

Sartobind® IEX Lab

Power Up: Fast, Flexible and
Future-Proof Charge-Based
Separations

Product Information

Sartobind® IEX Lab incorporates the state-of-the-art in ion exchange chromatography (IEX) membranes, enabling flexible biomolecule purification that is both fast and scalable. It is ideal for protein, virus and nucleic acid research, as well as the development of downstream processes to purify novel therapies and vaccines before scaling up to clinical and commercial production.

For research and molecule development, IEX on resin columns requires additional preparation steps, and the availability and maintenance of specialist equipment. High operating costs, low flow rates and yields, especially for larger molecules, together with a lack of scalability limits overall efficiency.

Sartobind® IEX Lab is ready-for-use in research and development laboratories. Biomolecules are transported to the high-capacity ligands mainly by convective flow, enabling high flow rates. This results in time savings up to 89% per cycle, while effective regeneration supports reproducible purifications over 100 cycles. Compared to columns, it is possible to purify up to 23X more protein over the lifetime of each Sartobind® IEX Lab unit, resulting in 78% savings on cost of goods.

Adapter-free inline prefiltration and reliable, syringe-driven purifications reduce process time even further, while the same Sartobind® IEX technology is available in capsule and cassette formats for convenient scale up to GMP production.



Features

The Fastest Matrix

Full speed ahead. Rapid flow rates and reduced residence times take you from equilibration to pure molecule in a matter of seconds, not minutes.

Productivity Boost

Push the limits. Macroporous membranes with high ligand densities deliver maximum yields of even the largest viruses without size exclusion effects.

Plug and Play

Collapse your workflow. Ready-for-use units avoid the need for column packing and buffer degassing, while enabling convenient inline prefiltration.

Process-Ready Technology

Seamless scalability. Future-proof by design, ensuring ease-of-transfer for your most promising targets to clinical and commercial production.

Flexibility Built In

Accept no limitations. Enhanced pressure resistance in a platform that ensures reliable purification with or without a liquid chromatography (LC) system.

Applications

Capture Purification

- Extracellular vesicles and particles
- Plasmids and oligonucleotides
- Proteins and peptides
- Viruses and viral vectors

Flowthrough Polishing

- Aggregate, DNA and HCP removal
- Buffer and sample depyrogenation
- Leached protein A removal
- Virus clearance

Operating Principle

Ion exchange chromatography (IEX) can be used to separate a molecule of interest (MOI) from impurities based on differences in charge. Because the net charge of most molecules can be adjusted simply by changing the pH of the mobile phase, IEX can be used to purify virtually any biomolecule. If the mobile phase creates conditions that favor a net charge on a molecule opposite to that of the IEX ligand, that molecule will be captured. This can be either the MOI or contaminants, depending on the preferred mode of operation (Figure 1).

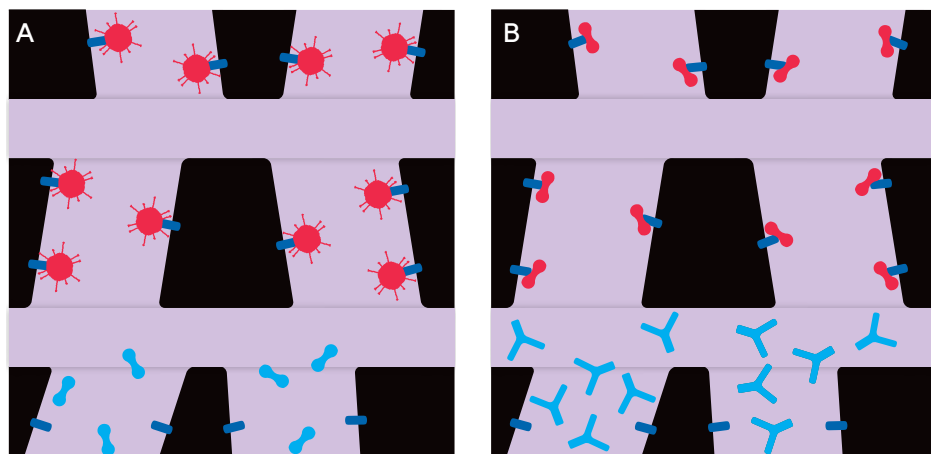
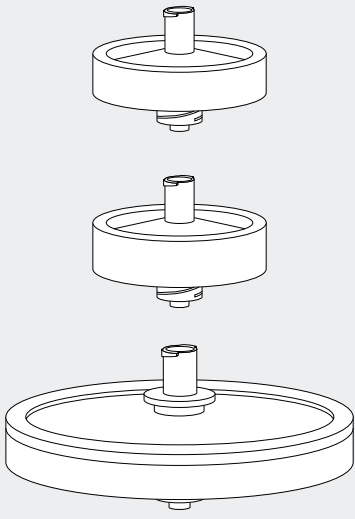


Figure 1: A. In capture purification, the MOI, red, binds to ligands of opposite charge, blue, while impurities of similar charge, light blue, are removed. A subsequent wash step can increase the purity of the MOI before elution at high ionic strength. B. In contrast, flowthrough polishing is a single-step method in which impurities, red, bind to the ligands, blue, and the MOI, light blue, passes through the membrane.

