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Simplifying Progress

Sartobind® Lab
The Future of Lab Purification

April 2023

Sartobind® Lab
The Future of Lab Purification

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3	Chromatography
4	Membrane Adsorbers
5	Competitor Landscape
6	Applications and Lead Qualification

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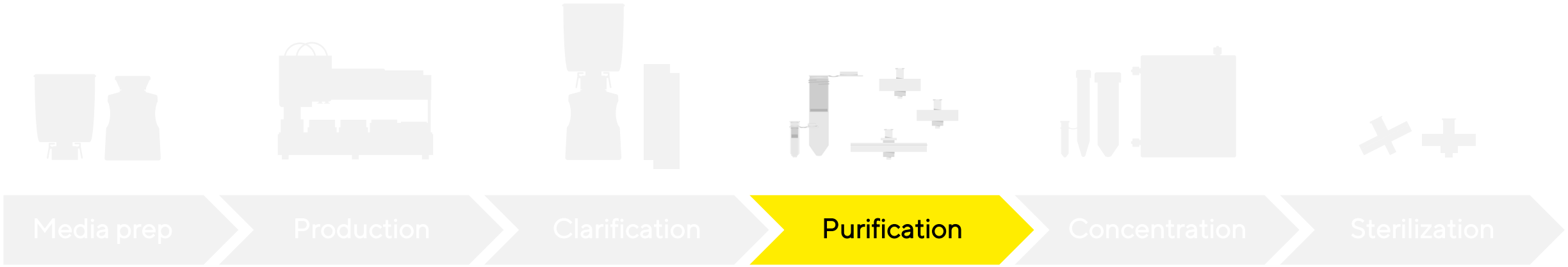
Purification in Research and Development

Media prep | Production | Clarification | Purification | Concentration | Sterilization

Purification in Research and Development



Sartobind® Lab: Purification As Simple As Filtration

- **Ready-to-use** membrane adsorber units
- Syringe filter format for **reliable, equipment-free** purification
- Choice of ligands for **ion exchange** and **affinity** chromatography
- **Faster** with **higher yields** than resin-based columns

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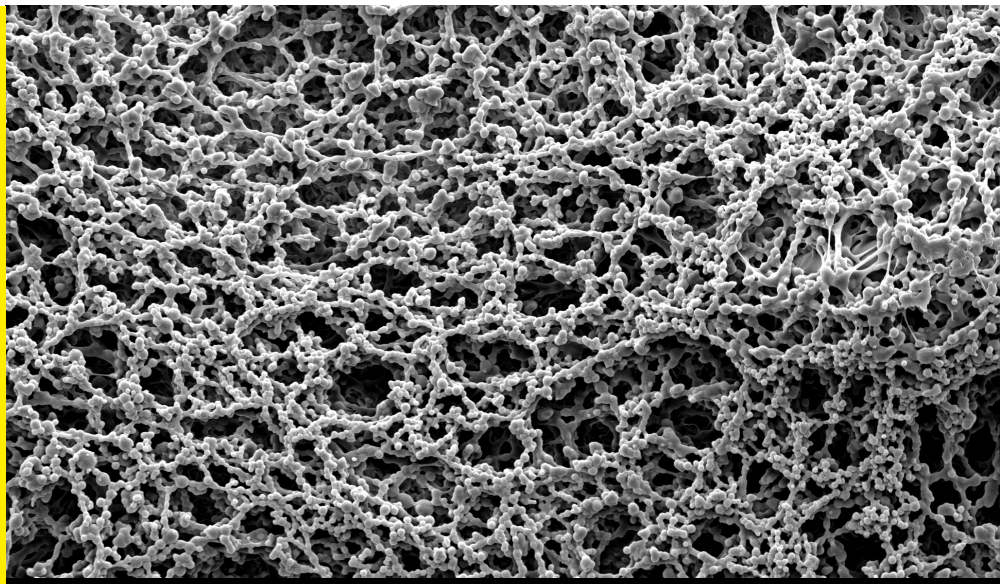
How Are Samples Purified?

Pure Target

Contaminants

Chromatography

A technique for **separating macromolecules** by passing them through a stationary phase matrix.



