



# Analysis at the speed of life

MARCH 2024

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In addition, projections, assumptions, and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

# 908 Devices is making chemical analysis simple, smart, and speedy to empower people to take swift action in life-altering applications

**2012**

Founded in Boston



**\$50M**

2023 Revenue



**2,800+**

Devices Placed



**115**

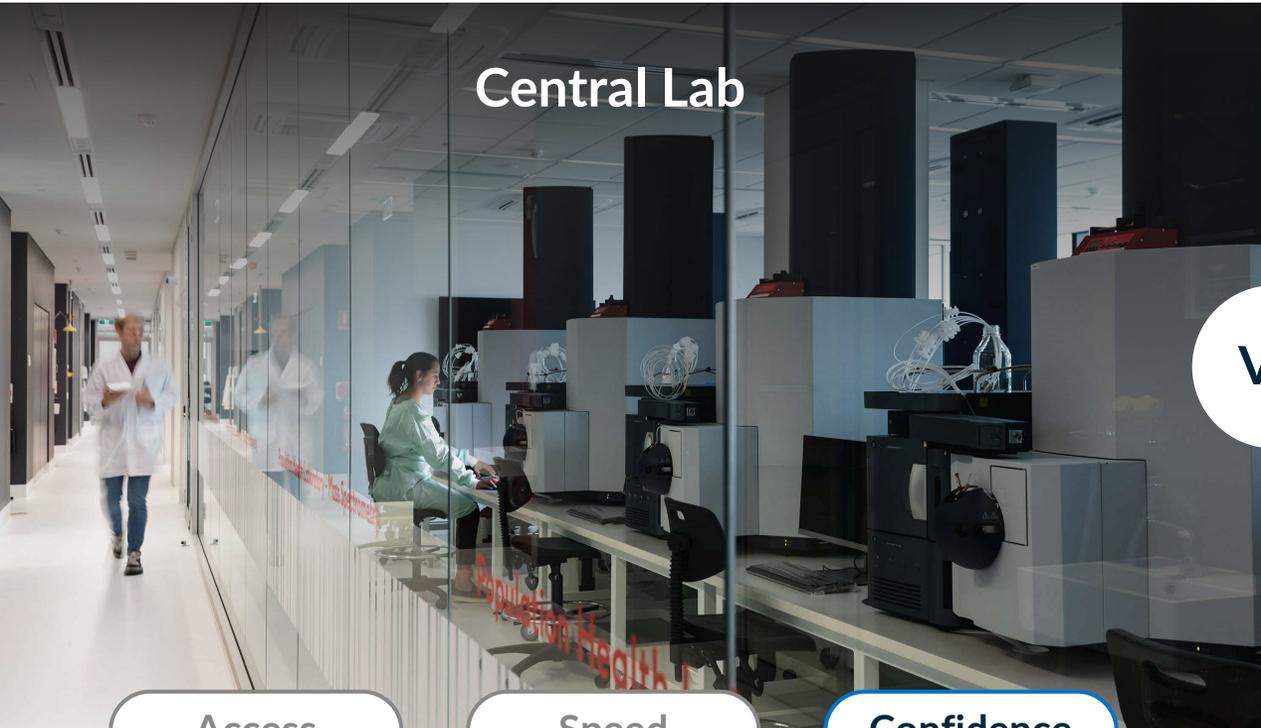
Patents



**225+**

Employees

# Transforming time-to-action



VS



Access

Speed

Confidence

Access

Speed

Confidence

 **Weeks**

 **Minutes**



## Life-altering applications

We focus on applications that are meaningful and impactful, where robust answers are needed quickly to make a difference in people's lives.

Forensics

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Research

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QA/QC

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Bioprocessing

Access

Speed

Confidence

# Select customers

## Pharma / Biotech

## Government

## Academic



FEMA



## Purpose-built handheld & desktops

with Embedded Machine-Learning



## Proprietary consumables

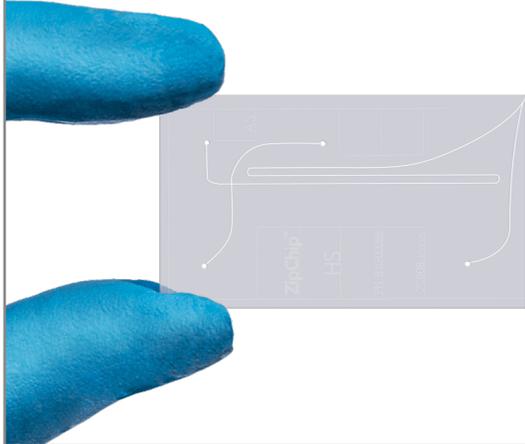
Microfluidic Chips,  
Reagents, Probes, Swabs



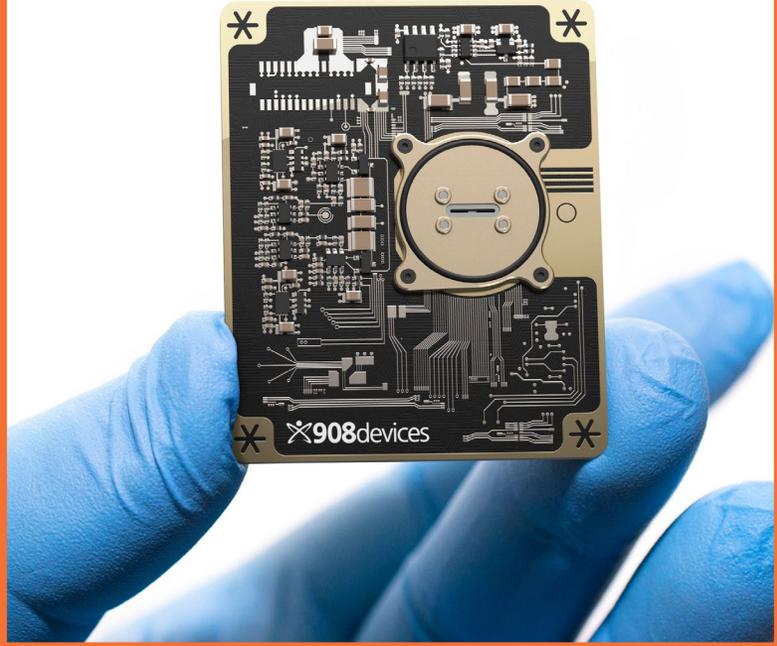
# Our technology platform

Strong IP Position, and Quickly Expanding

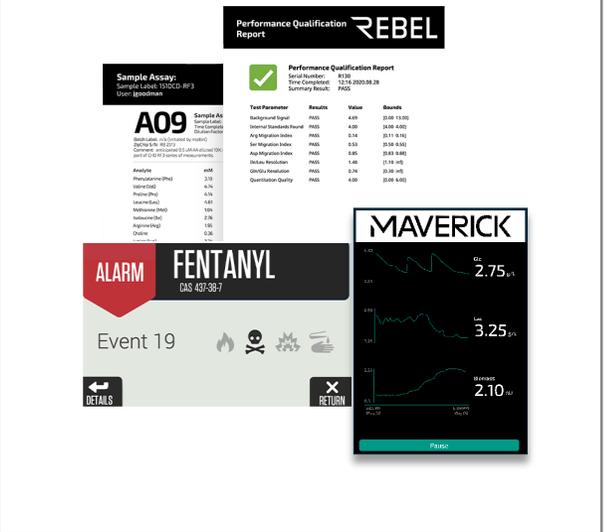
### Microfluidic Sampling & Separations



### Microscale Mass Spectrometry



### Analytics & Machine Learning



**Performance Qualification Report**

Sample Assay: Complete Lot# 151000-RF3  
Client: Reprochem

**A09**

Test Parameter	Results	Value	Bounds
Background Signal	PASS	4.09	(0.00 - 13.00)
Internal Standard Found	PASS	4.09	(0.00 - 6.00)
Aggregation Index	PASS	0.74	(0.11 - 3.70)
Ion Migration Index	PASS	0.24	(0.10 - 0.60)
App Migration Index	PASS	0.95	(0.61 - 0.90)
Matrix Resonance	PASS	1.68	(1.10 - 1.60)
Gas/In Resonance	PASS	0.74	(0.10 - 1.00)
Quantifier Quality	PASS	4.09	(0.00 - 6.00)

