



ChromaTan

Continuous Column-Free Chromatography

Next Gen purification platform Gene Therapy and mRNA

Oleg Shinkazh, CEO
Oleg.Shinkazh@chromatan.com

Vision & Mission

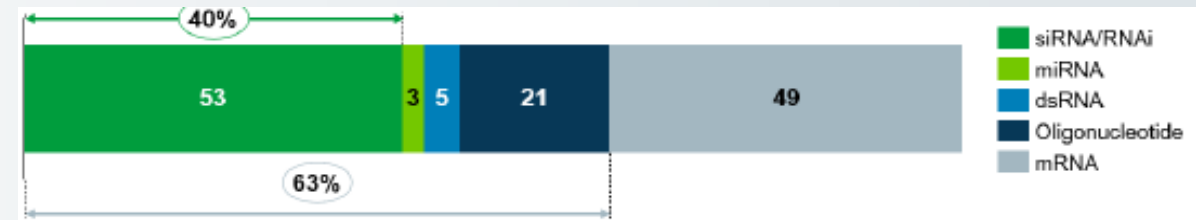
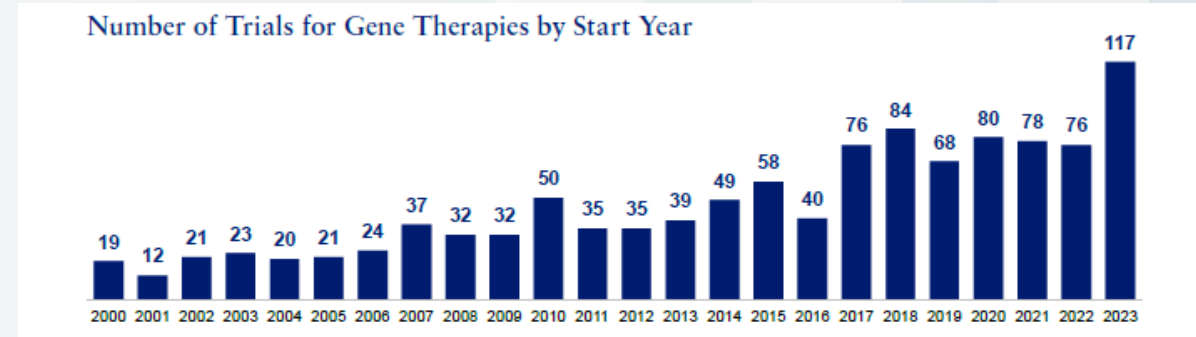
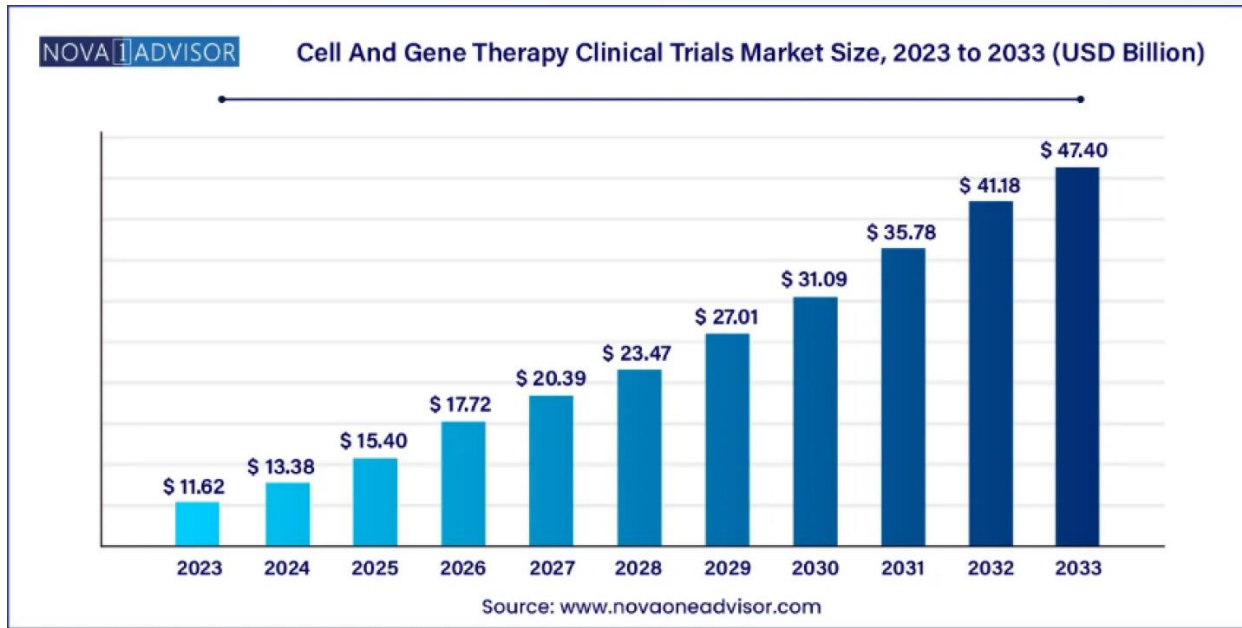
Transformative **next-generation** **biomanufacturing platform.**