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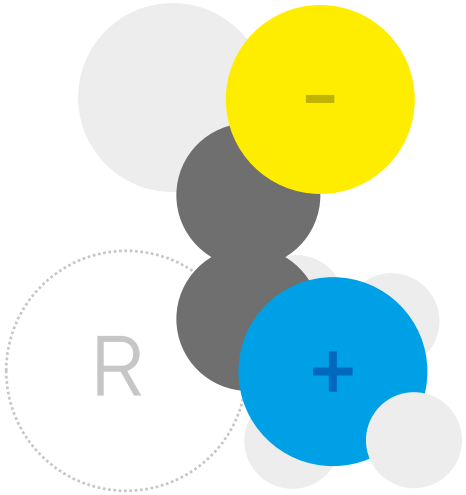
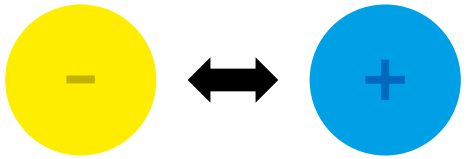
Separation Methods

- Every macromolecule is unique
- **Charged molecules** will interact with a ligand of **opposite charge**
- Other molecules may bind to **specific ligands**
- **Ion exchange (IEX)** uses charged ligands for separation of **many molecules**
- **Affinity chromatography (AC)** is used to purify **tagged molecules or antibodies**



Separation Methods



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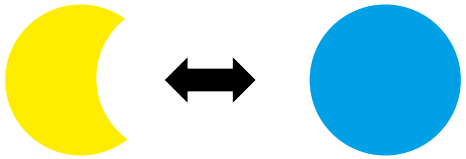
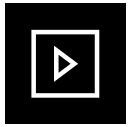
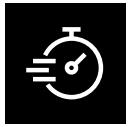


Matrix Types

	Competitor Resins	Sartorius Membranes
	Synthetic beads	Regenerated cellulose membranes
	Microporous, 15 - 40 nm	Macroporous, 3 – 5 µm
	Setup required	Plug and play
	Slow, diffusive flow	Fast, convective flow
	Capture and polishing of proteins up to 200 kDa	Capture and polishing for most macromolecules

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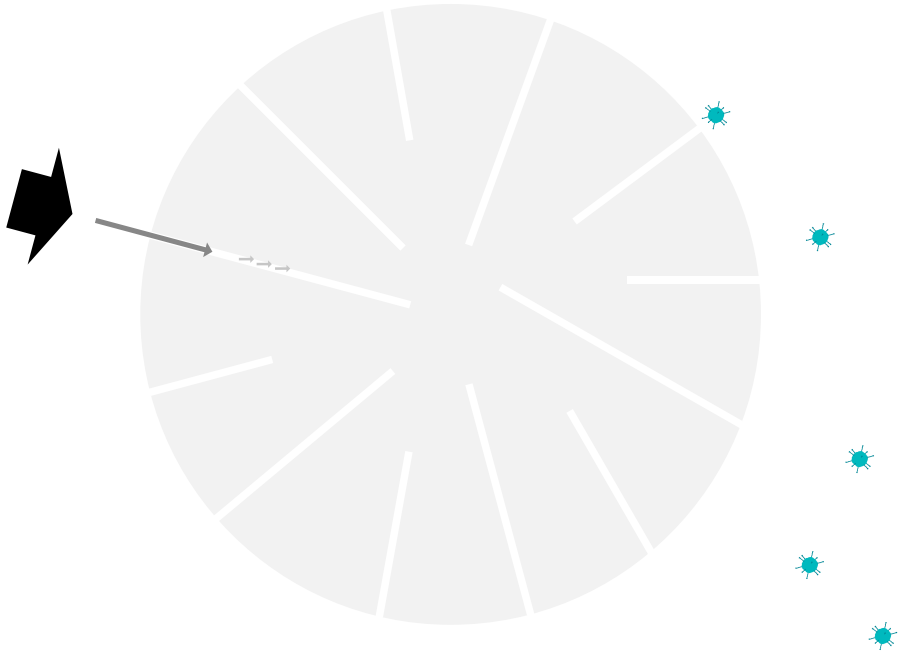
Matrix Types

