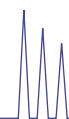


YMC-BioPro® Ion Exchange Columns & Bulk Resin



YMC

YMC-BioPro IEX is a family of ion exchange (IEX) columns and bulk resins for analytical separations to benchtop and process/pilot-scale purifications of proteins, peptides, oligonucleotides, and other biomolecules. BioPro IEX is based on a novel hydrophilic polymethacrylate bead which exhibits very low non-specific adsorption and may therefore reduce the need for organic solvents in the mobile phase.

Column Features:

- Specially designed for separation of proteins, peptides, and oligonucleotides
- Non-porous columns: Highly efficient high-resolution
- Porous columns: Ideal for analysis and lab-scale purification with high binding capacity and high recovery of biomolecules
- Ideal for discovery and development of applications for easy transfer to downstream and quality control



Column Specifications

IEX Type	Strong Anion Exchange (SAX)			Strong Cation Exchange (SCX)		
Charged Group	$-\text{CH}_2\text{N}^+(\text{CH}_3)_3$			$-\text{CH}_2\text{CH}_2\text{CH}_2\text{SO}_3^-$		
Product Name	BioPro IEX QA	BioPro IEX QF		BioPro IEX SP	BioPro IEX SF	
Porosity	Porous	Non-porous		Porous	Non-porous	
pH Range	2-12	2-12		2-12	2-12	
Particle Size	5 μm	3 μm , 5 μm	6 μm	5 μm	3 μm , 5 μm	6 μm
Available Column Formats	PEEK Hardware (Analytical)	PEEK Hardware (Analytical)	Stainless Steel Hardware (Prep)	PEEK Hardware (Analytical)	PEEK Hardware (Analytical)	Stainless Steel Hardware (Prep)

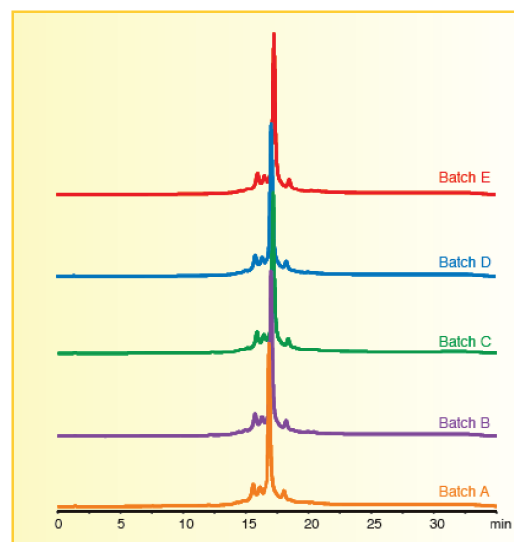
For specific part numbers and pricing, visit our website, reach out to your local rep, or call our customer service team.

Excellent batch-to-batch reproducibility

YMC's attention to the details of particle and stationary phase synthesis creates chromatography materials that offer outstanding reproducibility. Column-to-column and lot-to-lot reproducibility combine with low non-specific adsorption to produce YMC-BioPro IEX columns and bulk media that offer consistent retention, separation, and recovery.

Column:	YMC-BioPro IEX SF 5 μm , 100 x 4.6 mm ID
Eluent:	A) 20 mM NaH_2PO_4 - Na_2HPO_4 (pH 6.5) B) 20 mM NaH_2PO_4 - Na_2HPO_4 (pH 6.5) containing 0.2 M NaCl 0-50 % B (0.5-30 min)
Flow rate:	0.5 mL/min (180 cm/hr)
Temperature:	25 °C
Detection:	UV at 215 nm
Injection:	10 μL
Sample:	Humanized monoclonal IgG1

Batch-to-batch reproducibility makes YMC-BioPro IEX ideal for method validation.

