



Ion exchange chromatography columns and resins

Selection guide



Introduction to ion exchange chromatography

What is ion exchange (IEX) chromatography?

IEX is a liquid chromatography technique to separate proteins that have only slight differences in their net surface charge. Even very closely related proteins will have some difference in charge and can be effectively separated using this purification method.

The chromatography technique is based on the interaction of a charged molecule and the oppositely charged chromatography resin.

This chromatography technique takes advantage of the fact that the relationship between net surface charge and pH is unique for a specific protein.

Typically, conditions are selected to ensure that the molecules of interest bind to the resin as they are loaded onto the column.

Conditions are then altered so that the bound substances are eluted differently.

IEX is performed in four main steps as shown below.

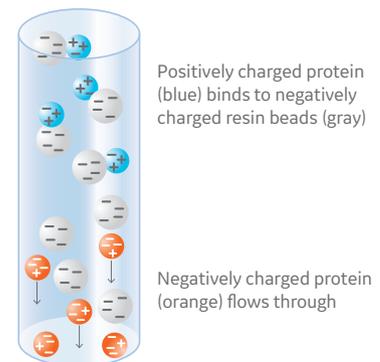
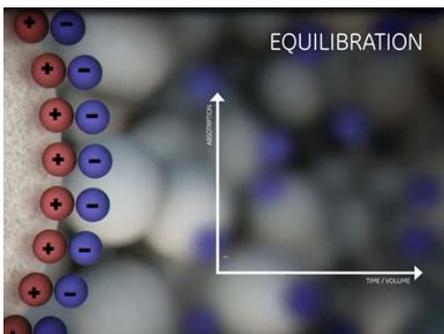


Fig 1. Ion exchange chromatography using a cation exchanger.

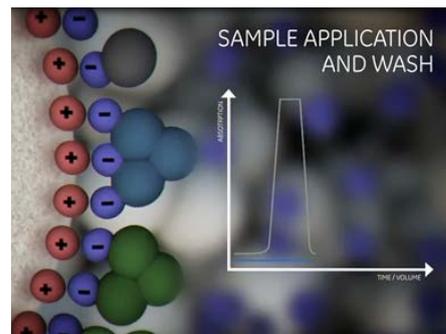
How does ion exchange chromatography work?

1. Equilibration



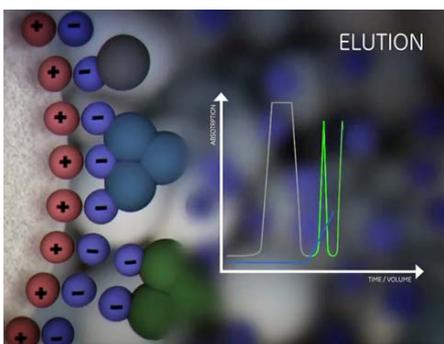
Prepare the column to the desired start conditions.

2. Sample application and wash



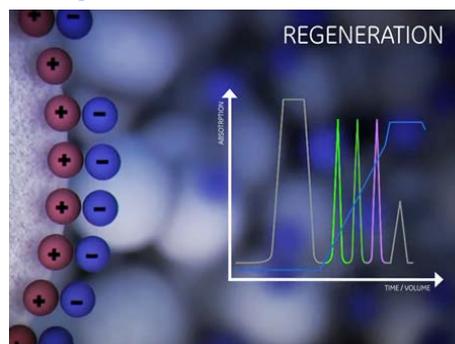
Bind the target molecules and wash out all unbound material.

3. Elution



Biomolecules are gradually released from the ionic exchanger by a change in the buffer composition.

4. Regeneration



Removal of all molecules still bound.

Fig 2. Main steps of an ion exchange chromatography run.

Select your ion exchange chromatography resin

Select the chromatography resin according to the objective of the purification step and the condition of the starting material. Other factors such as sample stability, scale, speed, binding capacity, and equipment available may also influence the final choice. Use the decision trees on pages 4 and 5 to find the most appropriate resin for your needs.