**MAVERICK**

**ALARM FENTANYL**  
CAS 437-38-7

Event 19

2.75  $\mu$ L  
3.25  $\mu$ L  
2.10  $\mu$ L

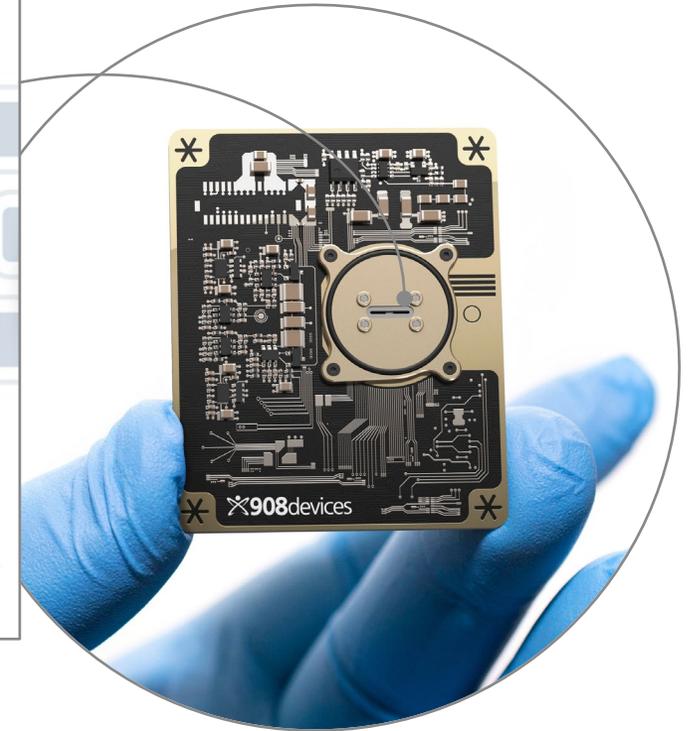
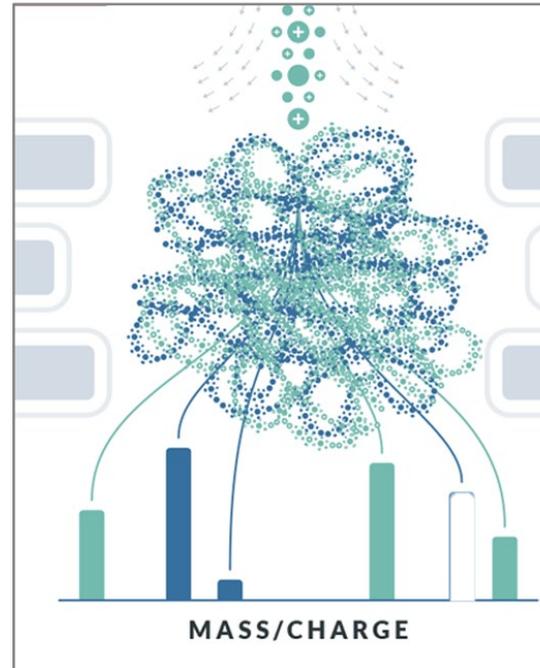
# Microscale mass spectrometry

Profound reduction in size.

Far more efficient pumping.

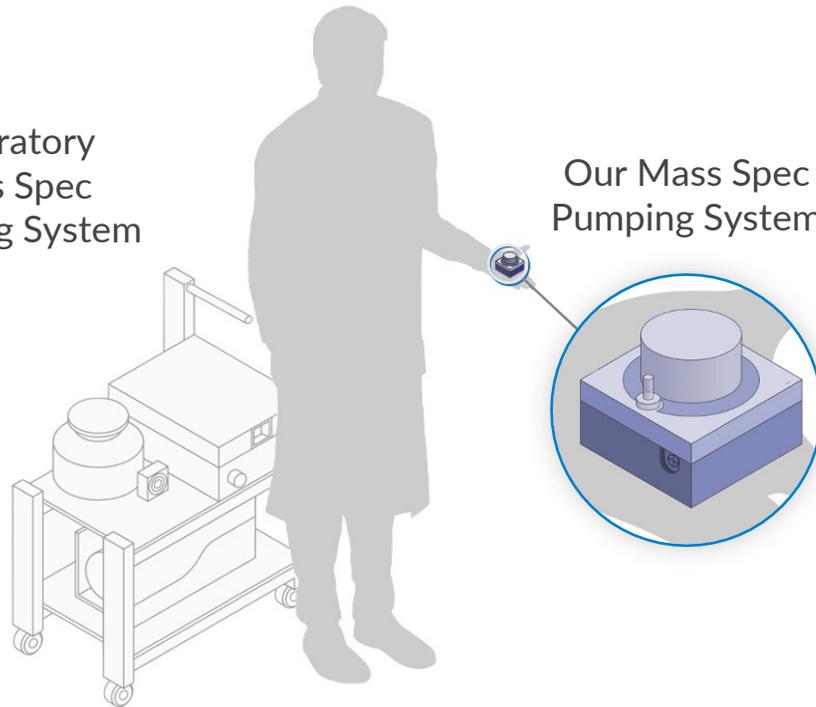
**100X** lower power consumption.

