Capto S ImpAct resin

Product Information

Cat#No#	Ca-445C

Product Overview

With a high binding capacity and small particle size, Capto S ImpAct is a good choice for reliable and robust polishing steps in an industrial purification process.

Description

Capto S ImpAct chromatography medium (resin) is a strong cation exchanger. The medium is designed for polishing of monoclonal antibodies (MAbs) and a wide range of other biomolecules. Capto S ImpAct is part of a platform of media based on the Capto product line. The polymeric ligand, in combination with the attributes of the base matrix, gives a cation exchanger with high binding capacity. By combining the rigidity of Capto media with an optimized bead, Capto S ImpAct delivers both good pressure/flow properties and good resolution, even at high sample load. The high binding capacity and resolution, combined with the ability to run at high flow rates and bed heights, increase productivity and flexibility in process design.

Characteristic

High binding capacity, > 100 mg mAb/mL resin.
Efficient aggregate removal at high load of monoclonal antibodies.
High-resolution polishing based on the well-established Capto platform.
Flexibility of design thanks to a large operational window of flow rates and bed heights for easy optimization and scaling.
High productivity enabling cost-efficient manufacturing.
Resin fulfills industrial demands for security of supply, robust performance, and regulatory support.

Metal ion capacity

37 to 63 umol (H+)/mL medium

Matrix

High-flow agarose

Average particle size

Tel: 1-631-559-9269 1-516-512-3133
Email:info@creative-biomart.com
Fax:1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA

Capto S ImpAct resin

~50 µm
Ligand
-SO_3-
Dynamic binding capacity
>85 mg BSA/mL resin, >90 mg lysozyme/mL resin, >100 mg IgG/ mL resin.
Recommended flow rate
At least 220 cm/h in a 1 m diameter column with bed height 20 cm at 20°C; measured using process buffers with the same viscosity as water at < 3 bar (0.3 MPa).
Chemical stability
Commonly used aqueous buffers, 1 M sodium hydroxide, 8 M urea, 6 M guanidine hydrochloride, 30% isopropanol and 70% ethanol.
pH working range
4–12
CIP stability
3–14
Temperature stability
4°C to 30°C
Shelf life
5 years
Storage
0.2 M sodium acetate in 20% ethanol at 4°C to 30°C.
Evaluation of Packing
The best method of expressing the efficiency of a packed column is in terms of the height equivalent to a theoretical plate (HETP) and the asymmetry factor (As). These values are easily determined by applying a sample such as 1% acetone solution to the column. Sodium chloride can also be used as a test substance.

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Use a concentration of 0.8 M NaCl in water as sample and 0.4 M NaCl in water as eluent.

Equilibration

After packing, and before a chromatographic run, equilibrate with start buffer by washing with five bed volumes or until the column effluent shows stable conductivity and pH values. The equilibration step can be shortened by first washing with a high concentration buffer to obtain approximately the desired pH value and then washing with start buffer until the conductivity and pH values are stable.

Regeneration

After each separation, elute any reversibly bound material with a high ionic strength solution (e.g., 1 to 2 M NaCl in elution buffer). Regenerate the medium by washing with five bed volumes of start buffer or until the column effluent shows stable conductivity and pH values.

Cleaning-in-place

Precipitated, hydrophobically bound proteins or lipoproteins: Wash with 1 M NaOH solution with reversed flow direction. Contact time 15 to 30 min. Use 1 M NaOH with 1 M NaCl if the results are not satisfactory with only NaOH.
Ionically bound proteins: Wash with 0.5 to 2 column volumes of 2 M NaCl with reversed flow direction. Contact time 10 to 15 minutes.
Lipids and very hydrophobic proteins: Wash with 2 to 4 column volumes of up to 70% ethanol or 30% isopropanol with reversed flow direction. Contact time 1 to 2 h. Alternatively, wash with 2 to 4 column volumes of 0.1 to 0.5% non-ionic detergent with reversed flow direction. Contact time 1 to 2 h.

Sanitization

To reduce microbial contamination in the packed column, sanitization using 0.5 to 1 M NaOH with a contact time of 1 h is recommended. The CIP protocol for precipitated, hydrophobically bound proteins or lipoproteins sanitizes the medium effectively.

Scaling up

1. Select bed volume according to required binding capacity. Keep sample concentration and gradient slope constant.
2. Select column diameter to obtain the bed height (10 to 40 cm) from method optimization.
3. The larger equipment used when scaling up may cause some deviations from the method optimized at

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small scale. In such cases, check the buffer delivery and monitoring systems for time delays or volume changes. Different lengths and diameters of outlet tubing can cause zone spreading on larger systems.

Pack size
25 mL
BioProcess resin
Yes
Maximum flow velocity
At least 220 cm/h in a 1 m diameter column with bed height 20 cm at 20°C; measured using process buffers with the same viscosity as water at < 3 bar (0.3 MPa).
Functional group
SO3 -

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