**Resins for
research use**

p. 4

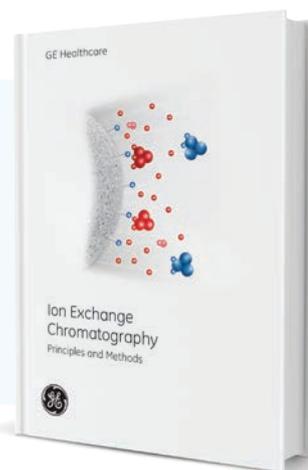
**Resins for process
development**

p. 5

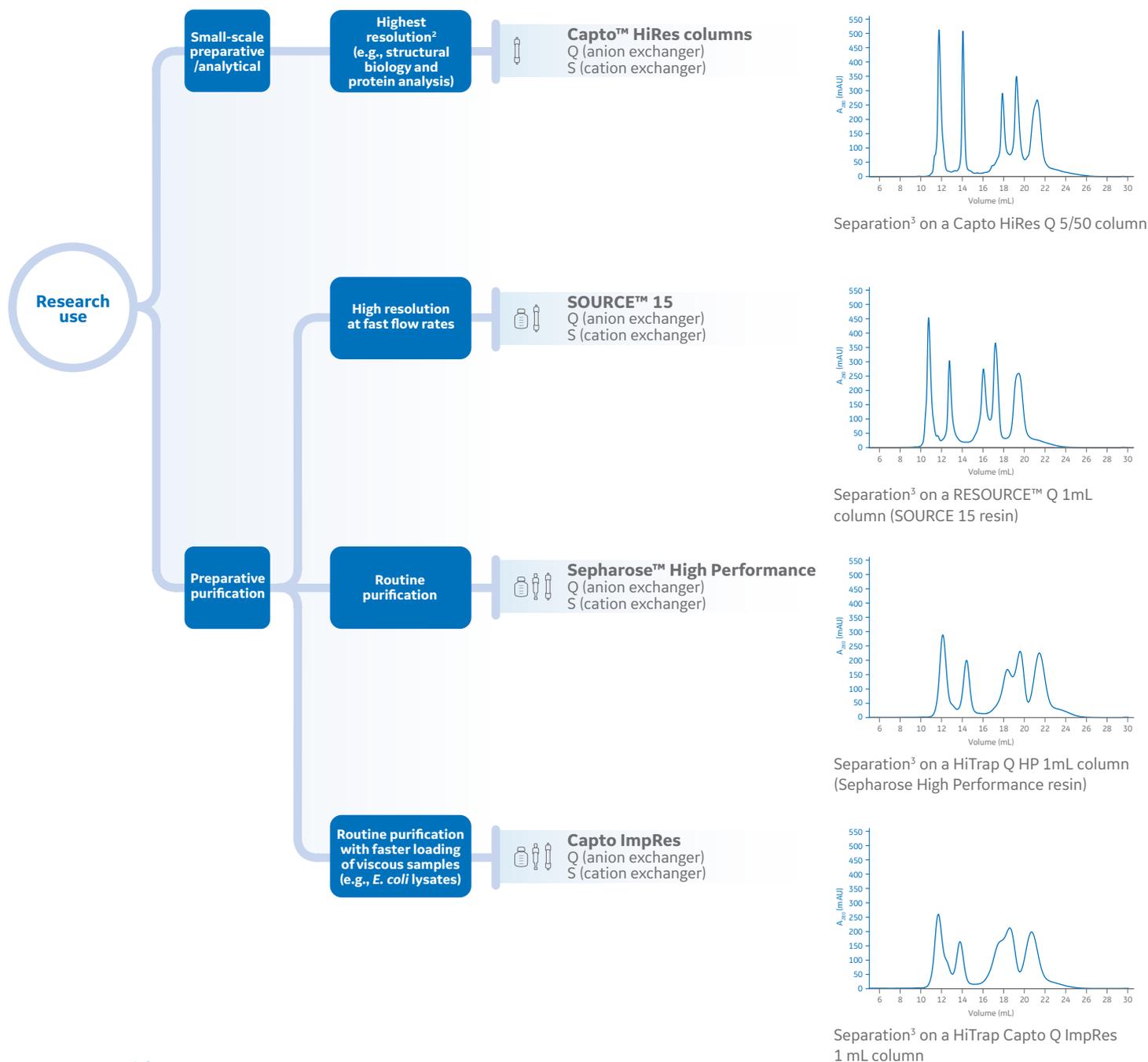
Ion exchange chromatography handbook

Looking for protocols and tips for using ion exchange chromatography?