53 patents granted, 4 pending

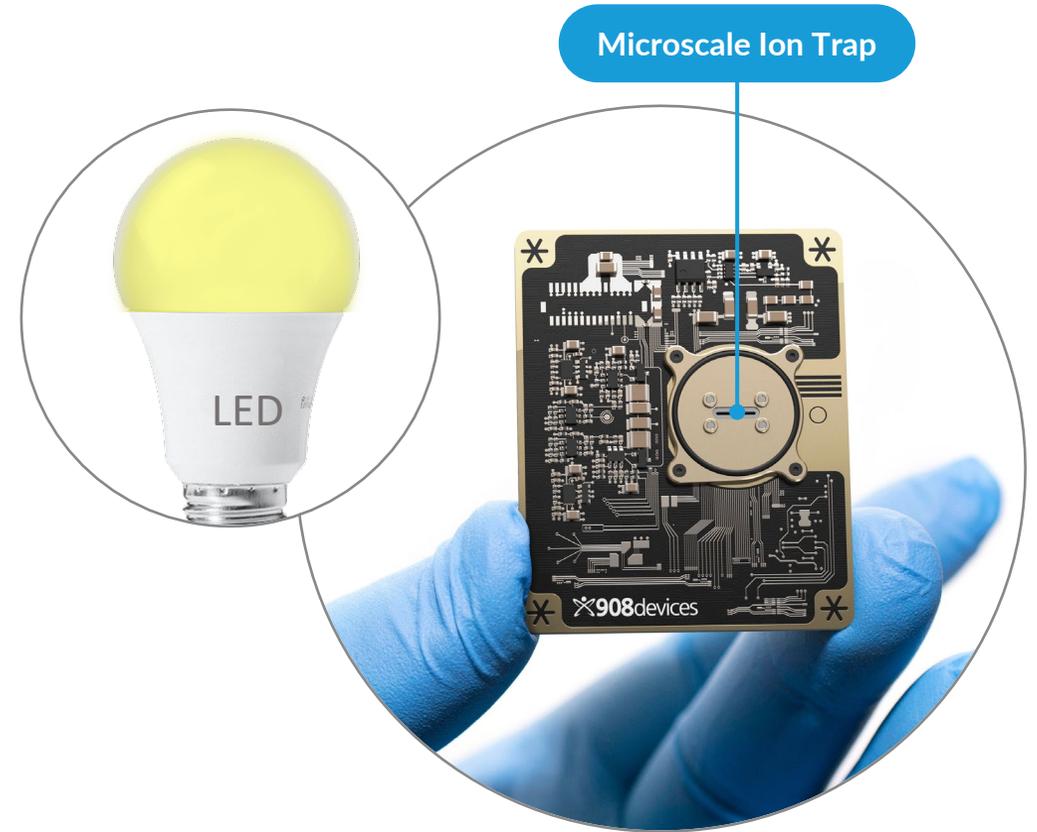


# Microscale mass spectrometry

Laboratory  
Mass Spec  
Pumping System



Our Mass Spec  
Pumping System



Microscale Ion Trap

Mass spec power consumption  
comparable to a 20W LED light bulb

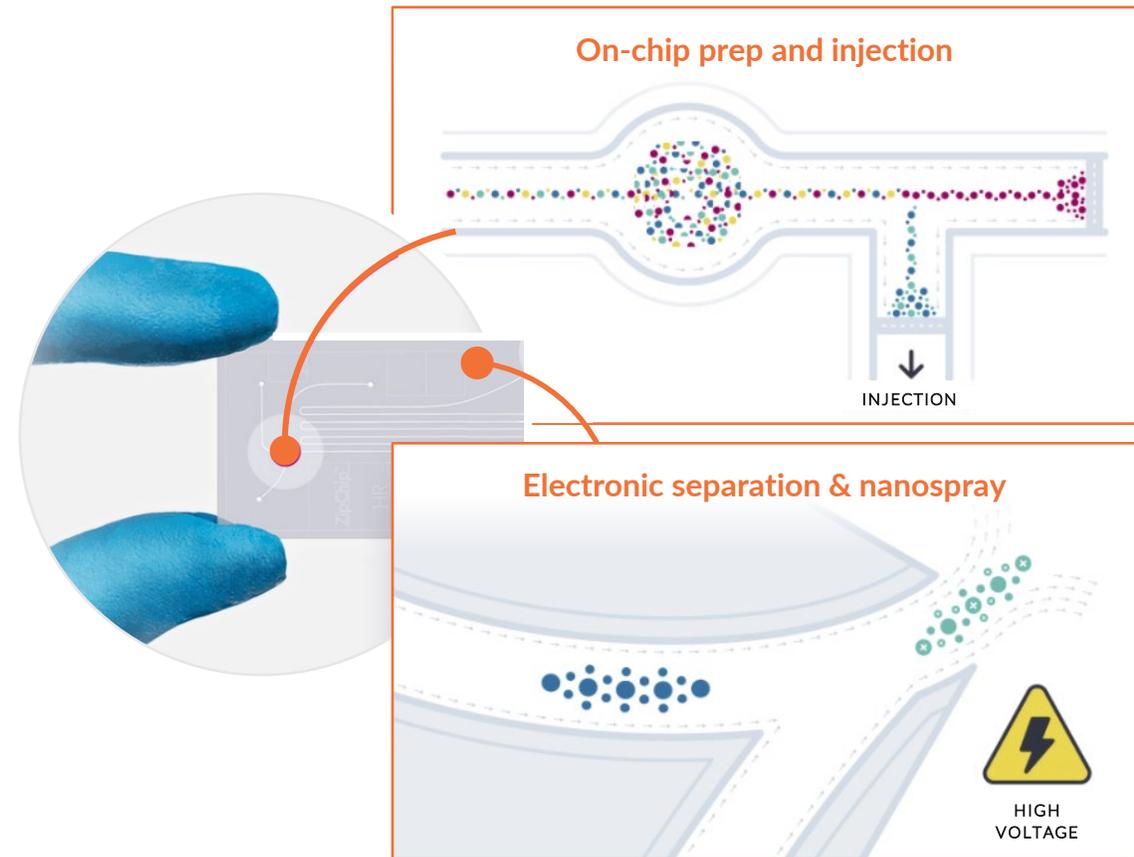
# Microfluidic sampling & separations

Liquid sample prep and separations can be a **PAIN**.

Extraordinarily high performance in a small simple package.

Electronically driven separations.

44 patents granted, 3 pending



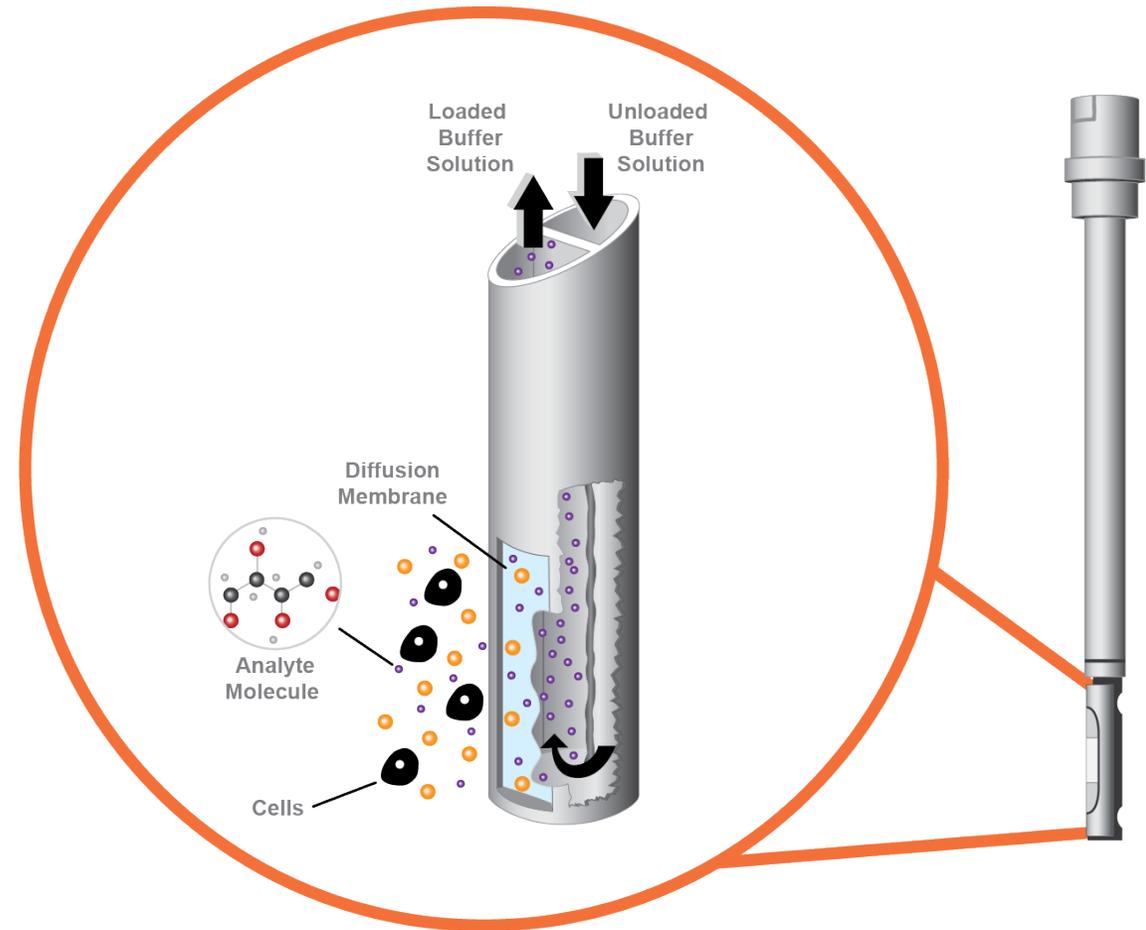
# Microfluidic aseptic sampling

Efficient sampling of bioprocesses without risk of contamination.