Empower biopharmaceutical manufacturers with the **first-ever, columnless, single-use continuous chromatography platform**, offering enhanced flexibility, recovery and purity, reducing resin consumption and maximizing productivity for cost-effective production of life-saving biologics.

Gene Therapy and mRNA – Growing Fast

USD 11.62 billion in 2023
 Projected \$47.40 billion by 2033, CAGR of 15%

Hundreds of clinical trials being conducted for Gene Therapy and mRNA

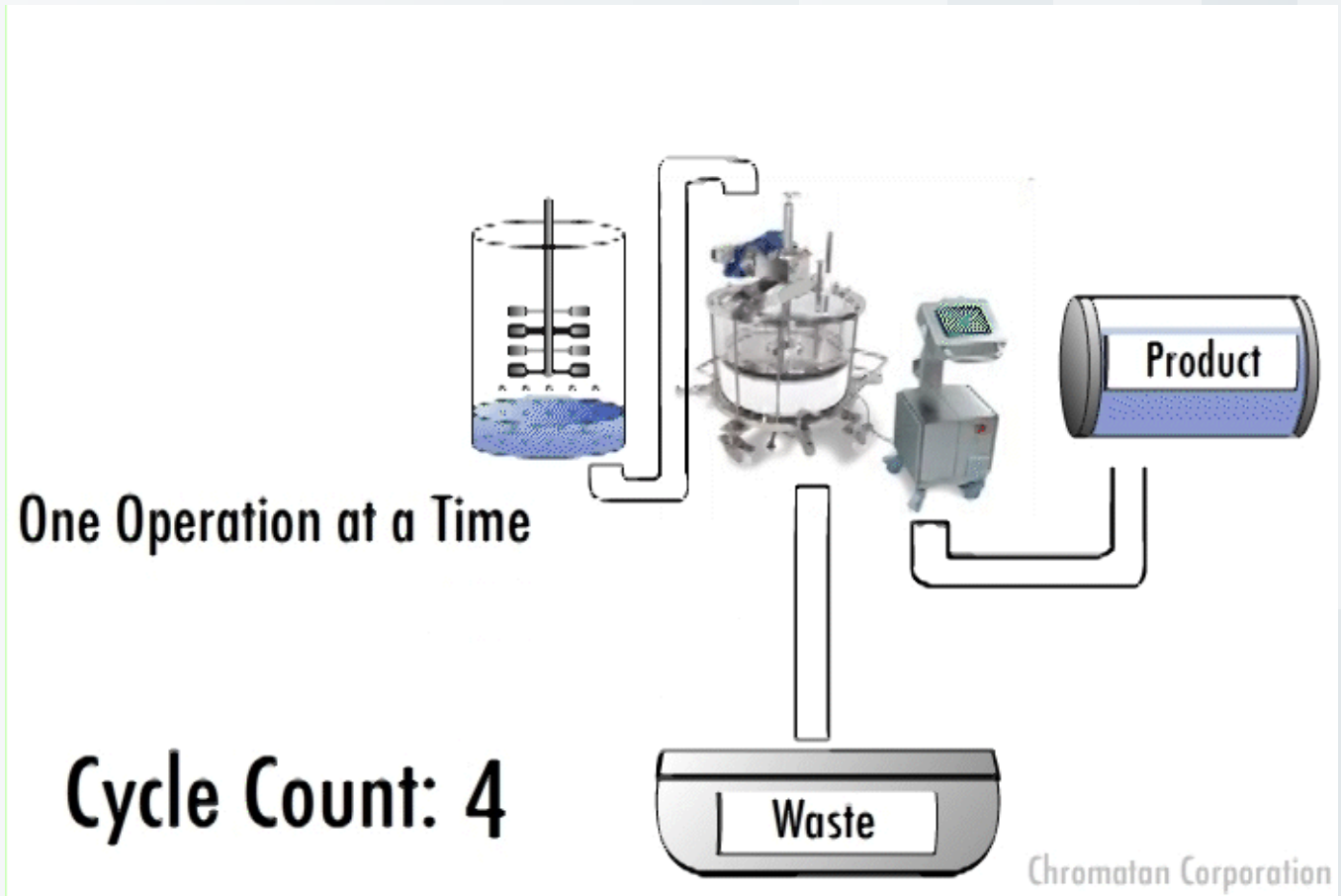


Chromatography: A **Critical** Purification **Bottleneck** for Gene Therapy Manufacturing

