

What are MiniChrom® BioPro columns?

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).

MiniChrom BioPro columns are available in three sizes, making them suitable for use in a variety of purification applications and for resin/ method scouting. YMC-BioPro IEX resin may be either quaternary amino SAX (BioPro Q) or sulfobutyl SCX (BioPro S).

How can I use MiniChrom BioPro columns?

Typically packed with 30µm or 75µm IEX particles, MiniChrom BioPro columns are useful for:

- Bench-scale resin screening and method development
- Bench-scale sample cleaning
- Bench-scale sample prep/cleanup
- Bind-and-recover sample purification
- Flow-through purification

For applications requiring higher resolution and efficiency, MiniChrom BioPro columns are also available packed with 20 µm particles.

What types of samples are suited for MiniChrom BioPro columns?

YMC-BioPro IEX Q is a strong anion exchanger (SAX), while YMC-BioPro IEX S is a strong cation exchanger (SCX). These phases are well-suited for IEX separations of peptides, intact proteins, mAbs and other antibodies, nucleotides, nucleosides, and other biomolecules.

- YMC-BioPro IEX phases demonstrate high dynamic binding capacity (DBC) regardless of flow rate.
- YMC-BioPro IEX also exhibits superior resolution, low non-specific adsorption (secondary interactions), and high recovery
- High loadability and excellent recovery characteristics make YMC-BioPro IEX useful for biomolecule purifications.

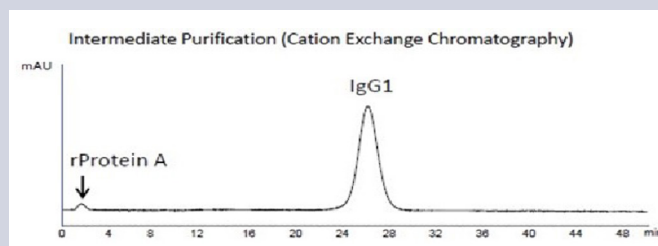
Are MiniChrom BioPro columns compatible with my LC system?

YES. The columns use 1/16 inch tubing with finger-tight 10-32 female fittings. Maximum working pressure is 30 bar (435 psi). Any low pressure pump or MPLC system will perform well, as will most typical HPLC systems.

Suitable for intermediate purification and polishing step

Purification of IgG1 (Anti-h TNF alpha IgG1)

This is an example of an IgG1 monoclonal antibody that was purified from cell culture media using BioPro IEX SmartSep S30. In general, the purification of antibody starts with clarification. After clarification, the sample is subjected to initial purification (capture step) using affinity chromatography (rProtein A), followed by ion exchange chromatography. In the capture step, rProtein A derived from the affinity media contaminated the eluate, which was then separated and removed during ion exchange chromatography.



Column	50 x 5.0 mm ID
Eluent	A) 20 mM citric acid-NaOH (pH 5.3) B) 20 mM citric acid-NaOH (pH 5.3) containing 0.5 M NaCl 0-100 %B (0-30 column volumes)
Flow Rate	180 cm/hr (0.59 mL/min)
Temperature	Ambient
Detection	UV at 280 nm
Sample	Anti-hTNFalpha IgG1 (Affinity column eluate)
Injection	0.25 mL (0.1 mg IgG1)



Comparison of Recovery of Proteins	Recovery (99% Purity)			
	Ribonuclease A	Cytochrome c	Lysozyme	Total
BioPro IEX SmartSep S30	90.94%	80.33%	99.18%	90.64%
Brand T (Porous S type, 30 µm)	80.64%	59.60%	98.28%	80.08%
Brand G (Porous S type, 30 µm)	72.46%	70.22%	97.16%	80.20%

How rugged are MiniChrom BioPro columns?

YMC-BioPro IEX SmartSep Q/S and IEX Q/S materials are extremely durable. BioPro IEX phases are stable at any pH from 2-12 and are suitable for rigorous cleaning-in-place (CIP) protocols.

The polypropylene column itself is suitable for use at any pH (1-14) and is compatible with aqueous buffers and organic solvents (use of halogenated solvents and hexane should be avoided).

MiniChrom BioPro columns can be used, cleaned, stored, and re-used in a different application.





EX Type	Strong Anion Exchange (SAX)		
Charged Group	-R-N+(CH ₃) ₃		
Product	BioPro IEX SmartSep Q	BioPro IEX Q	
pH Range	2 - 12		2 - 12
Particle Size	20 µm	30 µm	75 µm
EX Type	Strong Cation Exchange (SCX)		
Charged Group	-R-SO ₃ -		
Product	BioPro IEX SmartSep S	BioPro IEX S	
pH Range	2 - 12		2 - 12
Particle Size	20 µm	30 µm	75 µm

Are MiniChrom BioPro columns scalable?
Scalability is a core competency at YMC!

MiniChrom BioPro columns are intended for bench-scale scouting, method development, or purification:

- YMC-BioPro IEX Q/S and SmartSep IEX Q/S are available in larger scale columns.
- YMC-BioPro IEX phases are also available in smaller particle diameters for high resolution analytical HPLC.
- YMC offers BioPro Screening Kits in 1ml and 5ml sizes for crude purifications or for retain-and-elute (bind-and-recover) applications using hand-held syringes.
- YMC-BioPro IEX Q/S and SmartSep IEX Q/S resins are also available in bulk packages (mL/ L) for self-packing in columns by the end-user.
- YMC supplies glass columns and stainless steel columns in a variety of sizes and configurations.
- Finally, YMC offers preparative manufacturing-scale LC hardware systems in standard and custom configurations.

MiniChrom BioPro columns are just one part of a family of BioPro solutions targeting successful development and scale-up of purification methods for biomolecules.

	Bulk Resin mL/ L quantities for self-packing
	BioPro Screening Kit Prepacked cartridges (1 mL & 5 mL)
	MiniChrom® Prepacked columns in three sizes & volumes
	Analytical Columns Prepacked PEEK columns - 4.6 mm ID, various lengths

MiniChrom® BioPro Ordering Information

Packing Material		Column Volume & Dimensions		
		1 mL, 8 x 20 mm	5 mL, 8 x 100 mm	10 mL, 11.3 x 100 mm
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

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