Diffusion-based—no valuable volume/product lost.

Enables online analytics and process control, in a convenient consumable.

18 patents granted

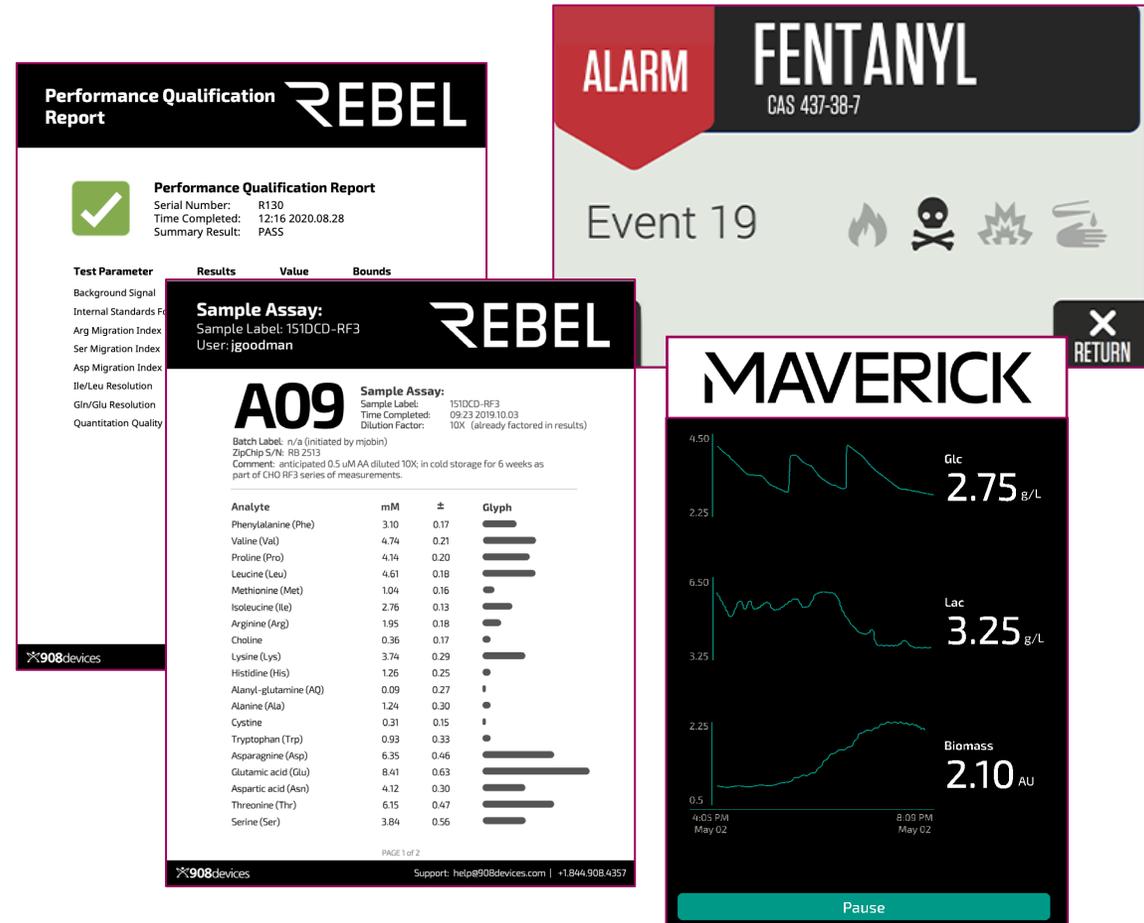


# Analytics & machine learning

Efficiency means answers.

We take care of the heavy lifting on complex data interpretation to deliver on-point answers when and where they're needed.

Trade secrets



# Our handheld & desktop devices



# Handheld mass spec for point-of-need analysis

Trace Detection of Chemicals, Drugs, Priority Toxics, Explosives

DETECT AT

**1,000X**

below their lethal level

CLASSIFY

**2,000+**

analogues of fentanyl

**>150**

named dangerous materials

## Use Cases:

First Responders

US Opioid Crisis

Counterfeit Pharmaceuticals

Customs

## Enterprise Scale:



**Pilot Programs**

16 accounts | 100+ units



**Enterprise Accounts**

22 accounts | 1,000+ handhelds  
(ongoing potential)



Far easier to use & maintain

**15X**

FASTER

**10X**

SMALLER

**2X**

CHEAPER



# Complement of Process Analytical Tools

Measuring the Critical-to-Life Extracellular Environment

# The extracellular environment is critical to life

## AMINO ACIDS

Alanine	Cystine/Cysteine	Histidine	Methionine	Tryptophan
Arginine	Glutamic Acid	Isoleucine	Phenylalanine	Tyrosine
Asparagine	Glutamine	Leucine	Proline	Valine
Aspartic Acid	Glycine	Lysine	Serine Threonine	

## VITAMINS & MICROS

B, D, E, K, trace metals

## PROTEIN, PEPTIDES, GROWTH FACTORS

Albumin, Transferrin, Aprotinin, Fibronectin

## CARBOHYDRATES

Glucose, Maltose

## OTHER

pH, O<sub>2</sub>, CO<sub>2</sub>, NH<sub>3</sub>, Lactate

# A dilemma & opportunity: The Goldilocks Problem

## ESSENTIAL AMINO ACIDS

- TOO LOW** | starve production of protein building blocks
- TOO HIGH** | excesses are catabolized to  $\text{NH}_3$  and other toxic metabolites
- TOO HIGH / LOW** | can lead to substitutions and corrupt protein sequence of interest