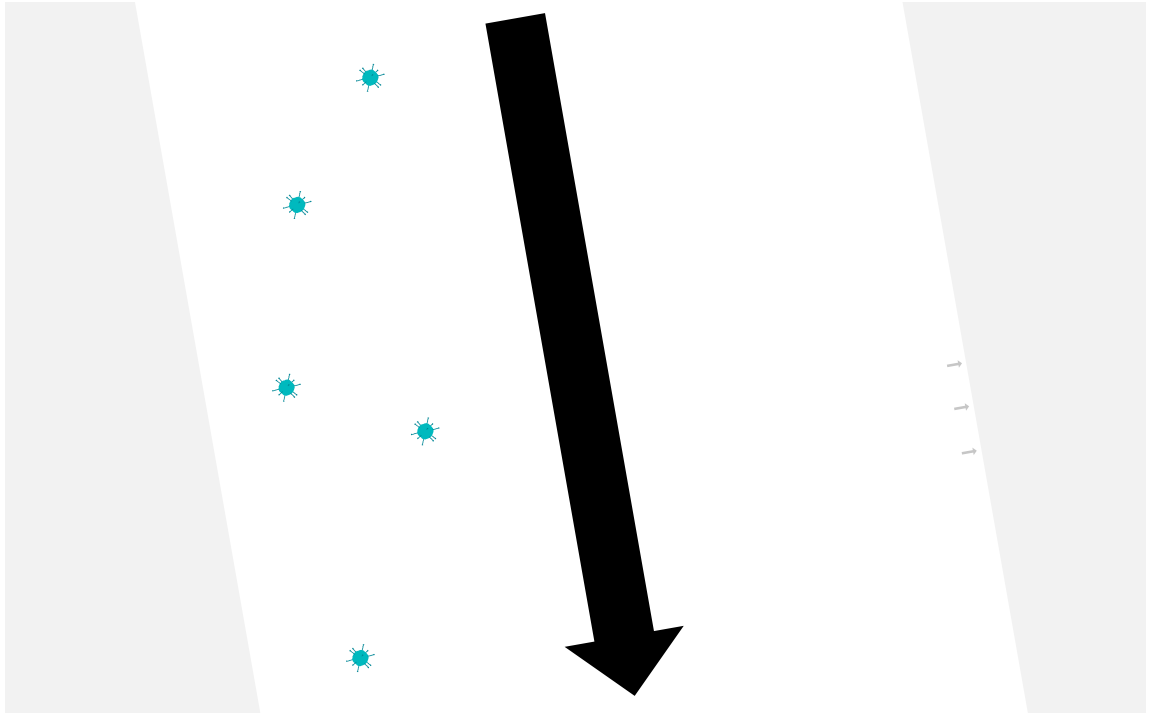
Competitor Resins	Sartorius Membranes

Matrix Types

Competitor Resins



Sartorius Membranes



Purification Challenges

High Cost

Requires an FPLC system.
Unreliable results with reduced equipment.

Slow Setup

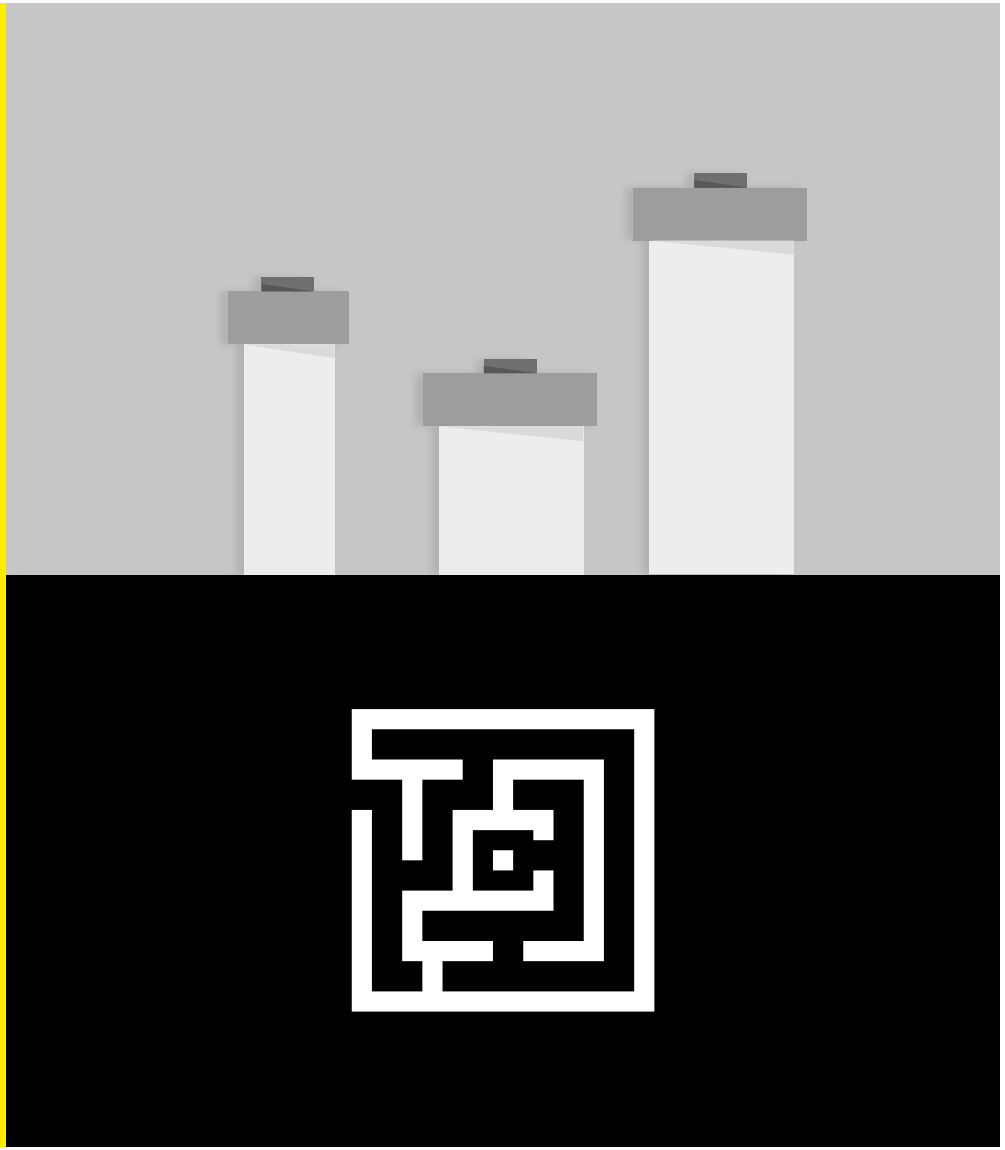
Labour and time intensive preparative steps.
Column packing, buffer degassing, system setup, preservative removal.

