



charles river

Meeting with Management

Microbial Solutions

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Focus Areas of Today's Discussion on Microbial Solutions



Innovation

Robust new product offerings, strong internal R&D capabilities, and strategic partnerships position us well for continued strong growth

Sustainability

Committed to offering sustainable product alternatives as demonstrated by our recent animal-free Endosafe® Trillium® launch and our proprietary cartridge technology

Digitally enabled growth

Digital solutions for our clients will drive efficiencies and improved connectivity across our portfolio and improve the overall client experience

Microbial Solutions

Advancing the safety of patients and consumers by empowering our clients with sustainable and data-driven solutions that meet the highest quality standards in microbial contamination control



**Endosafe® Endotoxin Testing
for Sterile Applications**
Traditional & Cartridge Technology



**Celsis® Rapid Microbial
Detection for Sterile & Non-
Sterile Applications**



**Accugenix® Microbial
Identification & Strain Typing**

Premier Global Provider of Manufacturing Quality Control (QC) Testing Products and Services for Sterile and Non-Sterile Applications

**Endosafe®
Bacterial
Endotoxin Testing**

>2,500,000

FDA-licensed cartridges sold in 2022 for the use of our highly flexible Endosafe® rapid testing platforms

**Celsis® Rapid
Microbial
Detection**

>470

Successful installations for Celsis® rapid microbial detection systems for bioburden testing

**Accugenix®
Microbial
Identification &
Strain Typing**

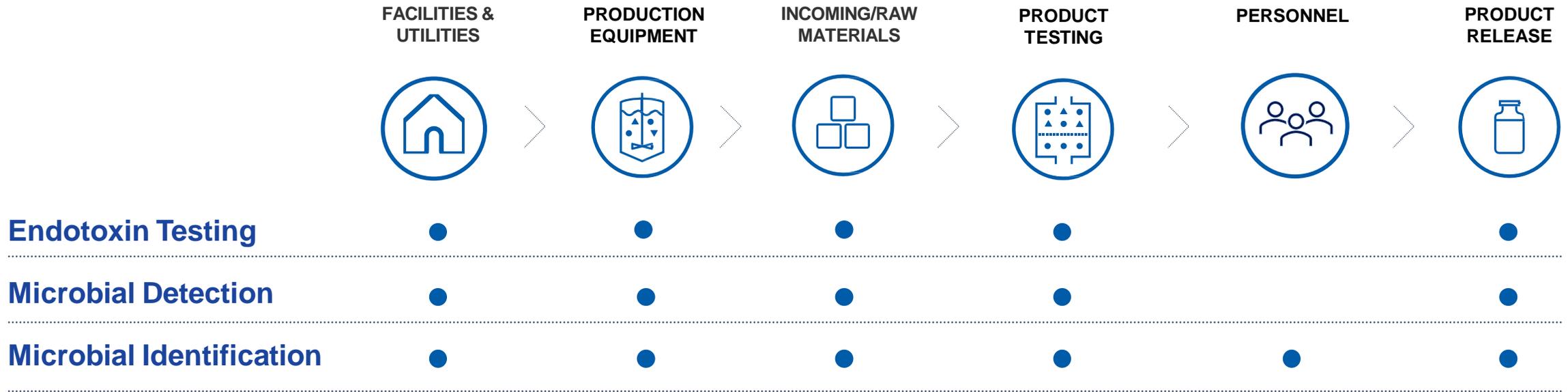
>600,000

Samples and microbial identification reports were processed by Accugenix® in 2022



QC Microbial Testing for Contamination Control

Our portfolio supports clients through the biopharma manufacturing process



Precise Endotoxin Detection with Endosafe® Bacterial Testing

Rapid Contamination Detection with Celsis® Microbial Testing

Environmental Monitoring Support with Accugenix® Identification & Strain Typing

Endosafe[®] Endotoxin Testing

The most comprehensive FDA-mandated lot release testing platform for endotoxin detection



Traditional LAL Reagents

- Robust formulation that increases sensitivity, linearity, and superior interference resistance to deliver accurate and reliable results

>50% share by
endotoxin test volume



LAL Cartridge Technology

- Rapid, efficient, and flexible: Our FDA-licensed LAL cartridge technology enhances efficiency, minimizes variability, and enables data integrity compliance

>10% of endotoxin
tests converted to
rapid methods



Recombinant Cascade Reagent

- Trillium[®]: An enriched animal-free assay for bacterial endotoxin testing that includes an optimized 3-factor enzymatic cascade formulation

Trillium[®] cartridges
available in 4Q23

Celsis® Rapid Microbial Detection

- A complete solution for rapid microbial detection with focus on sterility and bioburden testing
- Conventional methods represent 95% of current microbial detection tests performed
 - Large runway for future growth for rapid microbial methods
- Benefits of the Celsis® rapid platform:
 - Integration into clients' current testing protocols
 - Eliminate days of incubation
 - Sterility results in 6 days
 - Bioburden results in 24 hours
 - Objective results that replace manual eye counts or visual turbidity checks with automated, instrument-based analysis



Accugenix[®] Microbial Identification

Maximize environmental control with unparalleled accuracy in strain typing and next-generation sequencing



>600,000

Samples processed
in 2022



90%

Species identification
rate



>14,000

Unique bacterial and
fungal species entries in
our proprietary libraries

Global footprint



>91,000

Samples processed
with same-day
turnaround time



2,600

Samples a day
tested in our labs



>70

Axcress[®] systems
installed

Microbial Solutions Growth Targets

Microbial Solutions expected to continue to grow faster than market sector for manufacturing QC testing

