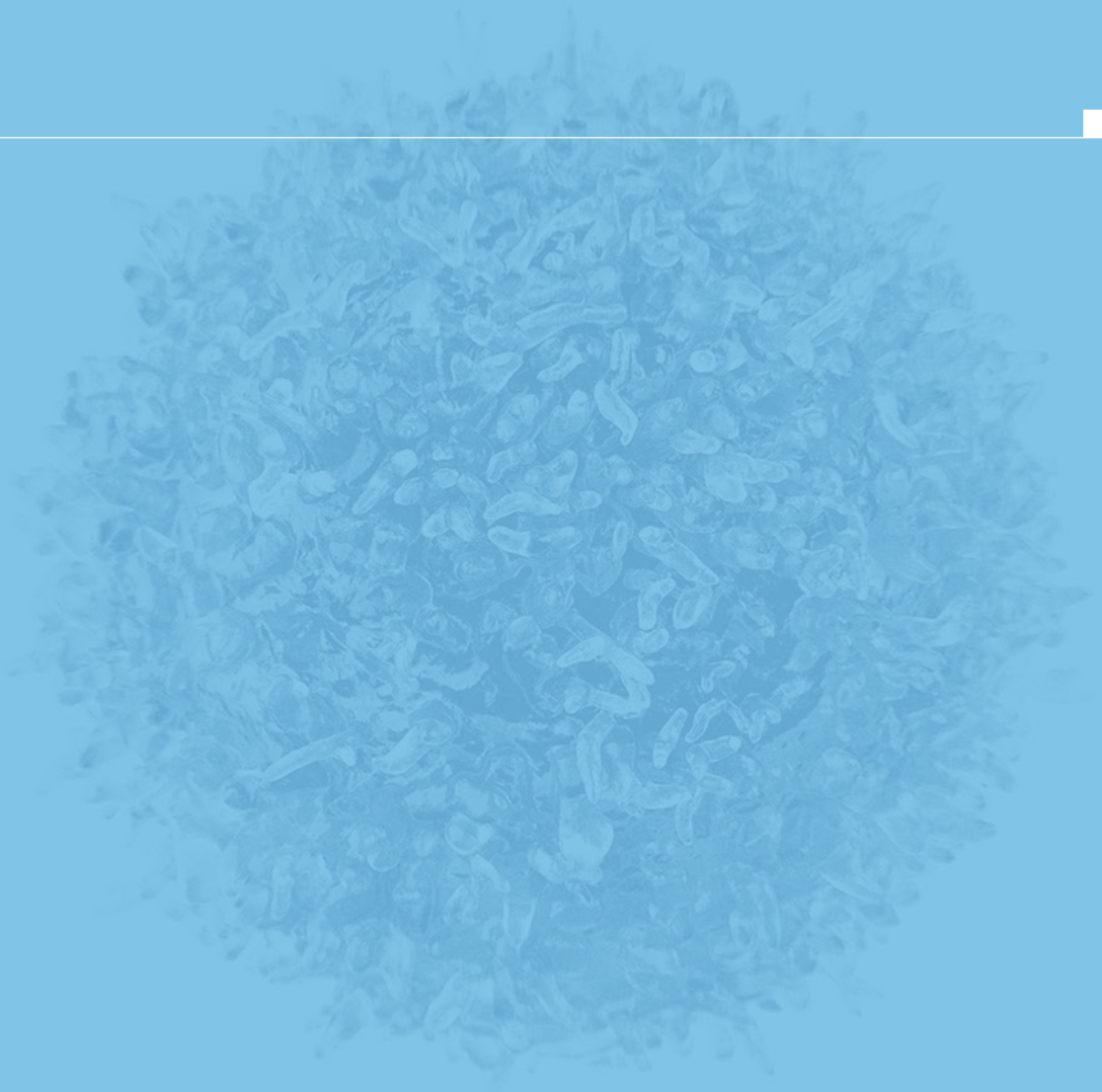
2022 Full Year Adjusted Financial Results (non-GAAP)

($'s in millions, except percentage and basis point figures)	Year Ended December 31, 2022	December 31, 2021	Change	% Change
Revenue	161.8	119.2	42.6	36%
Gross Margin % (adj.)	33%	32%	100 bps	n/a
OPEX (adj.)	83.4	59.6	23.8	40%
Operating Profit (adj.)	(29.3)	(21.5)	(7.8)	36%
Net Income (adj.)	(29.3)	(15.4)	(13.9)	90%
EBITDA (adj.)	3.6	4.1	(0.5)	(11%)

Cap Table (03/10/2023)

(,000)	Shares	Options/RSAs	Total
Directors & Officers	1,081	1,472	2,553
Affiliates	15,510	-	15,510
Other	26,462	1,586	28,048
Total	**43,053**	**3,058**	**46,111**