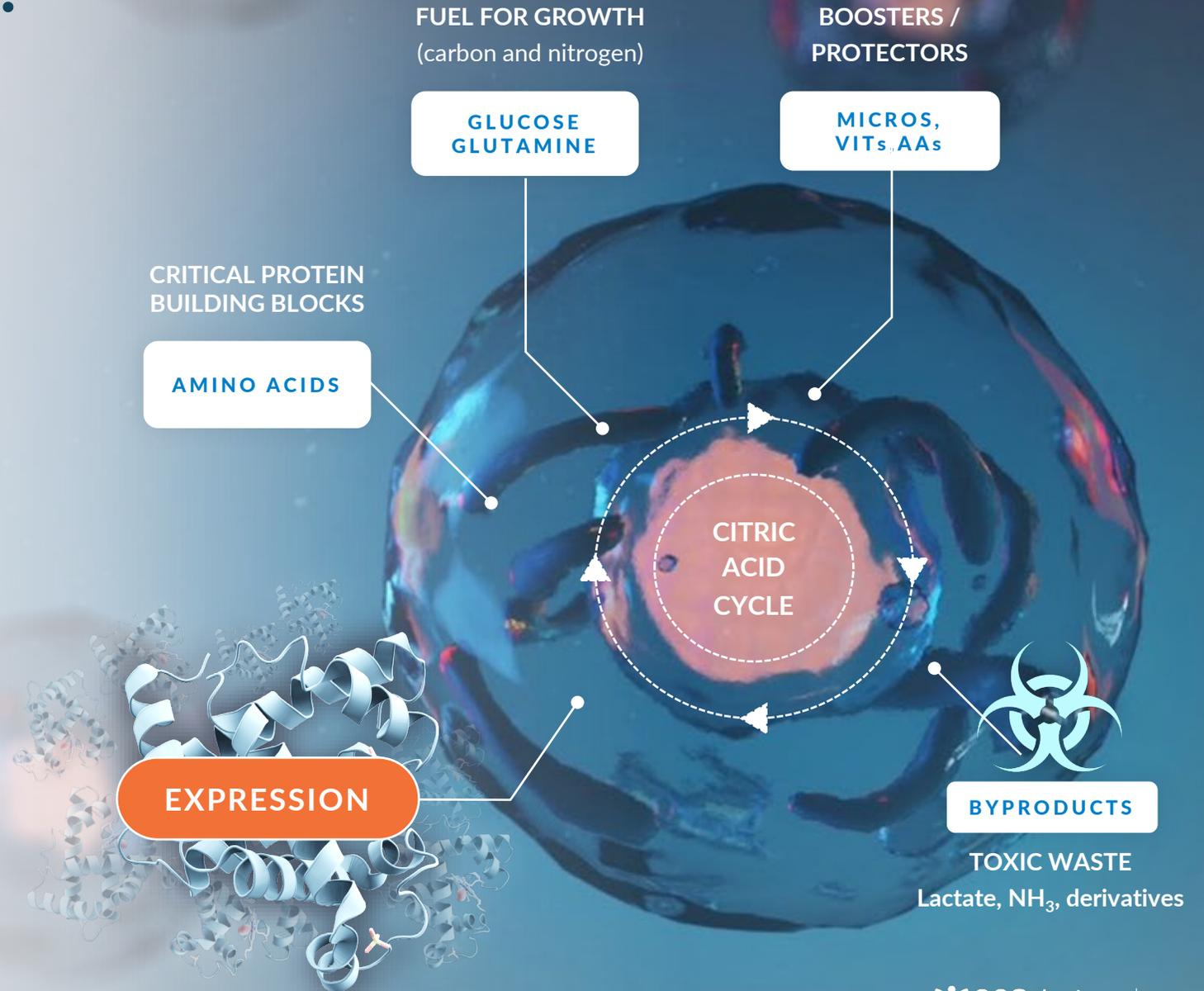
## FUEL FOR GROWTH

- TOO LOW** | starve the metabolic pathways
- TOO HIGH** | toxic waste products are produced, inhibits cell growth and stresses to death

## BOOSTERS / PROTECTORS

Concentrations of non-essential AA's and other micronutrients have complex effects on yields and proteoforms

- JUST RIGHT** | protect cells from oxidative stress - more robust and scalable bioprocesses
- TOO HIGH / LOW** | toxic intermediates form, arrested growth and produce dangerous protein variants



# Measuring and optimizing the extracellular environment



**REBEL**

**MAVEN**

**MAVERICK**

## Bioprocess Monitoring

Detailed process understanding enables improved yield, reduced by-products and more portable bioprocesses

## Media Conformity

Variability in media vendors and even lot-to-lot variance can have grave effects on process predictability

## Viral Vector Production

Boost vector production by optimizing for scalable processes and viral titers

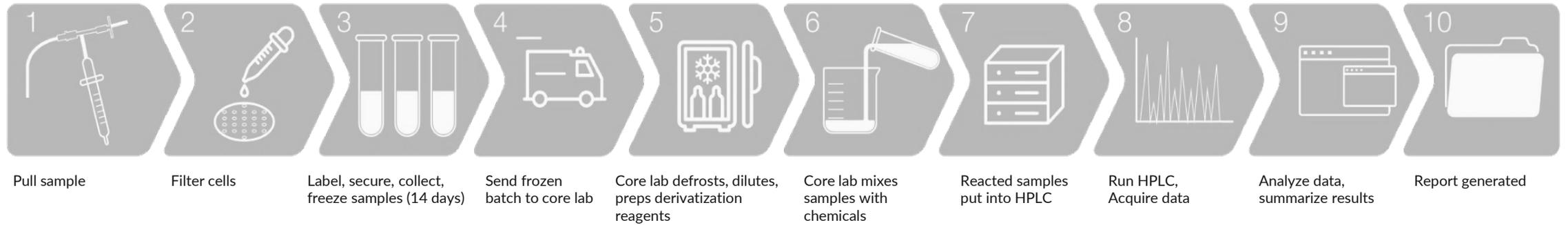
## CAR-T & Regenerative Cell Manufacturing

A loss of a production batch can mean a loss of life

# Today's lab solution is untenable

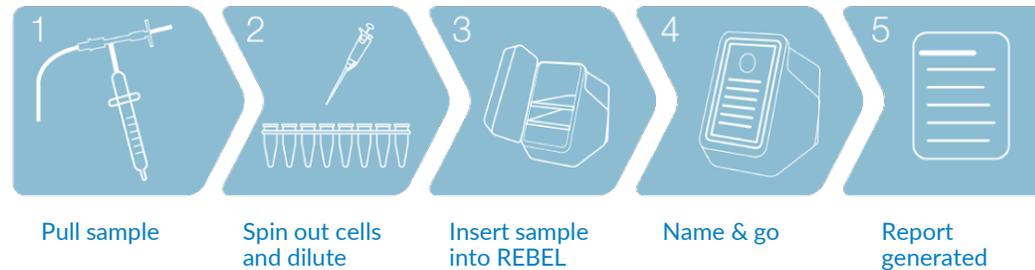
 3-6 Weeks

HPLC



vs

**REBEL**



 **15 Minutes**

# Accelerating bioprocess development

Higher Yield, Lower Cost, Faster Path to Revenue, Higher ROI



## Wide coverage

Move beyond the few analytes measured today to >30

## Push button get answer

Filter, dilute and shoot

## 10X cheaper

'Hamilton' not 'Benjamin'