Download our handbook from gelifesciences.com/handbooks



Guide to IEX resins for research applications¹



Format guide

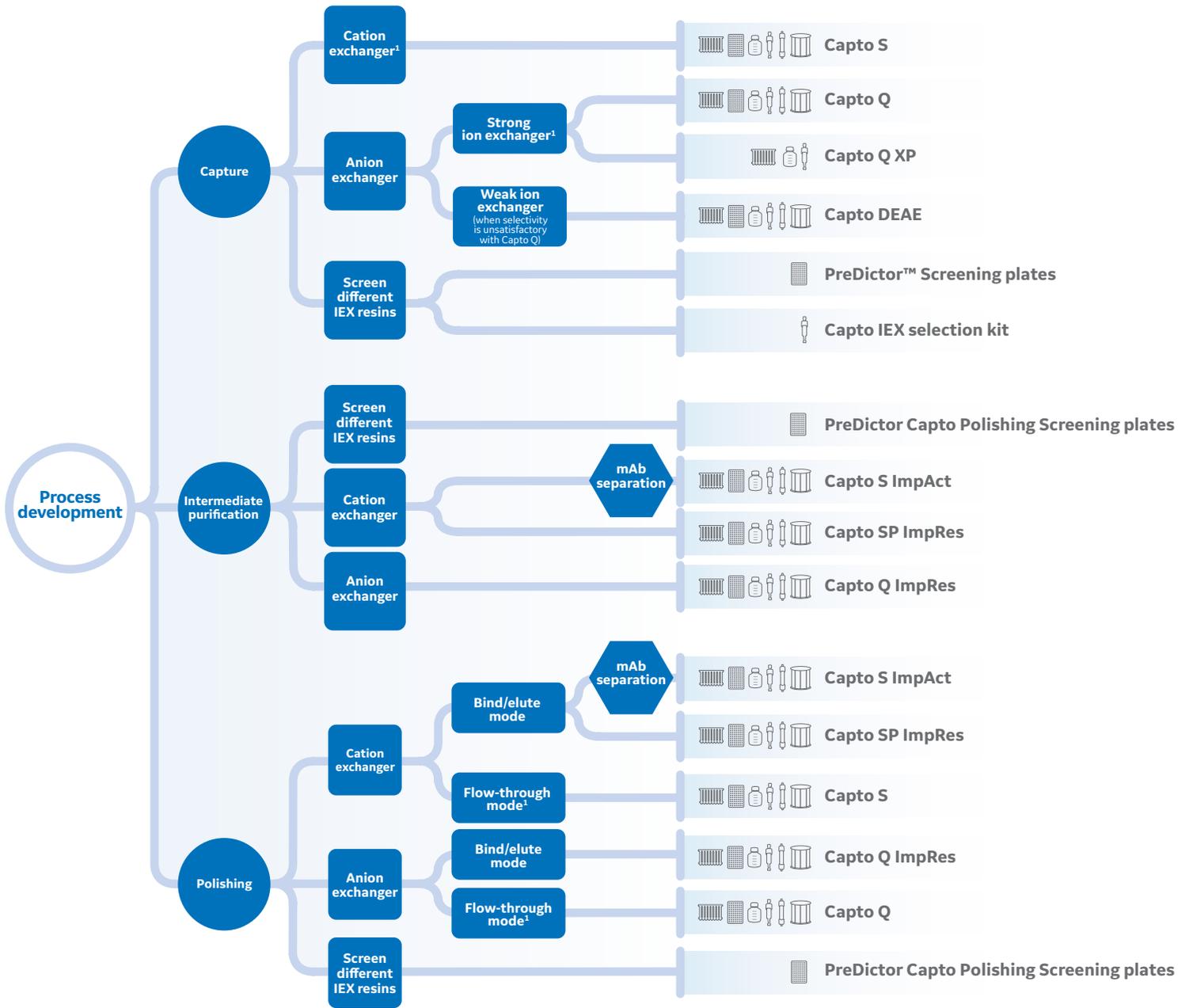
Type of purification	Manual or system purification	System purification
Format	Bottles of chromatography resins	Small-column cartridges (1 and 5 mL) Other columns
Format name	Lab pack	HiTrap™ HiScreen™, HiPrep™, RESOURCE, Tricorn™
Use	Batch purification and packing empty columns	Easy to use with a syringe, peristaltic pump, or a chromatography system Larger scale or high-performance applications

¹ This resin selection is our recommendation for the most common needs in research. For a complete list of products, refer to the ordering information table.

² Compared with other IEX columns from GE Healthcare Life Sciences.