Low Yields

Diffusive flow and size exclusion effects.
Longer cycle times with reduced yields and limited productivity.

Resin Columns

Lab purification is **expensive**, **complicated** and **slow**.



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Competitors

Company	Products	Pricing [1]	Technology	Processing	Capacity [2]
SARTORIUS	▪ Vivapure, Sartobind ▪ IEX and AC	▪ Value-based ▪ € 0.02 per mg	▪ Membrane Adsorber ▪ Syringe, FPLC	▪ 5 - 30 MV/min ▪ Up to 112 cycles/hr	▪ 60 - 80 mg BSA ▪ 7.5 mg his-protein
cytiva	▪ HiTrap, SpinTrap ▪ IEX and AC	▪ Competitive ▪ € 0.03 per mg	▪ Resin ▪ FPLC (syringe)	▪ 1 - 4 CV/min ▪ Up to 12 cycles/hr	▪ 55 - 160 mg BSA ▪ 10 - 40 mg his-protein
BIO-RAD	▪ EconoFit ▪ IEX and AC	▪ Competitive ▪ € 0.07 per mg	▪ Resin ▪ FPLC (syringe)	▪ 0.3 - 6 CV/min ▪ Up to 13 cycles/hr	▪ 37 - 180 mg BSA ▪ 15 - 40 mg his-protein
MERCK / Thermo Fisher SCIENTIFIC	▪ MiniChrom, POROS [4] ▪ IEX and AC	▪ Cost-plus ▪ € 0.81 per mg	▪ Resin ▪ FPLC	▪ 0.33 CV/min ▪ Up to 1 cycle/hr	▪ 120 - 190 mg BSA
PALL	▪ Acrodisc [5] ▪ IEX	▪ Cost-plus ▪ € 1.36 per mg	▪ Membrane Adsorber ▪ Syringe (FPLC)	▪ 5 MV/min ▪ Single use	▪ 10 - 60 mg BSA

[1] Pricing for Sartobind Lab 75 | 100 and competitor equivalents collected from mfr. websites November 2022. Price/mg based on 1 hour production at shortest cycle times.
[2] Binding capacities for Sartobind Lab 75 | 100 and competitor 1 mL devices collected from mfr. datasheets and user manuals November 2022.
[3] Cycle times based on manufacturer recommended min. volumes and max. flow rates, where specified. One cycle = equilibrate + wash + elute + regenerate.
[4] PL Repligen OPUS MiniChrom Column platform available with all listed ligands from Merck, or all excluding C from Thermo Fisher Scientific.
[5] Acrodisc Mustang | Mustang XT offer direct scale up in SU units, with smaller, 0.65 - 0.8 µm pores; S sold separately only as XT version (kit with Q, S and E for "standard").

