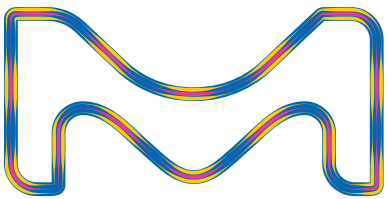
Biochromatography Portfolio Guide

Bulk Resin, Membranes and Prepacked Columns



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Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Protein A affinity chromatography	**Eshmuno® A resin** Base matrix: Hydrophilic Polyvinyl Ether	Merck proprietary ligand expressed in *E. coli*	• Primary capture of Fc-containing antibodies • High capacity and good caustic stability	• Mean particle size d_{50}: 50 µm • Protein binding capacity: 40–55 mg/mL at 3–6 min RT and 5% breakthrough for mAbs • pH stability range: 1.5–13.5 • Pressure limit: 8 bar • Linear flow rate: >500 cm/hr	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1251600001** **1251610001** **1251620001** **1251630001**	10 mL 100 mL 500 mL 5 L	**1200890010** **1200890100** **1200890500** **1200895000**
Affinity chromatography	**Eshmuno® P anti-A and Eshmuno® P anti-B resin** Base matrix: Hydrophilic Polyvinyl Ether	Trisaccharide blood group antigens (A or B)	• Plasma derived immunoglobulin production • Effective removal of anti A/B antibodies	• Particle size d_{50}: 50 µm • pH stability range: 1.5–13.5 • Pressure limit: 8 bar • Linear flow rate: >500 cm/hr • >75% removal of anti-A and anti-B			**Anti-A** 10 mL 100 mL 500 mL 5 L **Anti-B** 10 mL 100 mL 500 mL 5 L	 **1200940010** **1200940100** **1200940500** **1200945000** **1200950010** **1200950100** **1200950500** **1200955000**
	Eshmuno® Fit Custom Affinity Resin Development Services Base matrix: Hydrophilic Polyvinyl Ether	Custom ligand based on Nanofitin®* technology	• Custom affinity resins for vaccines or other difficult-to-purify molecules	• Particle size d_{50}: 50 or 90 µm Designed during the development stage			Custom	Custom

* Nanofitin® is a registered trademark of Affilogic.

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Strong anion exchangers (AEX)	**Eshmuno® Q resin** Base matrix: Hydrophilic Polyvinyl Ether	TMAE Trimethylammoniumethyl	• Flow through polishing of mAbs • Purification of viral vectors • Nucleic acid, endotoxin and virus removal • Good separation at high flow rates • Plasmid DNA capture	• Mean particle size d_{50}:85 µm • Protein binding capacity: ~150 mg BSA/ml of gel • pH stability range (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~1000 cm/h <2.5 bar net pressure	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250650001** **1250740001** **1251330001** **1251410001**	10 mL 100 mL 500 mL 5 L	**1200790010** **1200790100** **1200790500** **1200795000**
	Fractogel® EMD TMAE (M) resin Base matrix: Methacrylate		• Protein purification • DNA, virus and endotoxin removal • Plasmid and vaccine production • Efficient separation of closely related species	• Particle size: 40–90 µm • Protein binding capacity: ~100 mg BSA/mL of gel • pH stability range (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~240 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250540001** **1250690001** **1250840001** **1251360001**	10 mL 100 mL 500 mL 5 L	**1168810010** **1168810100** **1168810500** **1168815000**
	Fractogel® EMD TMAE Hicap (M) resin Base matrix: Methacrylate			• Particle size: 40–90 µm • Protein binding capacity: ~180 mg BSA/mL of gel • pH stability range (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~180 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250550001** **1250700001** **1250850001** **1251370001**	10 mL 100 mL 500 mL 5 L	**1103160010** **1103160100** **1103160500** **1103165000**
	Fractogel® EMD TMAE Medcap (M) resin Base matrix: Methacrylate			• Particle size: 40–90 µm • Protein binding capacity: ~150 mg BSA/mL of gel • pH stability range (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~180 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250560001** **1250780001** **1251440001** **1251500001**	10 mL 100 mL 500 mL 5 L	**1168850010** **1168850100** **1168850500** **1168855000**
	Natrix® Q membrane adsorber Base matrix: Porous polyacrylamide	Quaternary amine	• Flow through polishing of mAb feeds • Removal of endotoxins, viruses, HCP and nucleic acids • Very rapid and high loading capacities compared to resins • Plasmid DNA capture	• Nominal pore size: 0.4 µm • Protein binding capacity: >200 mg BSA/mL of membrane • Flow rate: 5–25 membrane volume per minute (2.4–12 seconds residence time) • Pressure limit: 5 bar	**Natrix® Q Micro (0.2 mL)** **Natrix® Q Pilot (15 mL)** **Natrix® Q Process 150 (115 mL)** **Natrix® Q Process 600 (460 mL)**	**NXF-00** **NXF-10** **NXF-20** **NXF-50**		