³ Protein mix purified at 1 mL/min and containing:
Apotransferrin
 α -Lactalbumin
 β -Lactoglobulin
Amyloglucosidase

Guide to IEX resins for process development



Format guide

Format	96-well filter plates (2, 6, 20, or 50 µL)	Miniaturized prepacked columns (50, 200, and 600 µL)	Bottles of chromatography resins	Prepacked columns (1 and 5 mL)	Prepacked columns (4.7 mL with 10 cm bed height)	Single-use, prepacked columns ≥ 1 L
Format name	PreDictor	PreDictor RoboColumn™	Bulk pack	HiTrap	HiScreen	ReadyToProcess™ ²
Application	High-throughput screening	High-throughput process development	Batch purification and self-packing	Process development, screening	Method optimization	Clinical manufacturing

¹ We also offer solutions based on membrane adsorbers technology. Contact your sales representative.

² For more information about ReadyToProcess columns, contact your sales representative.

Which ion exchanger should be used?

What is the pI of a protein?

The isoelectric point (pI) is the pH at which a protein has no net charge. A protein that has no net charge at a pH equivalent to its pI will not interact with a charged resin. However, at a pH above its pI, a protein will bind to a positively charged resin (anion exchanger). At a pH below its pI, a protein will bind to a negatively charged resin (cation exchanger, see Fig 3).

Guidance for ion exchanger selection

If isoelectric point (pI) of the target protein is known:

- Select an anion exchanger (Q, DEAE) with a buffer pH above the pI.
- Select a cation exchanger (S, SP, CM) with a buffer pH below the pI.

If pI is unknown:

Starting with a strong exchanger (Q, S, SP) is recommended.

Strong ion exchangers maintain their charge over a wider pH range than weak ion exchangers and are suitable for most applications.

Consider using a weak exchanger (DEAE, CM) if the selectivity of the strong ion exchanger is unsatisfactory, but remember that the ion exchange capacity of a weak ion exchanger varies with pH.

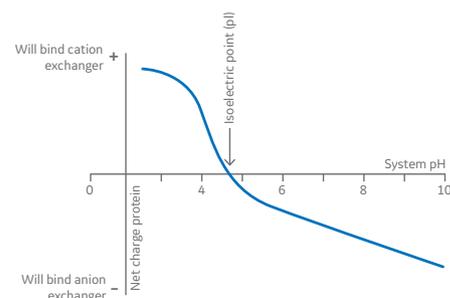


Fig 3. The net surface charge of a protein is highly pH dependent and will change gradually as the pH of the environment changes.

Table 1. Overview of ion exchange groups on our resins

Ion exchanger type		Ion exchange group	Description
Strong	Anion exchanger	Q	Quaternary ammonium
	Cation exchanger	SP	Sulfopropyl
		S	Methyl sulfonate
Weak	Anion exchanger	DEAE	Diethylaminoethyl
	Cation exchanger	CM	Carboxymethyl

Good to know!

Our IEX selection kits help you screen for the optimal charged group for a given application.

- HiTrap IEX Selection Kit (17600233)
- HiTrap Capto IEX Selection Kit (28934388)

More on page 10.



Select the format according to your need



Applications

	Resin in bulk	HiTrap	RESOURCE	HiPrep	Tricorn (glass)	Tricorn (PEEK)*	HiScreen	PreDictor plates	PreDictor RoboColumn units
Small-scale preparative purification	●	●	●	●	●	●	●	●	●
Protein analysis					●	●			
Process development	●	●					●	●	●
High-throughput screening	●							●	●
Scale-down studies	●				●				

Use

Syringe		●							
Peristaltic pump	●	●							
Centrifuge	●							●	
Multichannel pipette								●	
Robotic liquid handling system	●							●	●
Chromatography systems	●	●	●	●	●	●	●		

* PEEK = Polyetherketone



If you need further guidance for product selection, check our digital selection tool gelifesciences.com/purify