GAAP to Non-GAAP Financial Information



GAAP to Non-GAAP Gross Profit

(In thousands)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Year Ended December 31, 2022	Year Ended December 31, 2021
GAAP GROSS PROFIT	$ 13,239	$ 4,675	$ 48,815	$ 32,491
GAAP GROSS MARGIN	30%	13%	30%	27%
ADJUSTMENTS TO GROSS PROFIT:				
Inventory step-up	-	-	251	1,130
Intangible asset amortization	733	1,489	5,007	4,557
ADJUSTED GROSS PROFIT	$ 13,972	$ 6,164	$ 54,073	$ 38,178
ADJUSTED GROSS MARGIN	32 %	17%	33 %	32%

GAAP to Non-GAAP Operating Expenses

(In thousands)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Year Ended December 31, 2022	Year Ended December 31, 2021
GAAP OPERATING EXPENSES	$ 93,529	$ 54,875	$ 307,299	$ 154,316
ADJUSTMENTS TO OPERATING EXPENSES:				
Cost of product, rental, and service revenue	(30,287)	(31,140)	(107,937)	(82,108)
Acquisition costs	-	(20)	(18)	(1,636)
Intangible asset amortization	(1,457)	(2,863)	(9,696)	(8,202)
Loss on disposal of assets	(595)	170	(683)	145
Change in fair value of contingent consideration	1,405	(1,790)	4,754	(2,875)
Intangible asset impairment charges	(40,464)	-	(110,364)	-
ADJUSTED OPERATING EXPENSES	$ 22,131	$ 19,232	$ 83,355	$ 59,640

GAAP to Non-GAAP Operating Income

(In thousands)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Nine Months Ended December 31, 2022	Nine Months Ended December 31, 2021
GAAP OPERATING INCOME/(LOSS)	$ (49,270)	$ (17,571)	$ (145,540)	$ (35,160)
ADJUSTMENTS TO OPERATING INCOME:				
Inventory step-up	-	-	251	1,130
Acquisition costs	-	20	18	1,636
Intangible asset amortization	1,457	2,863	9,696	8,202
Loss on disposal of assets	595	(170)	683	(145)
Change in fair value of contingent consideration	(1,405)	1,790	(4,754)	2,875
Intangible asset impairment charges	40,464	-	110,364	-
ADJUSTED OPERATING INCOME/(LOSS)	$ (8,159)	$ (13,068)	$ (29,282)	$ (21,462)

GAAP to Non-GAAP Net Income

(In thousands)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Year Ended December 31, 2022	Year Ended December 31, 2021
GAAP NET INCOME/(LOSS)	$ (49,190)	$ (14,812)	$ (139,805)	$ (8,908)
ADJUSTMENTS TO NET INCOME/(LOSS):				
Inventory step-up	-	-	251	1,130
Acquisition costs	-	20	18	1,636
Intangible asset amortization	1,457	2,863	9,696	8,202
Loss on disposal of assets	595	(170)	683	(145)
Change in fair value of contingent consideration	(1,405)	1,790	(4,754)	2,875
Change in fair value of investments	-	-	(697)	-
Change in fair value of warrant liability	-	-	-	(121)
Income tax benefit	(86)	(2,578)	(5,022)	(20,118)
Intangible asset impairment charges	40,464	-	110,364	-
ADJUSTED NET INCOME/(LOSS)	$ (8,165)	$ (12,887)	$ (29,266)	$ (15,449)

GAAP to Non-GAAP Adjusted EBITDA

(In thousands)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Year Ended December 31, 2022	Year Ended December 31, 2021
GAAP NET INCOME/(LOSS)	$ (49,190)	$ (14,812)	$ (139,805)	$ (8,908)
ADJUSTMENTS:				
Interest expense/(income), net	438	118	687	485
Income tax benefit	(86)	(2,578)	(5,022)	(20,118)
Depreciation	1,790	1,790	6,834	4,801
Intangible asset amortization	1,457	2,863	9,696	8,202
EBITDA	$ (45,591)	$ (12,619)	$ (127,610)	$ (15,538)
OTHER ADJUSTMENTS:				
Share-based compensation (non-cash)	7,663	5,082	25,334	13,973
Inventory step-up	-	-	251	1,130
Acquisition costs	-	20	18	1,636
Loss on disposal of assets	595	(170)	683	(145)
Change in fair value of contingent consideration	(1,405)	1,790	(4,754)	2,875
Change in fair value of investments	-	-	(697)	-
Change in fair value of warrant liability	-	-	-	121
Intangible asset impairment charges	40,464	-	110,364	-
ADJUSTED EBITDA	$ 1,726	$ (5,897)	$ 3,589	$ 4,052

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