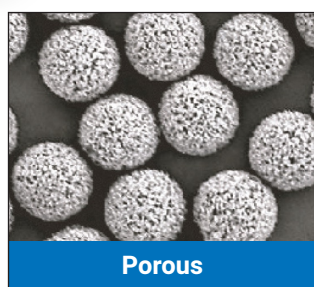
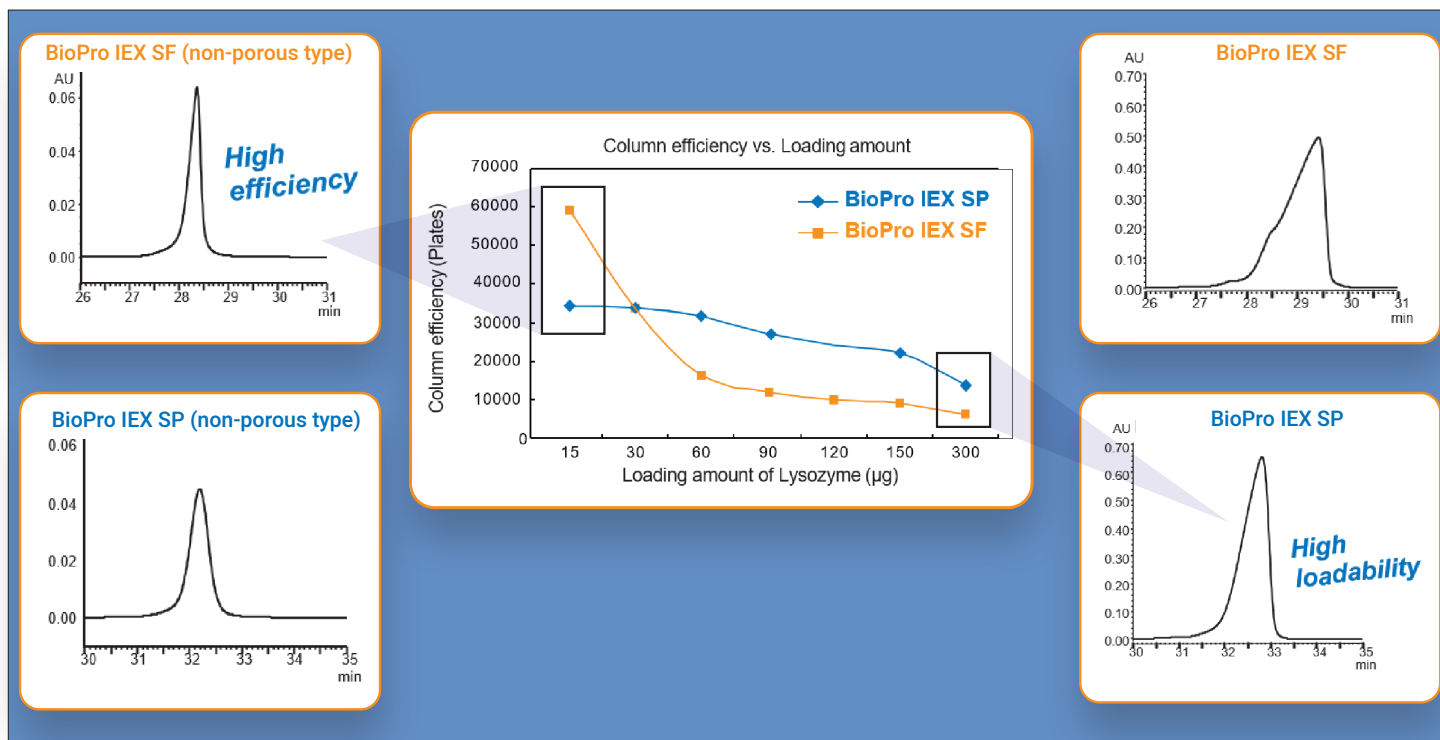


Leveraging high loadability and outstanding efficiency

YMC-BioPro IEX SF (non-porous) offers outstanding column efficiency. Columns packed with this resin are ideal for high-throughput analytical separations requiring high resolution.

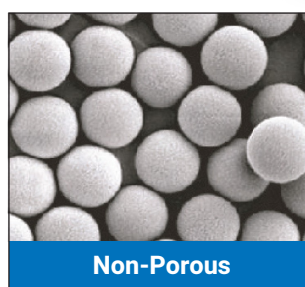
YMC-BioPro IEX SP (porous) maintains good peak shape even when the loading amount increases. These columns are useful for high-load analytical separations and laboratory-scale purification.