Ordering information

Resin	Main feature	Particle size, d_{50}^*	Ligand	Ion exchanger	pH (operational)	Examples of dynamic binding capacities	Column format	Product name	Volume	Column dimensions d x h (mm)	Recommended flow rates	Max pressure over packed bed (MPa)	Pack size	Product code
Capto HiRes	Our highest resolution IEX resin available in several prepacked formats†	8 μ m	Q	Strong anion	2 to 12	BSA 50 mg/mL resin	Tricorn glass column	Capto HiRes Q 5/50	1 mL	5 x 50	0.5 to 2.0 mL/min	4	1 column	29275878
								Capto HiRes Q 10/100	8 mL	10 x 100	0.5 to 2.0 mL/min	4	1 column	29275881
			S	Strong cation	2 to 12	BSA 50 mg/mL resin	Tricorn glass column	Capto HiRes S 5/50	1 mL	5 x 50	0.5 to 2.0 mL/min	4	1 column	29275877
								Capto HiRes S 10/100	8 mL	10 x 100	0.5 to 2.0 mL/min	4	1 column	29275879
SOURCE 15	A high resolution resin that has high flow rates	15 μ m	Q	Strong anion	2 to 12	BSA 45 mg/mL resin	RESOURCE PEEK column	RESOURCE Q 1 mL	1 mL	6.4 x 30	1 to 10 mL/min	1.5	1 column	17117701
							Tricorn PEEK column	RESOURCE Q 6 mL	6 mL	16 x 30	1 to 60 mL/min	0.6	1 column	17117901
							Resin in bulk	SOURCE 15 Q 4.6/100 PE	1.7 mL	4.6 x 100	0.5 to 2.5 mL/min	4	1 column	17518101
								SOURCE 15 Q	50 mL	N/A	150 to 900 cm/h	0.5	1 bottle	17094701
			S	Strong cation	2 to 13	Lysozyme 80 mg/mL resin	RESOURCE PEEK column	RESOURCE S 1 mL	1 mL	6.4 x 30	1 to 10 mL/min	1.5	1 column	17117801
							Tricorn PEEK column	RESOURCE S 6 mL	6 mL	16 x 30	1 to 60 mL/min	0.6	1 column	17118001
							Resin in bulk	SOURCE 15 S 4.6/100 PE	1.7 mL	4.6 x 100	0.5 to 2.5 mL/min	4	1 column	17518201
								SOURCE 15 S	50 mL	N/A	150 to 900 cm/h	0.5	1 bottle	17094401
SOURCE 30	Use for intermediate purification and large-scale polishing	30 μ m	Q	Strong anion	2 to 12	HSA 50 mg/mL resin	Resin in bulk	SOURCE 30 Q	50 mL	N/A	300 to 1000 cm/h	0.3	1 bottle	17127501
								200 mL	N/A	300 to 1000 cm/h	0.3	1 bottle	17127502	
			S	Strong cation	2 to 13	Lysozyme 80 mg/mL resin	Resin in bulk	SOURCE 30 S	50 mL	N/A	300 to 1000 cm/h	0.3	1 bottle	17127301
								200 mL	N/A	300 to 1000 cm/h	0.3	1 bottle	17127302	
Sepharose High Performance (HP)	Use this resin for routine use in lab or for resin selection and pH scouting	34 μ m	Q	Strong anion	2 to 12	BSA 70 mg/mL resin	HiTrap column	HiTrap Q HP	1 mL	7 x 25	up to 1 mL/min	0.3	1 column	29051325
							1 mL	7 x 25	up to 1 mL/min	0.3	5 columns	17115301		
							5 mL	5 x 25	up to 5 mL/min	0.3	5 columns	17115401		
							HiScreen column	HiScreen Q HP	4.7 mL	7.7 x 100	0.6 mL/min	0.3	1 column	28950511
							HiPrep column	HiPrep Q HP 16/10	20 mL	16 x 100	1 to 5 mL/min	0.3	1 column	29018182
							Resin in bulk	Q Sepharose HP	75 mL	N/A	up to 150 cm/h	0.3	1 bottle	17101401
			SP	Strong cation	4 to 13	Ribonuclease 55 mg/mL resin	HiTrap column	HiTrap SP HP	1 mL	7 x 25	up to 1 mL/min	0.3	1 column	29051324
							1 mL	7 x 25	up to 1 mL/min	0.3	5 columns	17115101		
							5 mL	5 x 25	up to 5 mL/min	0.3	5 columns	17115201		
							HiScreen column	HiScreen SP HP	4.7 mL	7.7 x 100	0.6 mL/min	0.3	1 column	28950515
							HiPrep column	HiPrep SP HP 16/10	20 mL	16 x 100	1 to 5 mL/min	0.3	1 column	29018183