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Sartorius' Solution

Out-of-the-Box Flexibility

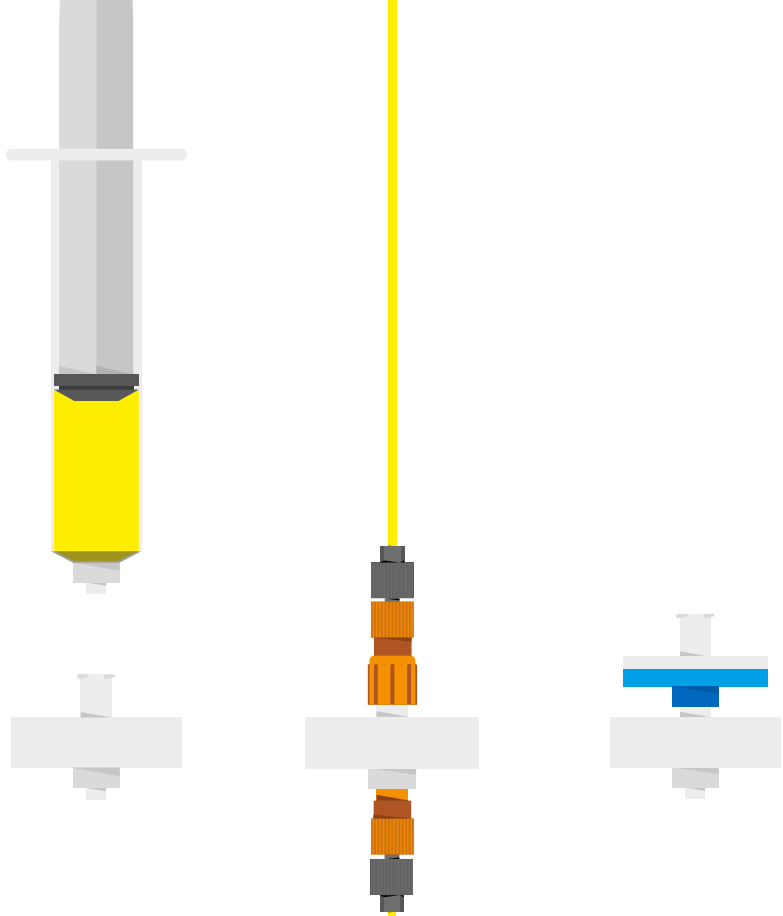
Connect directly to a syringe or FPLC system.
Reliable, equipment-free purification.

Minimum Setup Time

Ready-to-use, syringe filter format.
Avoid and even combine preparative steps.

High Yields in Seconds

Rapid, convective flow.
Faster flow rates, shorter cycle times and higher productivity [1].



[1] Productivity (g/hr) calculated from manufacturer recommended maximum flow rates and DBCs, and min. equilibration, wash, elution and regeneration volumes for standard reference proteins (BSA or lysozyme for anion or cation exchangers, respectively). Dotted bars indicate data from alternative reference proteins.