## 100X less sample

Microscale volume requirements –  $\mu$ Ls not mLs

## 2,000X faster

At-line actionable intelligence in 15 mins, not 3-6 weeks

## Applications

Protein therapeutics

Cell & gene therapies

Viral vector production

CAR-T and Regenerative cell therapy manufacturing

Synthetic biology

# Accelerating bioprocess development

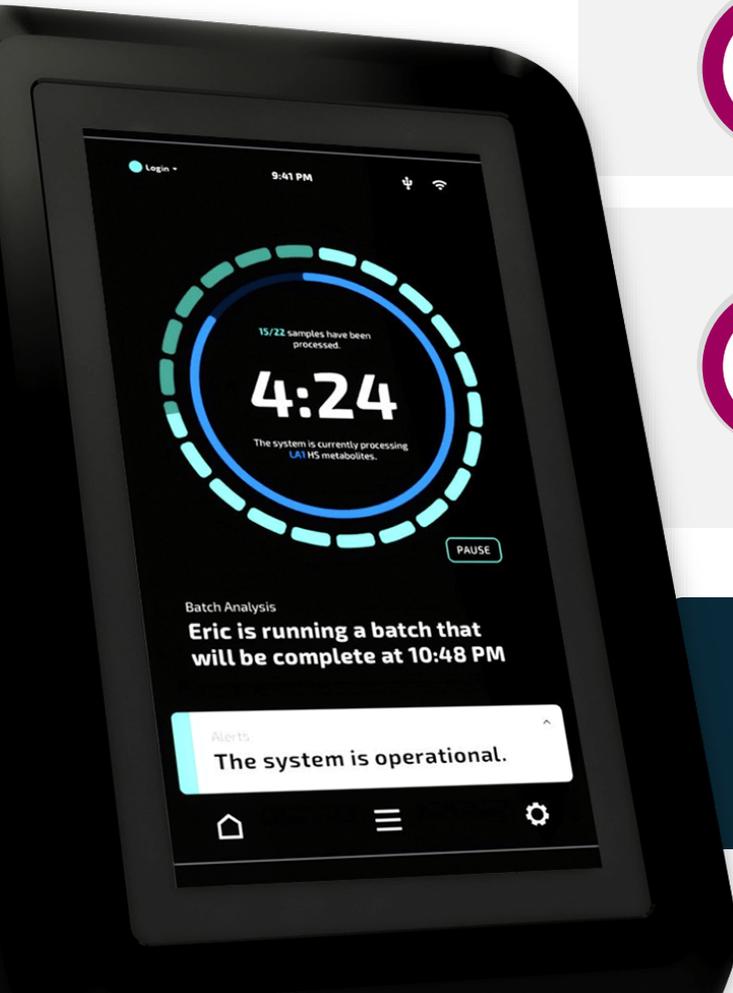
Feed Strategy to Increase Titer & Cell Viability, Lower Toxic Metabolites



De-risk process and reduce analytical bottlenecks  
Accelerate development  
Higher quality CQAs



**Massive Cost Reduction:** 50% of Core Lab / 10% of CRO cost  
**Time Savings:** ~30% savings (2 months) compared to Core Lab / CRO  
**Data Richness:** Sample 2x for same cost Inhouse, 10X for CRO



CASE STUDY COLLABORATOR  
AND PARTNER



cpi

SARTORIUS

# The REBEL 'Buddies'

Accelerating bioprocess development

## On-line continuous monitoring & control

Glucose, Lactate, Biomass, and more

### MAVERICK



MULTI-PARAMETER, EXPANDABLE



EASE OF SETUP / OPERATION



MULTIPLEXING BIOREACTORS



NO FLUIDS REQUIRED



OPEN TO AI / MODELING GROUPS

### MAVEN



VERSATILE FLOW-CELLS & SINGLE-USE



MEDIA TYPE AGNOSTIC



PROVEN DIRECT MEASUREMENT



LOW LIMIT OF DETECTION



ECONOMICAL



# Open access discovery platform

## Plug-and-Play, High Resolution Separation Platform

Simple and convenient way to interface with our proprietary microfluidic technology for advanced research

**45+**

PAPERS

**230+**

DEVICES

**10,000+**

COMPATIBLE  
'MAINFRAMES'

### Pipeline of point-of-need applications

Native protein analysis

Intact mass verification

mAb PTM characterization

Metabolomics

Oligonucleotide QC

Complex proteomics

Diagnostics

Agrochemical

Many more!



**ZipChip**

# Growth catalysts

Market Trends Support Long Term Growth



## Opioids Crisis & Counterfeit Pharmaceuticals

7 of 10 fentanyl-laced fake prescription pills contain a lethal dose



## Demand for Cell-Based Products

5K+ treated with cell therapies growing to 30K+ by 2027



## Increasingly Complex Therapeutics

Protein, Cell & Gene therapies



## Drive to Bioprocessing 4.0

Command and control; analytics and predictive in-silco models

# Our addressable market

## Customers

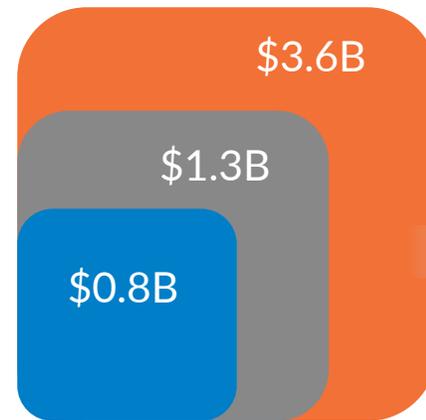
GOVERNMENT

ACADEMIC

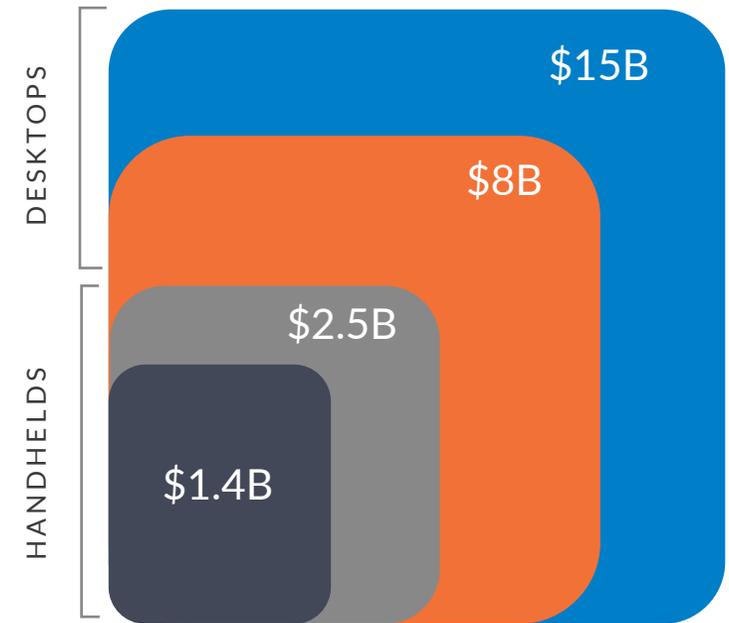
PHARMA

BIOTECH

- FORENSICS
- GXP QA/QC
- BIOPROCESSING
- RESEARCH



2022 | **\$5.7B**

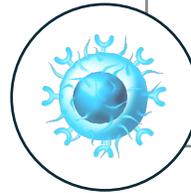


2027 | **\$27B**

# A pipeline of increasing complexity

## ADVANCED THERAPIES

complex & variable CQAs  
massive design space  
critical TAT  
smaller/numerous batches  
very high COGS  
trial & error unsustainable



