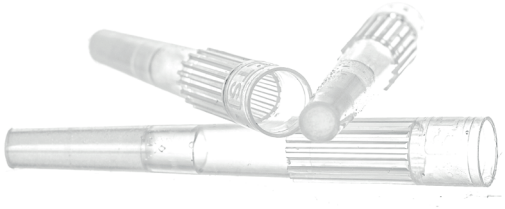
Ion Exchange PhyTip® Columns

Perform Resin Screening for Most Efficient Capture of Target Proteins

PhyTip® Ion Exchange columns offer the unique ability to screen different wash and elution buffers and a number of resins in a single experiment. Once Ion Exchange conditions have been optimized, they are directly transferable to larger manufacturing scale columns. The PhyTip column achieves chromatographic separation in a small, pipette tip column by driving the binding and release steps to equilibrium.

- High Performance
- Minimum Dilution
- High Throughput
- Small Volume Samples
- Scalable
- Reproducible



Ion Exchange Columns with Dual Flow Chromatography Technology

- Develop ion exchange purification methods in a fast and efficient manner
- Automation compatible on all major liquid handling robotic systems
- Take advantage of parallel processing to screen resins
- Applications include optimization of protein purification conditions, imidazole removal after His-tagged protein purification and high-throughput replacement of finishing columns

Ion Exchange Binding Capacity

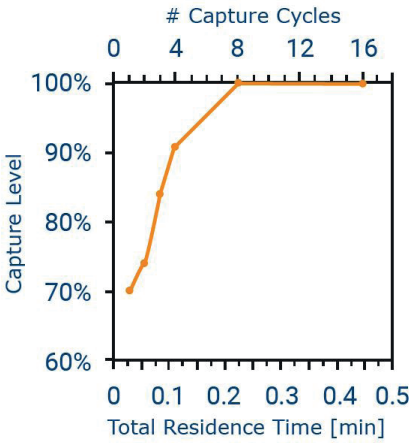


Figure 1. Further process optimization of lysozyme binding conditions with cation exchange columns: binding efficiency as a function of residence time and capture cycles at pH 6.0.

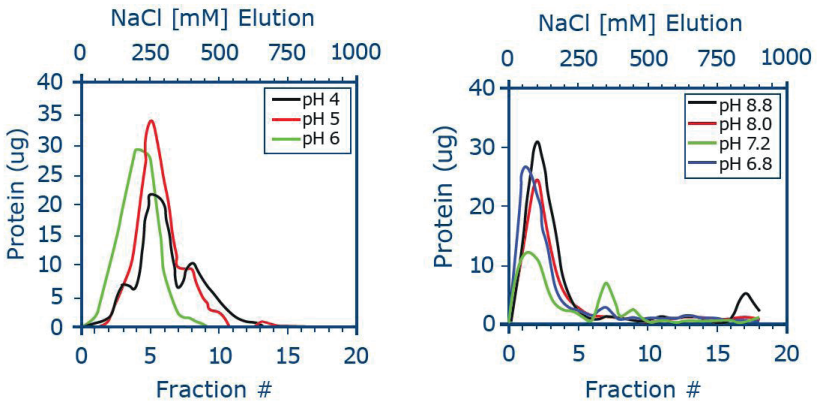


Figure 2. Recovery of BSA using a weak anion exchange resin (left) and lysozyme. using a weak cation exchange resin (right). A matrix of binding buffers of varying pH and elution buffers of increasing salt concentration allow for rapid process optimization using PhyTip® columns.

PhyNexus Now part of Biotage®

Capture Efficiency of Ion Exchange

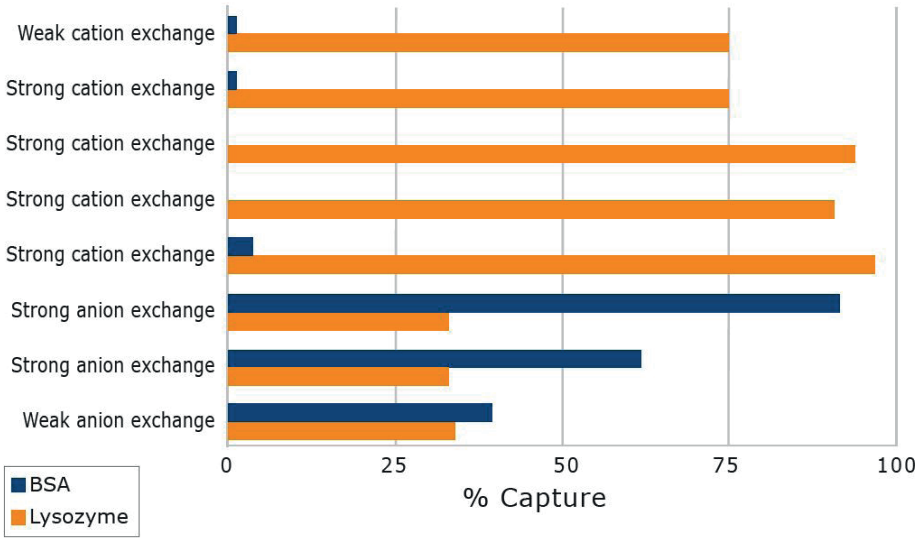
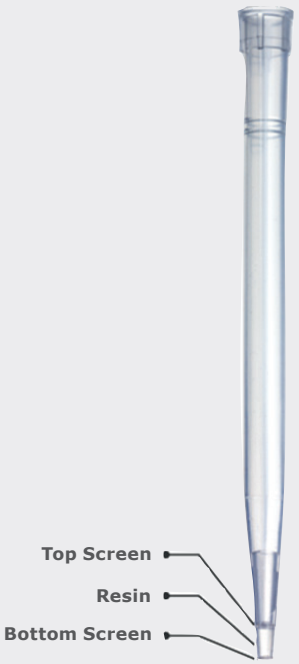


Figure 3. Ion exchange resins screening for most efficient binding. 5 mL of each of eight different ion exchange resins were packed into PhyTip columns and tested for efficiency of capture in parallel. Using the MEA Personal Purification System, the columns were equilibrated in 100 mL of 25mM Tris pH 8.0, 5mM NaCl using 1 cycle at 0.25 mL/minute, and performed 8 capture cycles at 0.25 mL/minute of 200 mL capture buffer spiked with BSA to 2 mg/mL. Starting sample and sample flow through was quantified by the Nanodrop UV spectrometer for absorbance at 280 nm. The lysozyme capture efficiency was performed in the same way except columns were equilibrated in 25mM Na-citrate, pH 6.0, 5mM NaCl buffer and samples were composed of the same equilibration buffer spiked with lysozyme to 0.4 mg/mL. Comparison of capture of two proteins using 8 different resins took less than 35 minutes.



Ion Exchange PhyTip® Columns

Ion Exchange PhyTip columns are ion exchange columns packed in a pipette tip between two thin insert screen.

Ion Exchange Resins

Strong Anion	Weak Anion	Strong Cation	Weak Cation

Resin Bed Volumes

Available with a many different resin bed volumes for processing of a vast range of sample volumes and concentrations.

5 µL	10 µL	20 µL	40 µL	80 µL	160 µL	320 µL

Robotics Compability

Available for all major liquid handling systems

- Hamilton
- Tecan
- Beckman Coulter
- Opentrons
- Dynamic Devices
- Perkin Elmer
- Agilent Technologies
- Caliper
- MEA 2

To learn more, visit: www.biotage.com/ion-exchange-phytip-columns

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