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Weak anion exchangers (AEX)	**Fractogel® EMD DEAE (M) resin** Base matrix: Methacrylate	DEAE Diethylaminoethyl	• Protein purification • Plasma and vaccine production • Plasmid DNA intermediate purification or polishing • Fine separations of closely related species	• Particle size: 40–90 µm • Protein binding capacity: ~100 mg BSA/mL of gel • pH stability range (working): 2–13 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~170 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250580001** **1250790001** **1251450001** **1251510001**	10 mL 100 mL 500 mL 5 L	**1168830010** **1168830100** **1168830500** **1168835000**
	Fractogel® EMD DMAE (M) resin Base matrix: Methacrylate	DMAE Dimethylaminoethyl	• Protein purification • Plasma and vaccine production • Plasmid DNA intermediate purification or polishing • Fine separations of closely related species	• Particle size: 40–90 µm • Protein binding capacity: ~100 mg BSA/mL of gel • pH stability range (working): 2–13 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~170 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250590001** **1250800001** **1251460001** **1251520001**	10 mL 100 mL 500 mL 5 L	**1168840010** **1168840100** **1168840500** **1168845000**
Strong cation exchangers (CEX)	**Eshmuno® CPX resin** Base matrix: Hydrophilic Polyvinyl Ether	SO_3 Sulfoisobutyl	• Intermediate or polishing purification of mAbs or other recombinant proteins • High mAb aggregate removal efficiency and high dynamic binding capacity • Separation of monoclonal antibodies variants (e.g. charge and glycovariants) • Wide pH and conductivity operating window	• Mean particle size d_{50}: 50 µm • Protein binding capacity: ~120 mg lysozyme/mL of gel • pH stability (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~500 cm/h (<3.0 bar net pressure)	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1251560001** **1251570001** **1251580001** **1251590001**	10 mL 100 mL 500 mL 5 L	**1200830010** **1200830100** **1200830500** **1200835000**
	Eshmuno® CP-FT resin Base matrix: Hydrophilic Polyvinyl Ether		• Frontal mode purification of mAbs • Removal of aggregates • Frontal mode operation enables very high loading capacities	• Mean particle size d_{50}: 50 µm • Protein binding capacity: ~80 mg lysozyme/mL of gel • pH stability (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~400 cm/h (<3.0 bar net pressure)	**MiniChrom Columns:** 0.2 mL (5 × 10 mm) 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1251700001** **1251680001** **1251690001** **1251710001** **1251720001**	10 mL 100 mL 500 mL 5 L	**1200930010** **1200930100** **1200930500** **1200935000**

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Strong cation exchangers (CEX)	**Eshmuno® CPS resin** Base Matrix: Hydrophilic Polyvinyl Ether	SO_3 Sulfoisobutyl	• Intermediate or polishing purification of recombinant proteins • Salt tolerant	• Mean Particle Size d_{50}: 50 µm • Protein binding capacity: ~160 mg lysozyme/mL of gel • pH stability (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~500 cm/h (<3.0 bar net pressure)	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1251640001** **1251650001** **1251660001** **1251670001**	10 mL 100 mL 500 mL 5 L	**1200840010** **1200840100** **1200840500** **1200845000**
	Fractogel® EMD SO_3- (M) resin Base matrix: Methacrylate		• Capture, intermediate purification or polishing of recombinant proteins • Separation of mAb aggregates, HCP and virus removal	• Particle size: 40–90 µm • Protein binding capacity: ~130 mg lysozyme/mL of gel • pH stability range (working): 1–13 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~200 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250610001** **1250720001** **1250900001** **1251390001**	10 mL 100 mL 500 mL 5 L	**1168820010** **1168820100** **1168820500** **1168825000**
	Fractogel® EMD SE Hicap (M) resin Base matrix: Methacrylate	SO_3 Sulfoethyl	• Capture, intermediate purification or polishing of recombinant proteins • High dynamic binding capacity	• Particle size: 40–90 µm • Protein binding capacity: ~160 mg lysozyme/mL of gel • pH stability range (working): 1–13 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~220 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250600001** **1250810001** **1251470001** **1251530001**	10 mL 100 mL 500 mL 5 L	**1148940010** **1148940100** **1148940500** **1148945000**

