

## 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 20µm 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.

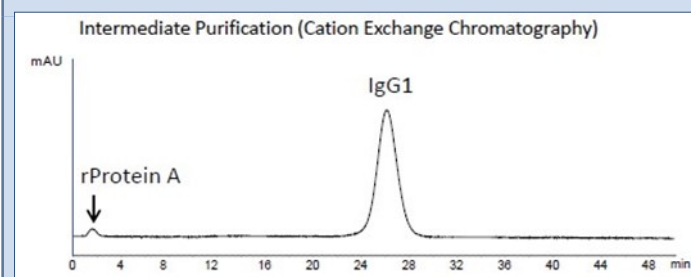
## Are MiniChrom BioPro columns compatible with my LC system?

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 I.D.
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, 30µm)	80.64%	59.60%	98.28%	80.08%
Brand G (Porous S type, 30µm)	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.

## 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.

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

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

## MiniChrom® BioPro Ordering Information

Packing Material		Column Volume & Dimensions		
		1mL, 8x20mm	5mL, 8x100mm	10mL, 11.3x100mm
BioPro IEX SmartSep Q	20µm	QSA0S20-0208AT	QSA0S20-1008AT	QSA0S20-10K3AT
	30µm	QSA0S30-0208AT	QSA0S30-1008AT	QSA0S30-10K3AT
BioPro IEX Q	75µm	QAA0S75-0208AT	QAA0S75-1008AT	QAA0S75-10K3AT
BioPro IEX SmartSep S	20µm	SSA0S20-0208AT	SSA0S20-1008AT	SSA0S20-10K3AT
	30µm	SSA0S30-0208AT	SSA0S30-1008AT	SSA0S30-10K3AT
BioPro IEX S	75µm	SPA0S75-0208AT	SPA0S75-1008AT	SPA0S75-10K3AT

\*MiniChrom is a registered trademark of Repligen Corporation



**Regional Office-USA:**  
YMC America, Inc.  
8 Charlestown Street  
Devens, MA 01434  
Tel: +1 978 487 1100  
www.ymc-america.com  
info@ymc-america.com

**Headquarters: YMC Co., Ltd.**  
YMC Karasuma-Gojo Building  
284 Daigo-cho, Karasuma Nishiiru, Gojo-dori,  
Shimogyo-ku, Kyoto, 600-8106 Japan  
Tel: +81-75-342-4515  
https://www.ymc.co.jp/en/  
sales@ymc.co.jp

**More Regional Offices:**  
<https://ymc.eu/>  
<https://ymcindia.com/>  
<https://www.ymcchina.com/>  
<https://www.ymckorea.com/>  
<https://ymc.sg/>  
<https://ymctaiwan.com/>