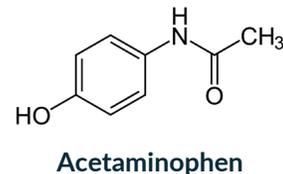
## LARGE MOLECULES/PROTEINS

complex CQA/ CPP  
huge design space  
optimize by DOE/MDVA



## SMALL MOLECULES

clear CQAs  
small design space  
simple optimization



# Bioprocessing 4.0 brings:

Less errors/failures

Lower COGS

More efficiency

Better data

# ... by using

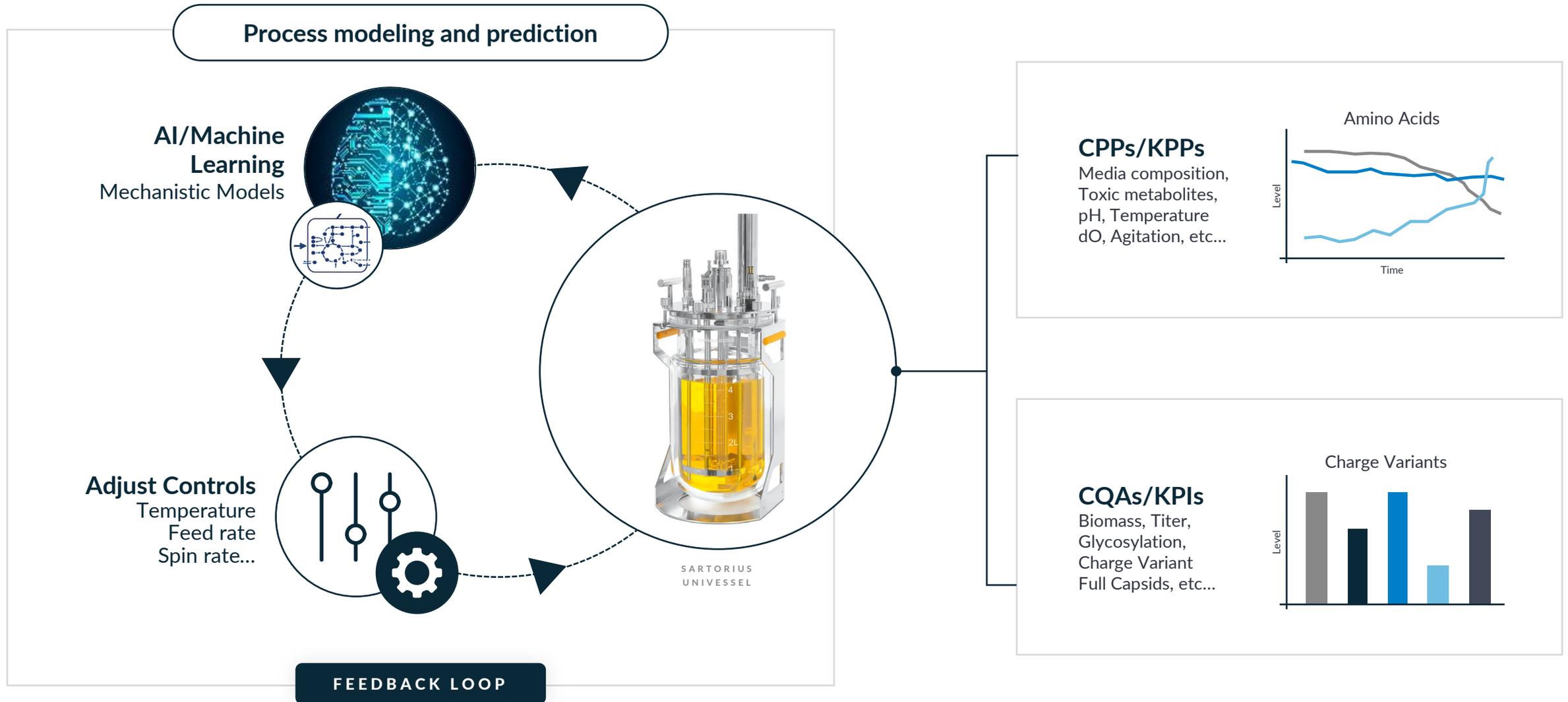
More analytics

More real-time control

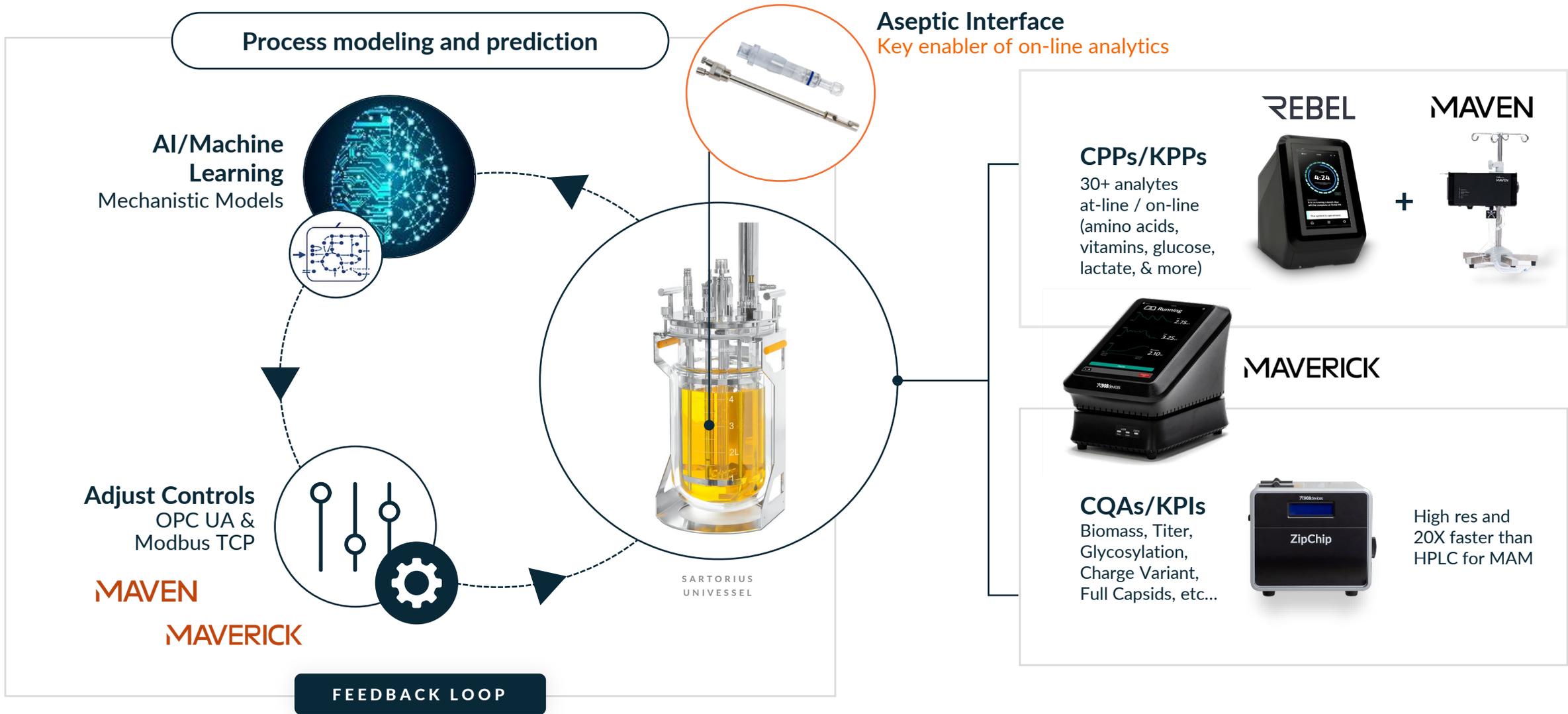
More digitalization

More prediction

# Bioprocessing 4.0: enabling AI & real-time control



# Bioprocessing 4.0: enabling AI & real-time control



# Our installed base and growth



**700+**  
Accounts



**2,800+**  
Units Sold



**14,000+**  
Trained Users

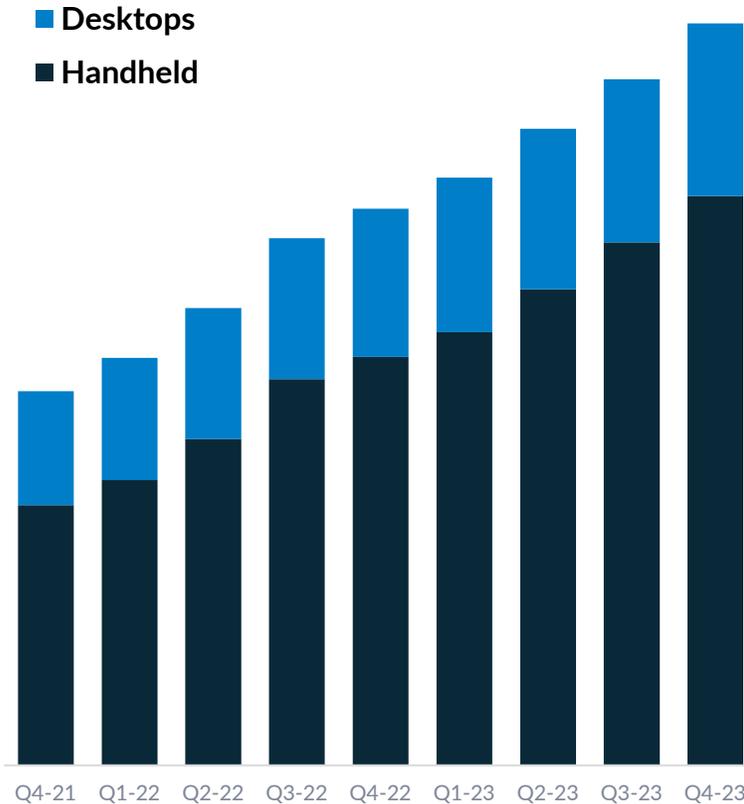


**55+**  
Countries

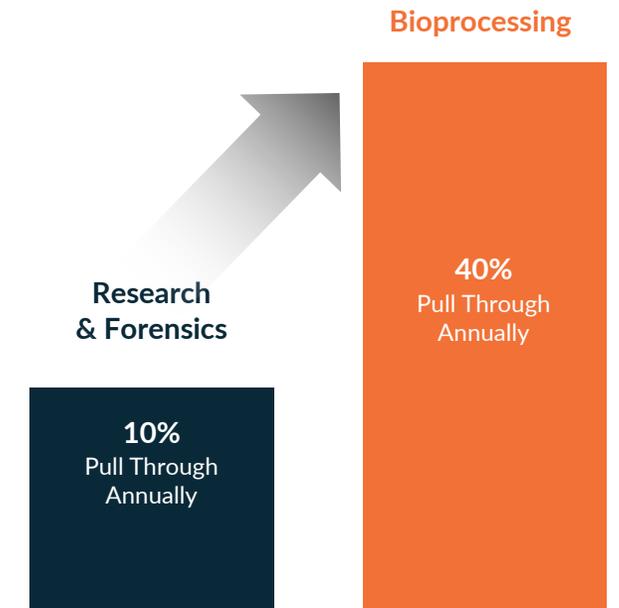


**20/20**  
Top Pharma

Devices Sold

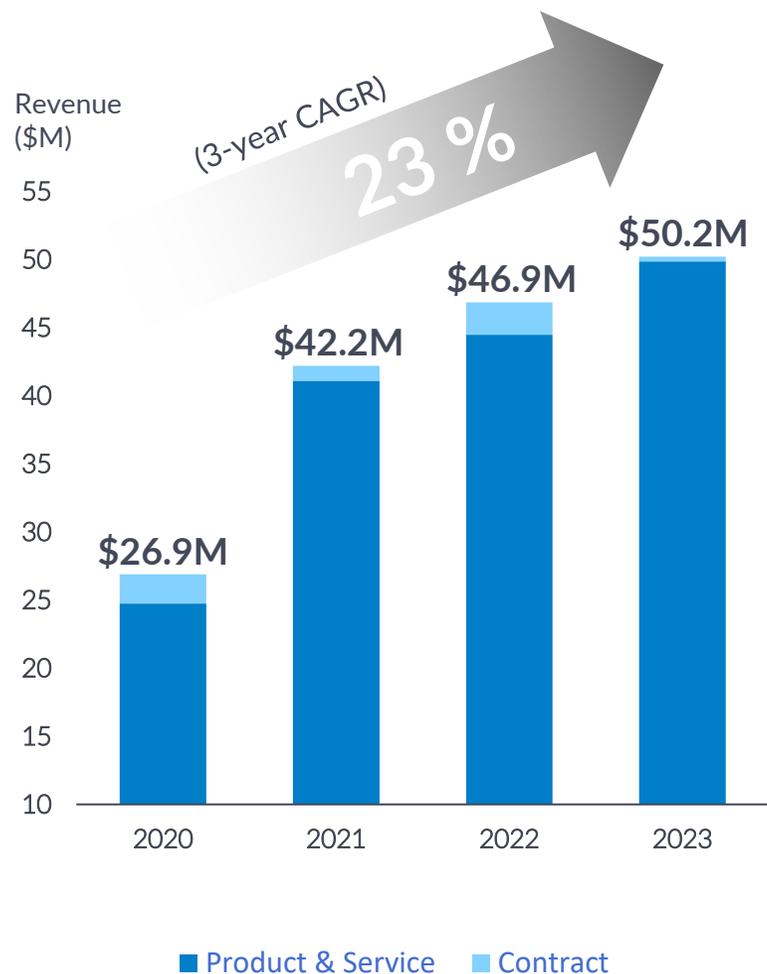


Pull-Through Opportunity



Increasing opportunity for proprietary kits, chips, & service/support

# Financial snapshot



In \$M	Full Year		
	2021	2022	2023
Product and Service	\$41.1	\$44.5	\$49.9
Product and Service Growth YoY	66%	8%	12%
License and Contract	\$1.1	\$2.4	\$0.4
<b>Total Revenue</b>	<b>\$42.2</b>	<b>\$46.9</b>	<b>\$50.2</b>
Growth YoY	57%	11%	7%
<b>Gross Profit</b>	<b>\$23.2</b>	<b>\$26.0</b>	<b>\$25.3</b>
Gross Margin %	55%	56%	50%
Operating Expenses	\$45.3	\$61.4	\$68.1
<b>Loss from Operations</b>	<b>\$(22.1)</b>	<b>\$(35.4)</b>	<b>\$(42.8)</b>

	As of December 31 <sup>st</sup>		
	2021	2022	2023
<b>Cash, Cash Equivalents and Marketable Securities</b>	<b>\$224</b>	<b>\$188</b>	<b>\$146</b>