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Weak cation exchangers (CEX)	**Fractogel® EMD COO- (M) resin** Base matrix: Methacrylate	COO- Carboxyethyl	• Capture, intermediate purification or polishing of recombinant proteins • Fine separations of closely related species, including difficult to remove mAb aggregates and variants	• Particle size: 40–90 µm • Protein binding capacity: ~100 mg lysozyme/mL of gel • pH stability range (working): 1–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~300 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250620001** **1250820001** **1251480001** **1251540001**	10 mL 100 mL 500 mL 5 L	**1168860010** **1168860100** **1168860500** **1168865000**
Mixed-mode cation exchange media (CEX)	**Eshmuno® CMX** Base matrix: Hydrophilic Polyvinyl Ether	COO-(weak cation exchange) and alkyl-functional groups	• ADC DAR variant separation • Bispecific mAb purification and polishing • High selectivity for difficult to separate species	• Mean particle size d_{50}: 50 µm • Protein binding capacity: 60 mg pIgG/mL packed resin • pH stability range (working): 2–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to 300 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1251850001** **1251860001** **1251870001** **1251880001**	10 mL 100 mL 500 mL 5 L	**1206500010** **1206500100** **1206500500** **1206505000**
CEX High salt-tolerant (mixed mode chromatography)	**Eshmuno® HCX resin** Base matrix: Hydrophilic Polyvinyl Ether	Sulfo + carboxy + phenyl	• Removal of challenging contaminants in bind-and-elute or flow through mode	• Mean particle size d_{50}: 85 µm • Protein binding capacity: ~50 mg pIgG/mL of gel • pH stability range (working): 2–12 • pH stability range (CIP): 2–14 • Pressure limit: 8 bar • Linear flow rate: up to ~1000 cm/h (<2.5 bar net pressure)	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250660001** **1250750001** **1251340001** **1251420001**	10 mL 100 mL 500 mL 5 L	**1200870010** **1200870100** **1200870500** **1200875000**
Immobilized metal affinity chromatography (IMAC)	**Fractogel® EMD Chelate (M) resin** Base matrix: Methacrylate	Iminodiacetic acid	• Capture of his-tagged proteins	• Particle size: 40–90 µm • Protein binding capacity: ~60 mg lysozyme/mL of gel • Metal ion binding capacity: ~75 µmol copper/mL of gel • pH stability range (working): 1–12 • pH stability range (CIP): 0–14 • Pressure limit: 8 bar • Linear flow rate: up to ~240 cm/h	**MiniChrom Columns:** 1 mL (8 × 20 mm) 5 mL (8 × 100 mm) **RoboColumns®:** 0.2 mL (5 × 10 mm) 0.6 mL (5 × 30 mm)	 **1250630001** **1250830001** **1251490001** **1251550001**	10 mL 100 mL 250 mL 500 mL 5 L	**1103380010** **1103380100** **1103380250** **1103380500** **1103385000**
Mixed-mode cation exchange	**Natrix® CH membrane devices** Base matrix: Macroporous Polymer	Sulfonic acid and t-butyl	• Purification of mAbs • Capable of operating in frontal mode • Very rapid and high loading capacity compared to resins • Efficient aggregates removal	• Nominal pore size: 1 µm • Protein binding capacity: >90 mg Lysozyme/mL of membrane • Flow rate: ≤10 MV/min	**Natrix® CH Micro (1 mL) (2/pack)** **Natrix® CH Micro (1 mL) (10/pack)** **Natrix® CH Bench (8.8 mL)** **Natrix® CH Process (372 mL)**	**NXCH002MCR** **NXCH010MCR** **NXCH001BEN** **NXCH001PR0**		