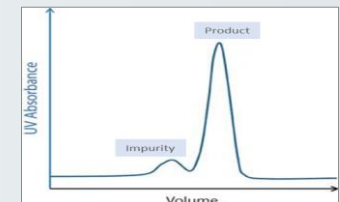
ca. 1900

Conventional Batch Column Purification

- 20–30 L of resin used for 2,000 L batch
 - \$25,000 per liter – \$750,000 batch
- 30% product loss
- Peak based product output
 - Low efficiency manufacturing



One Batch of Purified Product – Peaks!



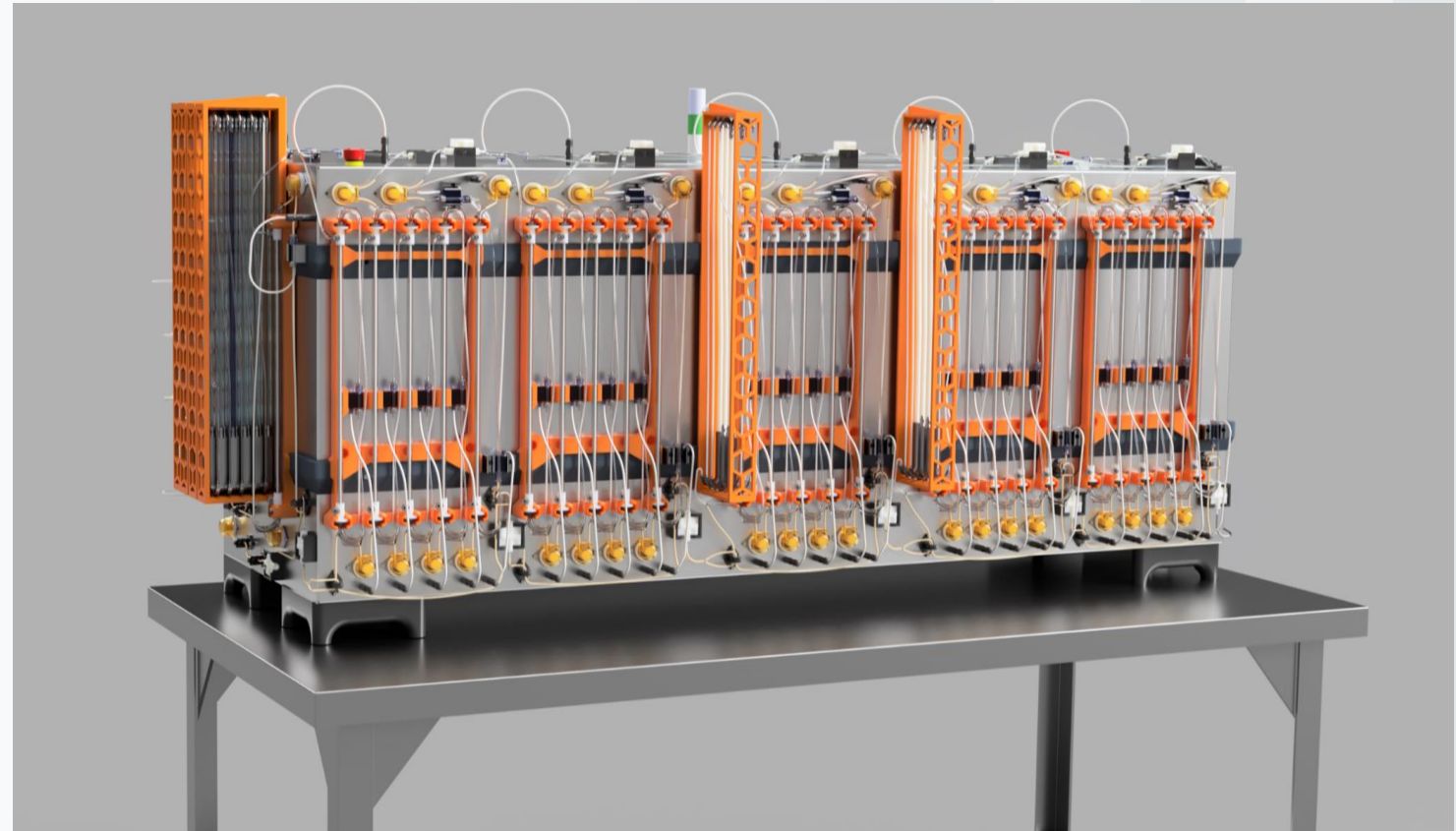
Solution: **Kascade™ BioRMB™**

Continuous Column-Free Purification

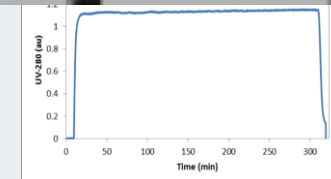
Conveyor Belt Approach Vs. Batch

- **10X Less Resin**
- **5X Cost Savings**
- **65% less product loss**
- **Single-Use Closed System**

**\$400,000 Savings
Per Clinical Batch**



↓
**Continuously
Purified Product**



Customers and Partnerships



3 Systems in the Field (Sales / Rentals)



Several Large Biopharm clients in pipeline



Strong academic and Industrial Partnerships



Strong IP Position

- 2 Foundational patents
- 2 Continuation patent
- 1 Next Generation Patent



Raised \$12.5M in grants



PennState

A Leadership Team with 120+ Person-Years Experience



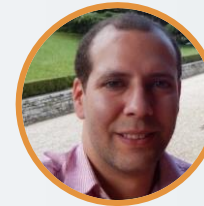
Oleg Shinkazh
Founder & CEO



Scott Zobbi
VP of Sales and
Business Development



Peter Lewis
Associate Director
Engineering



Thiago Millen, Ph.D.
Associate Director
Process Development



Yvonne Connolly
Associate Director
Operations



David Fogel, CPA
Part-Time CFO



Howard L. Levine, Ph.D.
Chairman of the Board Of Directors

Founder, BioProcess Technology Consultants, Inc.
Acquired by BDO



Frank Li, Ph.D.
Board Of Directors

Co-Founder, Alliance Pharma
Exited to KKR & Ampersand Capital



Dennis Annarelli, Ph.D.
Board Of Directors

Co-Founder, PendoTECH
Acquired by Mettler-Toledo



Bioprocess Technology Executive

Oleg Shinkazh
Founder & CEO

Board of Directors



Alex Chen
Board Of Directors

President, Overseas Operations
and BD uBriGene Biosciences Inc.