Technical Specifications

	 36 x 25 mm 36 x 28 mm 66 x 31 mm Overall dimensions (W x H)	 9 g 10 g 35 g Approximate weight	 0.4 mL 2.1 mL 2.8 mL Membrane volume (MV)
	 Luer lock Inlet and outlet¹	 Up to 29 mg/mL Dynamic binding capacity²	 5 – 20 MV Elution volume

Materials

Adapters	Polyether ether ketone (PEEK)
Caps	Polycarbonate (PC)
Fittings ³	Polyamide (PA)
Housing	Polypropylene (PP)
Ligand	Diethylamine (D), quaternary ammonium (Q), sulfonic acid (S)
Membrane	Regenerated cellulose (RC)
Membrane support	Polyethylene terephthalate (PET)
Tubing ³	Polyvinyl chloride (PVC)
Packaging	Cardboard (PAP)

Equipment and Consumable Requirements

	Benchtop Purification (Syringe or Pump)		Rapid Cycling (System)
Operation	Syringe ⁴	Pump drive, pump head, tubing	LC system (e.g. ÄKTA), fraction collector
Prefiltration ⁵	Sartolab® RF or Minisart®	Sartolab® RF or Minisart®	Sartolab® RF or Minisart®
Fraction collection	Tubes	Tubes	Tubes or plates

¹ One pair of adapters is included in each pack of Sartobind® IEX Lab, for connection to ÄKTA, NGC and other LC systems that utilize male UNF 10-32 fittings.

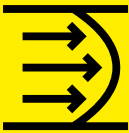
² 29 mg/mL for Sartobind® D | Q, and 25 mg/mL for Sartobind® S. Measured at 10% breakthrough for BSA in 20 mM Tris-HCl pH 6 (D) or 7.5 (Q), and for lysozyme in 10 mM potassium phosphate pH 7 (S).

³ Components of pump tubing (order number VF-ATD0001-1).

⁴ With capacity ≥10 mL and male Luer lock connector.

⁵ For inline prefiltration, use a Minisart® syringe filter (order number S6534-FMOSK).

Operating Conditions

 5 – 50 MV/min Flow rate ⁶	 0.6 MPa Maximum pressure at 20 °C ⁷	 4 – 25 °C Temperature ⁸	 Aqueous buffers Chemical compatibility ⁹	 0.7 – 3.3 min Cycle time ¹⁰
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Ordering Information

Description	Package Contents	Ligand and Order No.
Sartobind® IEX Lab, 0.4 mL MV	4 units 1 pair UNF adapters 1 quick start guide	Q 93IEXQ42GB-12-A S 93IEXS42GB-12-A
Sartobind® IEX Lab, 2.1 mL MV	2 units 1 pair UNF adapters 1 quick start guide	D 93IEXD42DB-12-V Q 93IEXQ42DB-12-V S 93IEXS42DB-12-V
Sartobind® IEX Lab, 2.8 mL MV	1 unit 1 pair UNF adapters 1 quick start guide	Q 93IEXQ42BC-12 S 93IEXS42BC-12
Sartobind® Lab LC system adapter kit	1 pair UNF adapters	SB LA AU01-1
Peristaltic pump	1 unit 1 power cable with region-specific plug	VF-APD0001-1
Peristaltic pump head for 1.6 mm tubing	1 unit 1 quick start guide	VF-APH0001-1
Pump tubing	1 unit	VF-ATD0001-1

⁶ Equivalent to 2 – 12, 10 – 63 or 14 – 84 mL/min for units with 0.4, 2.1 or 2.8 mL MV, respectively.

⁷ When using inline prefiltration, adjust the operating pressure based on the lowest specification given for Minisart® or Sartobind® Lab.

⁸ When loading directly from bioreactors, short-term operation up to 37 °C is possible.

⁹ Long- | short-term pH compatibility is 4-13 | 2-14 for Sartobind® D, 2-12 | 2-14 for Sartobind® Q, and 4-13 | 3-14 for Sartobind® S. Avoid oxidizing agents.

¹⁰ Based on recommended buffer volumes and flow rates for units with 0.4, 2.1 and 2.8 mL MV, with 10 mL load.

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