- Continued portfolio expansion, product innovation, and geographic expansion
- Accelerated conversion of clients to Endosafe[®] cartridges
 - Enables share gains since we have the only comprehensive rapid testing platform
 - Endosafe[®] cartridge tests are priced at a premium compared to traditional LAL tests because rapid results and ease of use drive greater efficiency and cost savings for our clients
- Increased penetration of high-volume clients through enhanced system automation (i.e., Endosafe[®] Nexus 200™)
- Expanded offering for a growing number of clients looking for recombinant or sustainable alternatives (i.e., Trillium[®])
- Momentum with global pharma clients adopting Celsis[®] for rapid sterility, enabling faster release of products and greater operational efficiencies
- Maintain robust growth for Accugenix[®] microbial identification solutions
 - Continued market adoption of outsourcing trend, favorable regulatory environment, and additional Europe/Asia-Pac expansion

~\$3B

Microbial Solutions addressable market sector opportunity

High-single digit

CRL Microbial Solutions revenue growth target for 2023-26E (CAGR)

~70%

Microbial Solutions revenue from reagents/consumables, creating a recurring revenue stream

Microbial Solutions Growth Drivers

Accelerating market penetration through expanding innovation



Portfolio Expansion Fueled by Market Drivers

- Next-generation sequencing bolsters our microbial identification portfolio
- Endosafe® Nexus 200™ for endotoxin testing addresses automation needs for lab efficiency
- Celsis Adapt™ provides microbial detection for cell-based products within C>



Investment in Research and Development

- Developing and/or acquiring new skillsets in automation, AI, software development, and optics to maintain leading portfolio development
- Exploratory technology development to successfully design solutions to close critical gaps in the QC testing process



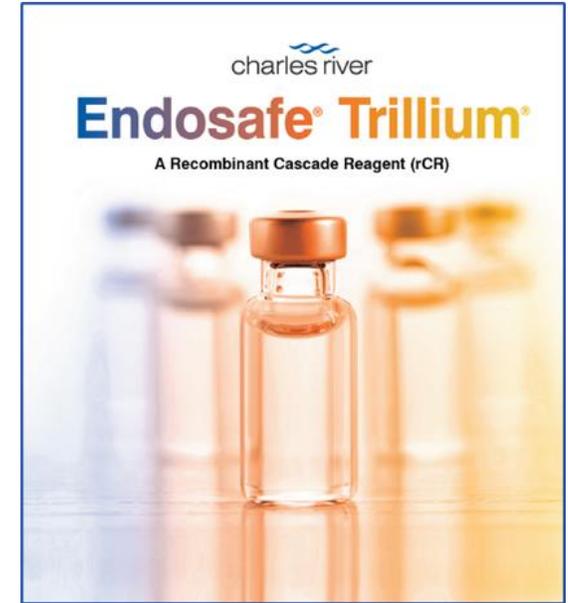
Maximize Global Footprint

- Introducing lab support for feasibility and validation in Ireland and Singapore
- Expanding core capabilities in South Carolina, Korea, Australia, and Ireland with facility expansions
- >60% of revenue outside the US

Introduction of Animal-Free Endosafe® Trillium®

Dedicated to identifying sustainable technologies that reduce animal use while ensuring patient safety

- Robust, animal-free recombinant cascade reagent (rCR) represents a next-generation solution to our industry-leading Endosafe® bacterial endotoxin detection portfolio
 - Enriched proprietary assay for bacterial endotoxin testing provides confidence and safety in product manufacturing
- Trillium® utilizes 3 biological proteins, which we believe provides superior accuracy and testing outcomes to competitors' single-protein alternatives, as well as equivalence to LAL-based testing methods
- Believe client adoption will be gradual over next several years, but an important development for those clients focused on adopting more sustainable practices



Evolution in
Responsible and
Sustainable
Endotoxin
Testing

Gel-Clot
LAL



0%
Reduction

**Kinetic
Turbidimetric LAL**

Zero reduction in horseshoe
crab blood from Gel-Clot

54%
Reduction

**Kinetic
Chromogenic LAL**

54% reduction in horseshoe
crab blood from Gel-Clot

95%
Reduction

**LAL Cartridge
Technology**

95% reduction in horseshoe
crab blood from Gel-Clot



100%
Replacement

**Recombinant Cascade
Reagent (rCR)**

100% horseshoe crab blood free



Microbial Solutions Strategic Imperatives



Enhance Portfolio

Continue to build leadership position with dynamic portfolio focused on rapid microbial detection and identification

- Leverage strength in sterile and non-sterile QC markets to drive client adoption of comprehensive testing portfolio



Innovative Growth

Continue to innovate product/service offerings through internal development, acquisitions, and/or licensing

- Position portfolio to capitalize on innovation and key market drivers



Sustainable Science

Drive sustainability initiatives through adoption and positioning of diverse endotoxin products

- Recent launch of animal-free Trillium® endotoxin test demonstrates our commitment to sustainable alternatives



Digitally Enabled

Address industry need for lab efficiency through automation and improved data integrity

- Provide data analytics solutions to improve client lab efficiency and decision making



Advance Culture

Delivering meaningful contributions through an exceptional work environment

- Focused on opportunities for growth, well-being, employee development, and recognition



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CRL
LISTED
NYSE