John Otte
Board Of Directors

President at Proconex and Valspec

Go To Market Strategy: 3-Phase Process

Phase I

BioRMB Pilot Launch for Process Development

- 2023 - 2024
- Target market Viral Vector, Gene Therapy and mRNA

Phase II

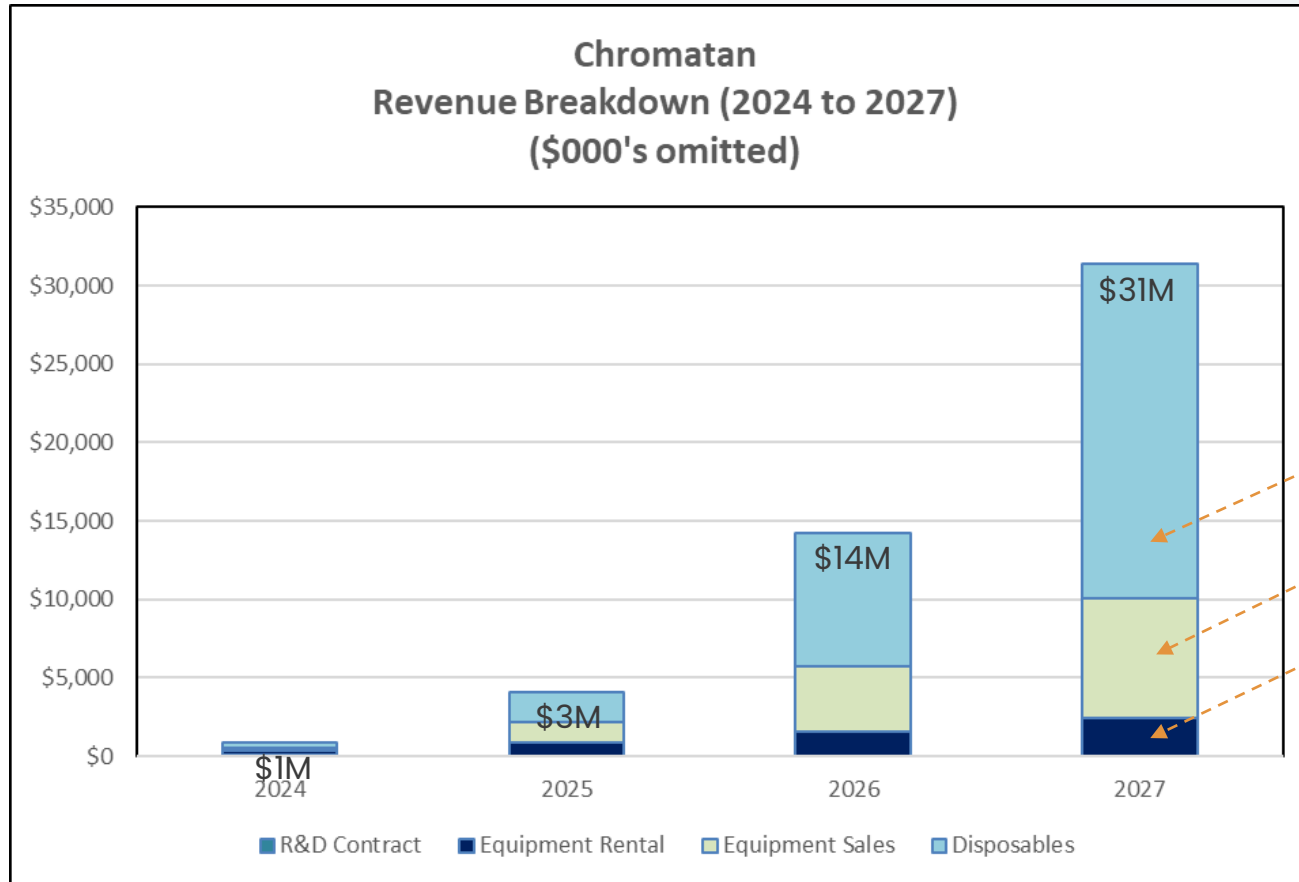
Launch of **BioRMB** for **early clinical** cGMP

- Target Q4 2025 / Q1 2026
- Complete Bridge Financing
 - Q1 2025
- Series B Financing
 - Q2 / Q3 2025

Phase III

Launch BioRMB for large scale clinical and commercial scale (mid 2026)

Financials



Razor / Razor-blade Model

- Disposables: \$17 – 30k/cartridge set
- Systems: \$250,000 – \$750,000
- Rental/Lease: \$35,000 per month

AMT – Advanced Manufacturing Technologies Designation Program

Perfect fit for BioRMB platform



- **Launched by FDA Jan 2025**
 - Encouragement of the industry to adopt new technologies that bring benefit to product quality and robustness of the manufacturing process and supply through better manufacturing controls and fewer human intervention
- **Encouragement of innovation through expedited approvals**
 - FDA will facilitate development and expedite assessment of an application, including supplements, for drugs that are manufactured using a designated AMT as described in section 506L(d)(1) of the FD&C Act
 - AMT designated technologies according to preliminary analysis **may accelerate time to market for drugs for several months or more**
- **Impact of time to market could mean tens to hundreds of millions of dollars in additional revenue for blockbuster drugs**
 - **Significant increase in adoption of innovative products likely**
 - **Significant increase in Biomanufacturing innovation company's valuations likely**
 - **Help drive sales in 1-2 years once we are at cGMP level and approved as AMT**

Convertible Debt Bridge (\$7M) – \$6M raised

Raised
\$6M

Ask
\$1M

Max
\$1.5M

Cap
\$14M

Discount
20%

Interest
8%

Use of Funds:

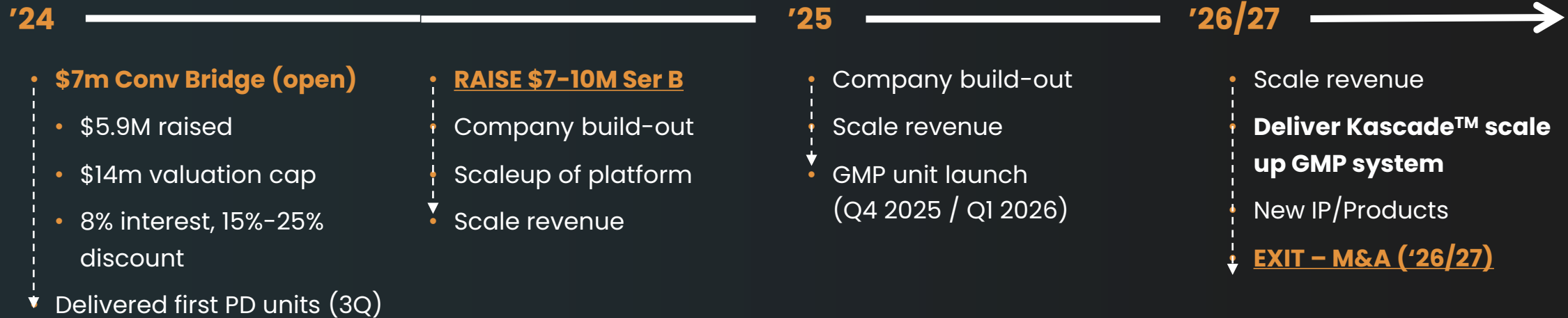
- Sell 5 pilot systems
- Ramp up sales and marketing of pilot BioRMB
- Bridge to Series B
- Matched by Phase II NIH Grant

EXIT Strategy

- **Highest value** acquisitions are at **clinical stage**
- **Conglomerates** with multiple products / integrated solutions for bioprocessing
- **Great at scaling** not great at innovating
- Their strategy - **de-risk commercialization and acquire**
- **7-14X multiples on revenue**



Investment and Company Build



FUNDING & GRANTS

\$12.5 M Awarded



US PATENT NOS.

11110374 | 10859542 | 10324070 | 7988859 | 7947175







CSL Seqirus



BLUE KNIGHT™



Dominating the Competition

	 ChromaTan	 Millipore Sigma	 Sartorius	 YMC PROCESS TECHNOLOGIES
Column-free	✓	✓	⊗	⊗
Continuous elution	✓	⊗	⊗	⊗
Single-use	✓	✓	✓	⊗
Scalability	✓	⊗	✓	✓
Cost savings	✓	✓	✓	✓
Ease of use	✓	⊗	⊗	✓
SCORE	6	2	3	3



YEAR	ACQUIRER	TARGET	DEAL SIZE	REVENUE	DEAL/REVENUE	DEAL/INVESTMENT	DEAL/EBITDA	CATEGORY
1998	Perkin Elmer	PerSeptive Bio	\$360M	\$96M	3.7x	6x		Bioinstrumentation
2013	Sartorius	TAP Biosystems	\$45.1M	\$27.2M	1.7x		227x	Cell culture & fermentation systems
2014	Repligen	Refine Technology	\$26.5M	\$8.3M	3.2x			Cell retention & separation systems
2015	Pall Corp	Tarpon Biosystems		\$1M-\$5M				Multi-Column Chromatography
2015	Danaher	Pall Corp	\$13.6B	\$2.8B	4.9x ¹			Conglomerate
2016	Repligen	TangenX	\$37.2M	\$5.1M	7.2x ¹			Bioprocessing - MF & UF products
2017	Thermo Fisher	Finesse Solutions	\$221M	\$50M	4.4x			Bioproc tech management software
2017	Millipore Sigma	Natrix	\$22M (14+7)					Membrane chromatography
2017	Repligen	Spectrum Labs	\$371M	\$39M	9.4x ¹			Bioprocessing - broad
2020	Sartorius	WaterSep	\$33M	\$2.5M	13.1x ¹			Hollow-fiber membranes/devices
2021	Mettler-Toledo	PendoTECH	\$205M (185+20)	\$36M-\$37M ²	5.6x			Biopharma - single use sensors, etc.
2021	Donaldson	Solaris Biotechnology	\$45.7M	\$0.55M	82.9x			Bioproc. equipment - fermenters, bioreactors, TFFs, sensors, etc.
2022	Donaldson	Purilogs	\$48.9M (19.9+29)			9.1x (Deal/Grants)		Disposable membrane chromatography
2023	Donaldson	Isolere Bio	\$62.5M			8.6x		TFF tech for AAV and MAb production
2023 (Jun 29)	Donaldson	Univercells	€136M	€10M	13.6x ¹			Single-use fixed-bed bioreactor for intensified production

6.7x: Average of categories (excl. Donaldson outlier)
¹ **9.6x: Bioprocessing average (excl. Donaldson outlier)**

Source: PitchBook.

² <https://www.sec.gov/Archives/edgar/data/1037646/000103764622000008/mtd-20211231.htm>, page 36.