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Normal-phase and reversed-phase chromatography	**PharmPrep™ P100 sorbent** Base matrix: Spherical silica gel particles	Si100, 10 µm, 20 µm RP-18e, 10 µm, 20 µm RP-8e, 10 µm	• Peptides (insulin), APIs, antibiotics, intermediates	• Spherical high-performance sorbent • Mean pore size: 10 nm • Pressure PharmPrep™ P Si100 ≤25 bar (10 µm), ≤10 bar (20 µm) • Pressure PharmPrep™ P100 RP-18e ≤40 bar (10 µm), ≤25 bar (20 µm) • Pressure PharmPrep™ P100 RP-8e ≤40 bar (10 µm)	**Hibar® RT 250 × 4.6 mm Scout columns** PharmPrep™ P100 RP-18e, 10 µm PharmPrep™ P100 RP-18e, 20 µm PharmPrep™ P100 RP-8e, 10 µm PharmPrep™ P100 RP-8e, 10 µm, 3 pieces **HIBAR® columns 250 × 25 mm*** PharmPrep™ P100 RP-18e, 10 µm PharmPrep™ P100 RP-18e, 20 µm PharmPrep™ P100 RP-8e, 10 µm	**1205710001** **1205720001** **1205940001** **1205940003** **1205730001** **1205740001** **1205880001**	PharmPrep™ P Si100, 10 µm PharmPrep™ P Si100, 20 µm PharmPrep™ P100 RP-18e, 10 µm PharmPrep™ P100 RP-18e, 20 µm PharmPrep™ P100 RP-8e, 10 µm Validation kit (3 × 100 g) PharmPrep™ P100 RP-8e, 10 µm Validation kit PharmPrep™ P100 RP-18e, 10 µm Validation kit PharmPrep™ P100 RP-18e, 20 µm	**119681** **119682** **119995** **119996** **119132** **1191320003** **1199950003** **1199960003**
	LiChroprep® sorbent Base matrix: Irregular-shaped silica gel particles	Si60, RP-8, RP-18	• APIs, antibiotics, steroides, intermediates, natural products	• Irregular-shaped silica gel particles • 15–25 µm, 25–40 µm, 40–63 µm • Mean pore size of RP-18, RP-8: 10 nm • Mean pore size of Si60: 6 nm	**Ready to use columns for preparative chromatography** HIBAR® prepacked columns 250 × 25 mm	On demand	LiChroprep® sorbent Si60, 15–25 µm LiChroprep® sorbent Si60, 25–40 µm LiChroprep® sorbent Si60, 40–63 µm LiChroprep® sorbent RP-8, 40–63 µm LiChroprep® sorbent RP-18, 15–25 µm LiChroprep® sorbent RP-18, 25–40 µm LiChroprep® sorbent RP-18, 40–63 µm	**109336** **109390** **113905** **109362** **113901** **109303** **113900**

Notes: Normal/reversed phase chromatography resins and silica gel cat. no. needs to be complemented by the 4-digit volume indication: 10 g: 0010; 100 g: 0100; 1000 g: 1000; 5000 g: 5000.
Aluminium oxide: cat. no. needs to be complemented by the 4-digit volume indication. 1 kg: 1000; 2 kg: 2000; 5 kg: 5000; 20 kg: 9020; 50 kg: 9050.

Media Type	Product Description	Ligand	Application/Benefits	Product Characteristics	Prepacked columns/Devices	Cat. No.	Bulk Media	Cat. No.
Normal phase/reversed phase chromatography and silica gel	**Silica gel** Base matrix: Irregular-shaped silica gel particles	Si60, Silanized	• Natural ingredients, vitamins, fine chemicals	• For normal-phase chromatography, filtration, flash chromatography • Particle size: 15–40 µm 35–70 µm 40–63 µm 63–200 µm 200–500 µm • Mean pore size: 6 nm	**Ready to use columns for preparative chromatography** HIBAR® prepacked columns 250 × 25 mm	On demand	Silica gel Si60, 15–40 µm Silica gel Si60, 40–63 µm Silica gel Si60, 63–100 µm Silica gel Si60, 63–200 µm Silica gel Si60 silanized, 63–200 µm Silica gel Si60 extra pure, 63–200 µm Silica gel Si60, 200–500 µm	**115111** **109385** **115101** **107734** **107719** **107754** **107733**
	Aluminium oxide Base matrix: Irregular-shaped aluminium oxide particles	≥60 active basic, ≥90 active acidic, 90 active neutral, 90 active basic, 90 standardized, 150 basic	• Intermediates, antibiotics, removal of polar organic compounds, fine chemicals	• For normal-phase chromatography • High pH stability in the alkaline range. Anion and cation properties • Mean pore size: 6 nm/9 nm/15 nm **Activity grades according to Brockmann** • Activity grade I: Aluminium oxide 60, active basic Aluminium oxide 90, active basic Aluminium oxide 90 active neutral Aluminium oxide 90, active acidic • Activity grade I–II: Aluminium oxide 150, basic • Activity grade II–III: Aluminium oxide 90, standardized			Aluminium Oxide 60, active basic, 63–200 µm Aluminium Oxide 90, active acidic, 63–200 µm Aluminium Oxide 90, active neutral, 63–200 µm Aluminium Oxide 90, active basic, 63–200 µm Aluminium Oxide 90, standardized, 63–200 µm Aluminium Oxide 150, basic, 63–200 µm	**101067** **1, 2 kg** **101078** **1, 2, 20 kg** **101077** **1, 2, 20 kg** **101076** **1, 2, 20 kg** **101097** **1, 5, 20, 50 kg** **101061** **1, 2 kg**

Notes: Normal/reversed phase chromatography resins and silica gel cat. no. needs to be complemented by the 4-digit volume indication: 10 g: 0010; 100 g: 0100; 1000 g: 1000; 5000 g: 5000.
Aluminium oxide: cat. no. needs to be complemented by the 4-digit volume indication. 1 kg: 1000; 2 kg: 2000; 5 kg: 5000; 20 kg: 9020; 50 kg: 9050.

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