							Resin in bulk	SP Sepharose HP	75 mL	N/A	up to 150 cm/h	0.3	1 bottle	17108701
Capto ImpRes	High resolution and throughput, flexibility of process design	40 μ m	Q	Strong anion	2 to 12	BSA > 55 mg/mL resin	HiTrap column	HiTrap Capto Q ImpRes	1 mL	7 x 25	up to 1 mL/min	0.5	5 columns	17547051
							5 mL	16 x 25	up to 5 mL/min	0.3	5 columns	17547055		
							HiScreen column	HiScreen Capto Q ImpRes	4.7 mL	7.7 x 100	1.2 mL/min	0.4	1 column	17547015
							PreDictor 96-well filter plates	PreDictor Capto Q ImpRes	6 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17547016
							20 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17547017		
							PreDictor RoboColumn	PreDictor RoboColumn Capto Q ImpRes	200 μ L	N/A	N/A	N/A	row of 4 columns	28996918
							600 μ L	N/A	N/A	N/A	row of 4 columns	28997391		
							Resin in bulk	Capto Q ImpRes	25 mL	N/A	300 cm/h	0.3	1 bottle	17547010
							100 mL	N/A	300 cm/h	0.3	1 bottle	17547002		
			SP	Strong cation	4 to 12	Lysozyme > 70 mg/mL resin	HiTrap column	HiTrap Capto SP ImpRes	1 mL	7 x 25	up to 1 mL/min	0.5	5 columns	17546851
							5 mL	16 x 25	up to 5 mL/min	0.3	5 columns	17546855		
							HiScreen column	HiScreen Capto SP ImpRes	4.7 mL	7.7 x 100	1.2 mL/min	0.4	1 column	17546815
							Tricorn glass column	Capto SP ImpRes Validation column	15.7 mL	10 x 200	0.5 to 6.6 mL/min	Supplied in column certificate	1 column	29315186
							PreDictor 96-well filter plates	PreDictor Capto SP ImpRes	6 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17546816
							20 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17546817		
							PreDictor RoboColumn	PreDictor Capto SP ImpRes Isotherm	2, 4, 6, 8, 20 and 50 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17546818
							PreDictor RoboColumn	PreDictor RoboColumn Capto SP ImpRes	200 μ L	N/A	N/A	N/A	row of 4 columns	28997449
							600 μ L	N/A	N/A	N/A	row of 4 columns	28997450		
Resin in bulk	Capto SP ImpRes	25 mL	N/A	300 cm/h	0.3	1 bottle	17546810							
100 mL	N/A	300 cm/h	0.3	1 bottle	17546802									
Capto S ImpAct	Use Capto S ImpAct for efficient aggregate removal at high load of monoclonal antibodies	50 μ m	S	Strong cation	4 to 12	mAb > 100 mg/mL resin	HiTrap column	HiTrap Capto S ImpAct	1 mL	7 x 25	up to 1 mL/min	0.3	5 columns	17371751
							5 mL	16 x 25	up to 5 mL/min	0.3	5 columns	17371755		
							HiScreen column	HiScreen Capto S ImpAct	4.7 mL	7.7 x 100	1.2 mL/min	0.4	1 column	17371747
							Tricorn glass column	Capto S ImpAct Validation column	15.7 mL	10 x 200	0.5 to 6.6 mL/min	Supplied in column certificate	1 column	29321910
							PreDictor 96-well filter plates	PreDictor Capto S ImpAct	6 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17546816
							20 μ L	N/A	N/A	N/A	4 x 96-well filter plates	17546817		
							PreDictor RoboColumn	PreDictor RoboColumn Capto S ImpAct	200 μ L	N/A	N/A	N/A	row of 4 columns	17371771
							600 μ L	N/A	N/A	N/A	row of 4 columns	17371772		
							Resin in bulk	Capto S ImpAct	25 mL	N/A	220 cm/h	0.3	1 bottle	17371701
							100 mL	N/A	220 cm/h	0.3	1 bottle	17371702		