Eluent:	A) 20 mM NaH ₂ PO ₄ -Na ₂ HPO ₄ (pH 6.8) B) 20 mM NaH ₂ PO ₄ -Na ₂ HPO ₄ (pH 6.8) containing 0.2 M NaCl 0-100 % B (0-60 min)
Flow rate:	0.5 mL/min
Temperature:	25 °C
Detection:	UV at 280 nm
Injection:	100 µL



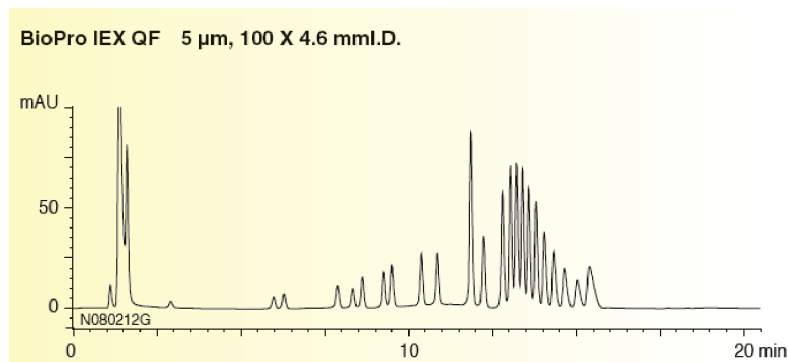
Porous

SEM



Non-Porous

High solution analysis of oligonucleotides



As shown by this separation of DNA fragments, the BioPro IEX QF column in 100 mm length is a strong choice for high-resolution analysis of oligonucleotides.

Eluent:	A) 20 mM Tris-HCl (pH 8.1) containing 0.7 M NaCl B) 20 mM Tris-HCl (pH 8.1) containing 1.0 M NaCl 0-100 % B (0-30 min)
Flow rate:	0.5 mL/min (180 cm/hr)
Temperature:	25 °C
Detection:	UV at 260 nm
Injection:	20 µL (0.25 mg/mL)

DNA fragments 1Kb DNA ladder (75-12,216 bp)

YMC-BioPro® IEX Q/S and IEX SmartSep Q/S

YMC-BioPro IEX SmartSep Q/S, which show high resolution and recovery even at a high flow rate and high loading condition, are suitable for an intermediate purification step and a polishing step of mAbs, proteins, peptides, and oligonucleotides.

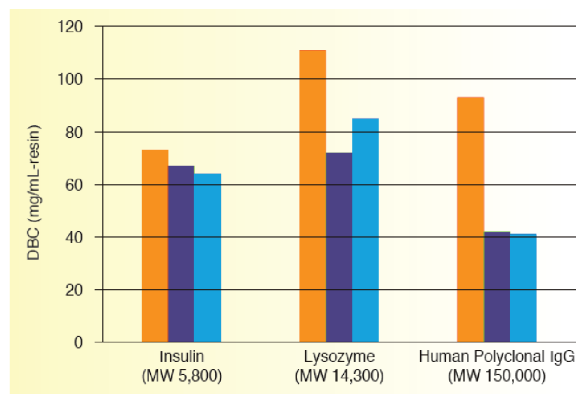
YMC-BioPro IEX Q/S are designed for capture and intermediate purification of biopharmaceuticals.

Bulk Resin Features:

- Suitable for purification of antibodies, proteins, and oligonucleotides
- Hydrophilic polymethacrylate beads with low nonspecific adsorption
- Strong mechanical stability
- High binding capacity and high resolution over a wide range of flow rates
- Usable pH range: 2-12
- Available in 10 µm, 20 µm, 30 µm, and 75 µm particle sizes



High dynamic binding capacity (DBC) for various samples



- BioPro IEX SmartSep S30
- Brand T (porous S type 30 µm)
- Brand G (porous S type 30 µm)

BioPro IEX media have higher DBC compared to conventional ion exchange media. This is especially true for IgG, for which the DBC of BioPro IEX media is more than twice as high as competitors' resins. This feature of BioPro IEX media makes purification productivity of IgG per unit of time double or more.

Conditions of DBC measurement*	
Column:	50 x 5.0 mm ID
Flow rate:	400 cm/hr (1.32 mL/min)
Temperature:	25 °C
Detection:	UV at 215 nm

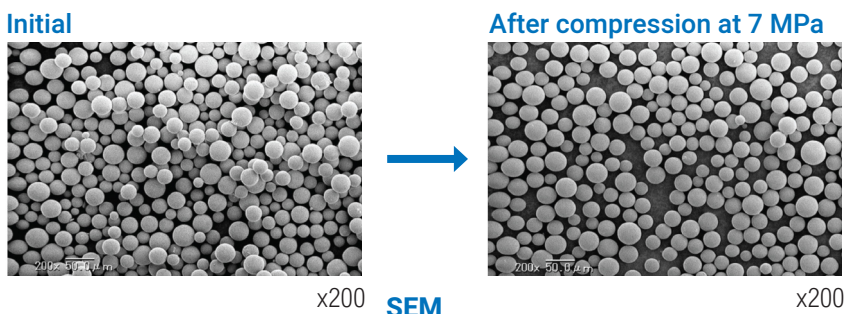
*Inquire for details.