Debt Outstanding	\$15	\$15	\$0

# Our focus

2024 & Beyond

1

## Market Expansion Outreach

Expand our market presence by actively engaging with new key accounts and fostering strategic relationships, while extending our reach across global enterprise accounts.

2

## Portfolio Engagement

Leverage our expanded product portfolios to maximize opportunities and strengthen engagements with our customers.

3

## Operational Excellence

Execute to a framework for sustained growth and path to profitability.

# Our experienced team

## Management



**Kevin J. Knopp, PhD**  
CEO & Co-Founder



**Steve Davenport**  
VP, Commercial Sales



**Christopher D. Brown, PhD**  
Chief Product Officer & Co-Founder



**John Kenneweg**  
VP, Government Sales



**Joseph H. Griffith**  
CFO



**Kevin McCallion, PhD**  
VP, Production & NPI



**Michael Turner**  
Chief Legal & Administrative Officer



**Don Osmer**  
VP, Human Resources



**Barbara Russo**  
VP, Marketing & Corp Communications

## Board Members & Science Founder

**Kevin Hrusovsky**  
908 Devices, Chairman  
Quanterix, Caliper

**Marcia Eisenberg, PhD**  
908 Devices BOD  
Labcorp

**Tony J. Hunt**  
908 Devices BOD  
Repligen

**Mark Spoto**  
908 Devices BOD  
Razor's Edge, Cooley LLP

**Jeff George**  
908 Devices BOD  
Novartis - Sandoz & Alcon, Amneal

**Keith L. Crandell**  
908 Devices BOD  
ARCH Venture Partners

**Fenel Eloi**  
908 Devices BOD  
Cell Signaling Technology,  
MitoTherapeutix

**Prof. J. Michael Ramsey**  
908 Devices Science Founder  
& SAB Co-Chair, UNC & Caliper



# Analysis at the speed of life

 908devices