* Median particle size of the cumulative volume distribution.

† Capto HiRes replaces MonoBeads resin.

Resin	Main feature	Particle size, d _{50v} *	Ligand	Ion exchanger	pH (operational)	Examples of dynamic binding capacities	Column format	Product name	Volume	Column dimensions d × h (mm)	Recommended flow rates	Max pressure over packed bed (MPa)	Pack size	Product code								
Capto	High volume throughput and high capacity. Easy scale-up	90 µm	Q	Strong anion	2 to 12	BSA > 100 mg/mL resin	HiTrap column	HiTrap Capto Q	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	11001302								
							5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	11001303										
							HiScreen column	HiScreen Capto Q	4.7 mL	7.7 × 100	2.3 mL/min	0.3	1 column	28926978								
							Tricorn glass column	Capto Q Validation column	15.7 mL	10 × 200	0.5 to 6.6 mL/min	Supplied in column certificate	1 column	29363635								
							PreDictor 96-well filter plates	PreDictor Capto Q	2 µL	N/A	N/A	N/A	4 × 96-well filter plates	28925773								
									20 µL				4 × 96-well filter plates	28925806								
									50 µL				4 × 96-well filter plates	28925807								
									2, 4, 6, 8, 20 and 50 µL				4 × 96-well filter plates	28943278								
									PreDictor Capto Q Isotherm				row of 4 columns	28986072								
							PreDictor RoboColumn	PreDictor RoboColumn Capto Q	200 µL	N/A	N/A	N/A	row of 4 columns	28986175								
									600 µL				row of 4 columns	28986175								
							Resin in bulk	Capto Q	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17531610								
									100 mL				1 bottle	17531602								
							S	Strong cation	4 to 12	Lysozyme > 120 mg/mL resin	HiTrap column	HiTrap Capto S	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17544122				
											5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17544123						
											HiScreen column	HiScreen Capto S	4.7 mL	7.7 × 100	2.3 mL/min	0.3	1 column	28926979				
											PreDictor 96-well filter plates	PreDictor Capto S	2 µL	N/A	N/A	N/A	4 × 96-well filter plates	28925808				
											20 µL				4 × 96-well filter plates	28925809						
											50 µL				4 × 96-well filter plates	28925810						
											2, 4, 6, 8, 20 and 50 µL				4 × 96-well filter plates	28943279						
PreDictor RoboColumn	PreDictor RoboColumn Capto S	200 µL	N/A	N/A	N/A	row of 4 columns					28986081											
		600 µL				row of 4 columns					28986176											
Resin in bulk	Capto S	25 mL	N/A	up to 700 cm/h	0.3	1 bottle					17544110											
		100 mL				1 bottle					17544101											
DEAE	Weak anion	2 to 12	Ovalbumin > 90 mg/mL resin	HiTrap column	HiTrap Capto DEAE	1 mL					7 × 25	up to 1 mL/min	0.3	5 columns	28916537							
				5 mL	16 × 25	up to 5 mL/min					0.3	5 columns	28916540									
				HiScreen column	HiScreen Capto DEAE	4.7 mL					7.7 × 100	2.3 mL/min	0.3	1 column	28926982							
				PreDictor 96-well filter plates	PreDictor Capto DEAE	2 µL					N/A	N/A	N/A	4 × 96-well filter plates	28925811							
				20 µL								4 × 96-well filter plates	28925812									
				50 µL								4 × 96-well filter plates	28925813									
				2, 4, 6, 8, 20 and 50 µL								4 × 96-well filter plates	28943280									
				PreDictor RoboColumn	PreDictor RoboColumn Capto DEAE	200 µL					N/A	N/A	N/A	row of 4 columns	28986082							
						600 µL								row of 4 columns	28986177							
				Resin in bulk	Capto DEAE	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17544310											
						100 mL				1 bottle	17544301											
				Sephacose Fast Flow (FF)	Easy scale-up. Broad choice of selectivity	90 µm	Q	Strong anion	2 to 12	HSA 120 mg/mL resin	HiTrap column	HiTrap Q FF	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17505301				
											5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17515601						
											HiScreen column	HiScreen Q FF	4.7 mL	7.7 × 100	2.3 mL/min	0.15	1 column	28950510				
											HiPrep column	HiPrep Q FF 16/10	20 mL	16 × 100	2 to 10 mL/min	0.15	1 column	28936543				
											Resin in bulk	Q Sepharose FF	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17051010				
											300 mL				1 bottle	17051001						
											SP	Strong cation	4 to 13	Ribonuclease 70 mg/mL resin	HiTrap column	HiTrap SP FF	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17505401
															5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17515701		
															HiScreen column	HiScreen SP FF	4.7 mL	7.7 × 100	2.3 mL/min	0.15	1 column	28950513
HiPrep column	HiPrep SP FF 16/10	20 mL	16 × 100												2–10 mL/min	0.15	1 column	28936544				
Resin in bulk	SP Sepharose FF	25 mL	N/A												up to 700 cm/h	0.3	1 bottle	17072910				
300 mL											1 bottle	17072901										
DEAE	Weak anion	2 to 12	HSA 110 mg/mL resin								HiTrap column	HiTrap DEAE FF	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17505501				
											5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17515401						
											HiScreen column	HiScreen DEAE FF	4.7 mL	7.7 × 100	2.3 mL/min	0.15	1 column	28978245				
											HiPrep column	HiPrep DEAE FF 16/10	20 mL	16 × 100	2 to 10 mL/min	0.15	1 column	28936541				
											Resin in bulk	DEAE Sepharose FF	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17070910				
500 mL											1 bottle	17070901										
ANX	Weak anion	3 to 13	BSA 43 mg/mL resin								HiTrap column	HiTrap ANX FF (high sub)	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17516201				
											5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17516301						
				Resin in bulk	ANX Sepharose 4 FF (high sub)	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17128710											
500 mL				1 bottle	17128701																	
CM	Weak cation	4 to 13	Ribonuclease 50 mg/mL resin	HiTrap column	HiTrap CM FF	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	17505601											
				5 mL	16 × 25	up to 5 mL/min	0.3	5 columns	17515501													
				HiPrep column	HiPrep CM FF 16/10	20 mL	16 × 100	2 to 10 mL/min	0.15	1 column	28936542											
				Resin in bulk	CM Sepharose FF	25 mL	N/A	up to 700 cm/h	0.3	1 bottle	17071910											
500 mL				1 bottle	17071901																	
Selection kits																						
Sephacose FF	Use to screen the different IEX ligands for best fit with your protein	90	†	†	†	†	HiTrap Selection Kit	HiTrap IEX Selection Kit	1 mL	7 × 25	up to 1 mL/min	0.3	7 columns	17600233								
Capto	Use to screen the different IEX and Multimodal ligands to find the fit with your protein	90	‡	‡	‡	‡	HiTrap Selection Kit	HiTrap Capto IEX Selection Kit	1 mL	7 × 25	up to 1 mL/min	0.3	5 columns	28934388								
PreDictor Screening Plates																						
AIEX resins screening	Use these plates to screen different anion resins		§	§	§	§	PreDictor screening kit	PreDictor AIEX Screening	2 µL/ 6 µL	N/A	N/A	N/A	4 × 96-well filter plates	28943288								
CIEX resins screening	Use these plates to screen different cation resins		¶	¶	¶	¶	PreDictor screening kit	PreDictor CIEX Screening	2 µL/ 6 µL	N/A	N/A	N/A	4 × 96-well filter plates	28943289								
									20 µL	N/A	N/A	N/A	4 × 96-well filter plates	28943290								
									20 µL	N/A	N/A	N/A	4 × 96-well filter plates	28943291								
Capto AIEX polishing resins screening	Use these plate to screen different anion exchangers specifically for polishing step		**	**	**	**	PreDictor screening kit	PreDictor Capto AIEX Polishing Screening	2 µL/ 6 µL	N/A	N/A	N/A	4 × 96-well filter plates	29095570								
									20 µL	N/A	N/A	N/A	4 × 96-well filter plates	29095569								
Capto CIEX polishing resins screening	Use these plate to screen different cation exchangers specifically for polishing step		††	††	††	††	PreDictor screening kit	PreDictor Capto CIEX Polishing Screening	2 µL/ 6 µL	N/A	N/A	N/A	4 × 96-well filter plates	29095568								
									20 µL	N/A	N/A	N/A	4 × 96-well filter plates	29095567								