	Particle Size (µm)	DBC (mg/mL-resin, 10 % breakthrough)		
		Insulin	Lysozyme	Human Polyclonal IgG
YMC-BioPro IEX SmartSep S30	30	73	111	93
Brand T (porous S type)	30	67	72	42
Brand G (porous S type)	30	64	85	41

High mechanical stability

With a recommended range of 2 MPa (20 bar) or less for regular use and an upper limit of 3 MPa (30 bar), 30 µm YMC-BioPro IEX SmartSep resin boasts a pressure tolerance that is significantly higher than that of competing resins.

These images show the impressive results of a mechanical stability test in which the material was put under 7 MPa (70 bar) compression for five minutes.



Ordering Information

YMC-BioPro IEX resin in 10-75 µm particle sizes can be purchased in bulk format in mL and L quantities as well as prepacked screening kits and MiniChrom columns. If you need assistance determining which option is right for your method, please reach out to your local rep or our customer service team.

Bulk Resin

IEX Type	Strong Anion Exchange (SAX)				Strong Cation Exchange (SCX)			
Charged Group	-R-N ⁺ (CH ₃) ₃				-R-SO ₃ ⁻			
Product	BioPro IEX SmartSep Q			BioPro IEX Q	BioPro IEX SmartSep S			BioPro IEX S
pH Range	2-12			2 - 12	2-12			2-12
Particle Size	10 µm	20 µm	30 µm	7.5µm	10 µm	20 µm	30 µm	75 µm
Rec. Pressure Range	Up to 3 MPa	Up to 2 MPa		0.3 MPa	Up to 3 MPa	Up to 2 MPa		0.3 MPa
-Upper Limit	4 MPa	3 MPa			4 MPa	3 MPa		
Part Numbers	QSA0S10	QSA0S20	QSA0S30	QAA0S75	SSA0S10	SSA0S20	SSA0S30	SPA0S75



YMC-BioPro IEX Screening Kits contain five cartridges, each packed with 1 mL or 5 mL of 20 µm, 30 µm, or 75 µm BioPro resin. These kits are ideal for media screening, development of purification methods, and loadability studies.



Screening Kits

Strong Anion Exchange (SAX)		1 mL Kit	5 mL Kit
BioPro IEX SmartSep Q	20 µm	BPQSA0S20-01PK	BPQSA0S20-05PK
	30 µm	BPQSA0S30-01PK	BPQSA0S30-05PK
BioPro IEX Q	75 µm	BPQAA0S75-01PK	BPQAA0S75-05PK
BioPro IEX SmartSep S	20 µm	BPSSA0S20-01PK	BPSSA0S20-05PK
	30 µm	BPSSA0S30-01PK	BPSSA0S30-05PK
BioPro IEX S	75 µm	BPSPA0S75-01PK	BPSPA0S75-05PK

MiniChrom® BioPro Columns

Packing Material		Column Volume & Dimensions		
		1 mL Kit	5 mL Kit	5 mL Kit
BioPro IEX SmartSep Q	20 µm	QSA0S20-0208AT	QSA0S20-1008AT	QSA0S20-10K3AT
	30 µm	QSA0S30-0208AT	QSA0S30-1008AT	QSA0S30-10K3AT
BioPro IEX Q	75 µm	QAA0S75-0208AT	QAA0S75-1008AT	QAA0S75-10K3AT
BioPro IEX SmartSep S	20 µm	SSA0S20-0208AT	SSA0S20-1008AT	SSA0S20-10K3AT
	30 µm	SSA0S30-0208AT	SSA0S30-1008AT	SSA0S30-10K3AT
BioPro IEX S	75 µm	SPA0S75-0208AT	SPA0S75-1008AT	SPA0S75-10K3AT

*MiniChrom is a registered trademark of Repligen Corporation

MiniChrom® BioPro columns are polypropylene LC columns packed with YMC-BioPro IEX stationary phase material. These columns are designed for operating conditions up to 30 °C and 30 bar (435 psi). They are useful for bench-scale resin cleaning and method development, sample cleaning, sample prep/cleanup, bind-and-recover sample purification, and flow-through purification.