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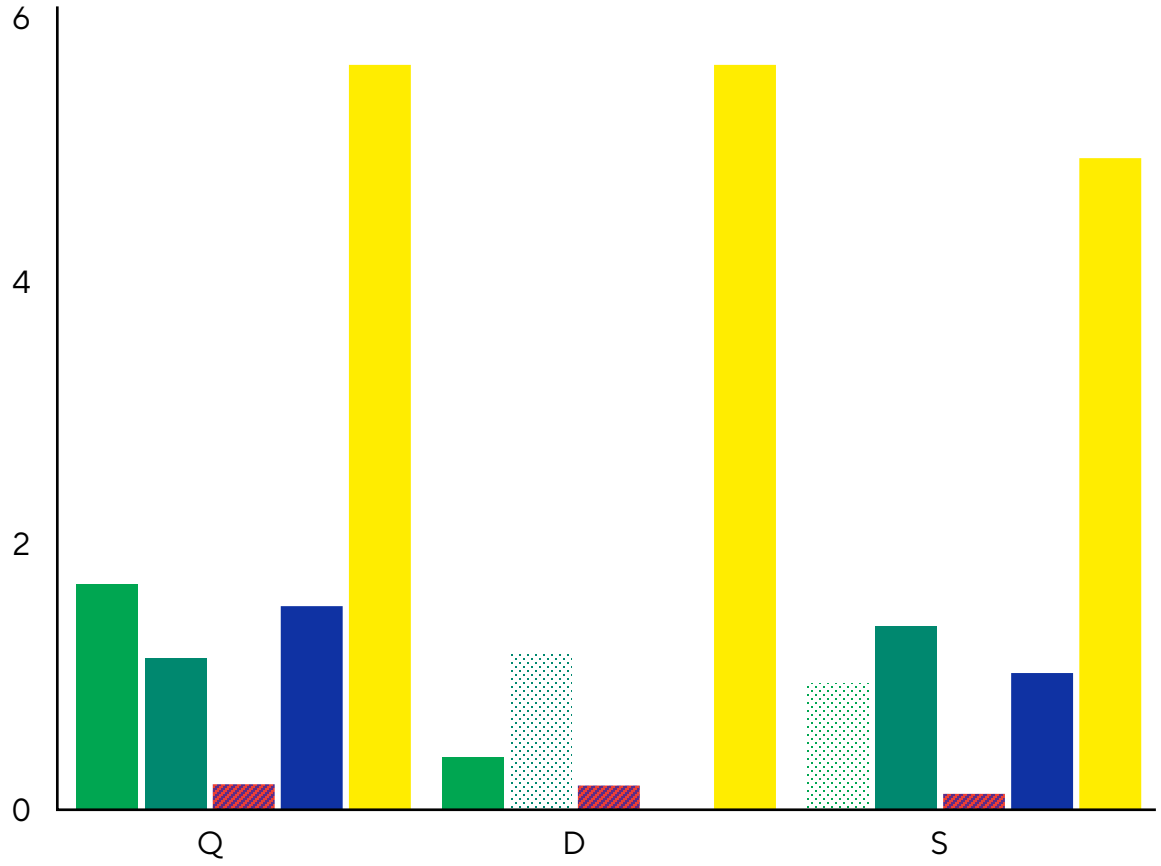

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Use Cases, Customers and Applications

- **Screening, optimization** and **preparative** purification in Academic and Biopharma **Research Labs**

- **Capture Purification**
  - Proteins
  - Nucleic acids
  - Viruses

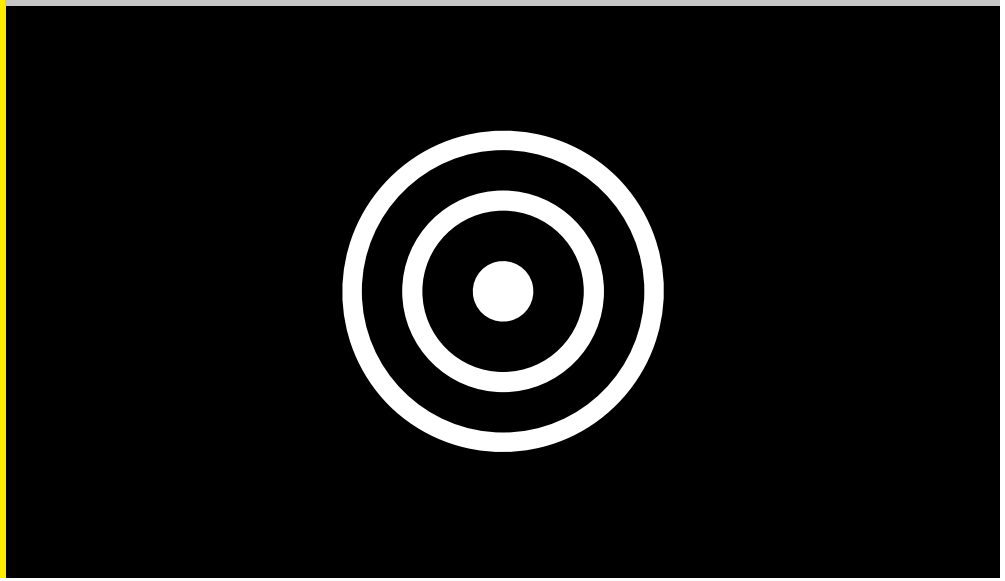
- **Flow Through Polishing**
  - HCPs and DNA
  - Viruses
  - Endotoxins

Lead Qualification

- Look out for **FPLC systems** from Cytiva, Bio-Rad or Practichem
- Listen out for terms like **cell culture, purification or chromatography**
- Ask if your customers need **pure proteins, nucleic acids or viruses**
- Find out **how they currently purify** these molecules
- Ask if it would be beneficial to **purify equipment-free**

Sartobind® Lab

Flexible, **easy** and **fast** purification for R&D.



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Thank you.

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