* Median particle size of the cumulative volume distribution.
† HiTrap IEX Selection Kit includes: HiTrap Q FF 1 mL, HiTrap SP FF 1 mL, HiTrap DEAE FF 1 mL, HiTrap CM FF 1 mL, HiTrap ANX FF (high sub) 1 mL, HiTrap Q XL 1 mL, and HiTrap SP XL 1 mL
‡ HiTrap Capto IEX Selection Kit includes: HiTrap Capto Q 1 mL, HiTrap Capto S 1 mL, HiTrap Capto DEAE 1 mL, HiTrap Capto MMC 1 mL, and HiTrap Capto adhere 1 mL
§ PreDictor AIEX screening plate 2 µL/6 µL contains: Capto Q 2 µL, Capto DEAE 2 µL, Q Sepharose Fast Flow 6 µL and Capto adhere 6 µL. The 20 µL screening plate contains: 20 µL per well of the corresponding resin.
¶ PreDictor CIEX screening plate 2 µL/6 µL contains: Capto S 2 µL, SP Sepharose Fast Flow 6 µL and Capto MMC 6 µL. The 20 µL screening plate contains: 20 µL per well of the corresponding resin.
** PreDictor Capto AIEX polishing screening plate 2 µL/6 µL contains: Capto Q 2 µL, Capto Q ImpRes 6 µL, Capto adhere 6 µL and Capto adhere ImpRes 6 µL. The 20 µL screening plate contains: 20 µL per well of the corresponding resin.
†† PreDictor Capto CIEX polishing screening plate 2 µL/6 µL contains: Capto S ImpAct 2 µL, Capto SP ImpRes 6 µL and Capto MMC ImpRes 6 µL. The 20 µL screening plate contains: 20 µL per well of the corresponding resin.



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