

# MiniChrom™ BioPro Columns Packed with YMC BioPro IEX

Another Important Part of Your Method Development, Purification, and Scale-Up Strategy from YMC

## 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 diameters (5, 8, 11.3 mm) and four bed lengths (10, 20, 50, 100 mm) – making them suitable for use in a variety of purification applications and for resin/method scouting.

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 30 micron or 75 micron 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 10 µm or 20 µm particles.

## What types of samples are suited for MiniChrom™ BioPro columns?

YMC BioPro Q is a strong anion exchanger (SAX); YMC BioPro 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 phases demonstrate high dynamic binding capacity (DBC) regardless of flow rate.
- YMC BioPro also exhibits superior resolution, low nonspecific adsorption (secondary interactions), and high recovery
- High loadability and excellent recovery characteristics make YMC BioPro useful for biomolecule purifications.

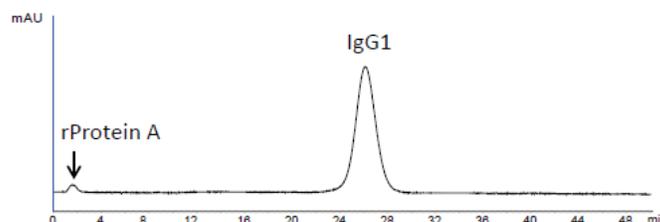


## Suitable for intermediate purification and polishing step

### 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.

Intermediate Purification (Cation 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, 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%

## 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.

**YMC**  
AMERICA, INC.

## How rugged are MiniChrom™ BioPro columns?

YMC BioPro 30 and 75 micron 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 phases are available in larger scale columns.
- YMC BioPro IEX phases are also available in smaller particle diameters for high resolution analytical HPLC.
- YMC BioPro Screening Kits are available in 1 mL and 5 mL sizes for crude purifications or for retain-and-elute (bind-and-recover) applications using hand-held syringes.
- YMC BioPro phases are also available in bulk packages (kg) for self-packing in columns by the end-user.
- YMC also 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.

Specifications		
	Strong Anion Exchanger BioPro SmartSep Q	Strong Cation Exchanger BioPro SmartSep S
Base Material:	Hydrophilic porous polymer (methacrylate)	
Particle Size:	20 & 30µm	
Charged Group:	-R-N+(CH <sub>3</sub> ) <sub>3</sub>	-R-SO <sub>3</sub> <sup>-</sup>
pH Range:	2-12	

Specifications		
	Strong Anion Exchanger BioPro Sep Q	Strong Cation Exchanger BioPro Sep S
Base Material:	Hydrophilic porous polymer (methacrylate)	
Particle Size:	75µm	
Charged Group:	-R-N+(CH <sub>3</sub> ) <sub>3</sub>	-R-SO <sub>3</sub> <sup>-</sup>
pH Range:	2-12	

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

			
<b>Bulk pack</b>	<b>BioPro Screening Kit</b>	<b>MiniChrom™</b>	<b>Analytical Columns</b>
Chromatography resins for self-packing	Prepacked columns (1 mL and 5 mL)	Prepacked columns with different dimensions and volumes	Prepacked PEEK columns 50 x 4.6 mm ID 100 x 4.6 mm ID

## Ordering Information: (partial listing, contact YMC for other sizes)

Packing	Column Dimensions	Column Volume	Part Number
Biopro Q30	8 mm id x 100 mm	5ml	QSA0S30-1008AT
Biopro Q30	11.3 mm id x 100 mm	10ml	QSA0S30-10K3AT
Biopro S30	8 mm id x 100 mm	5ml	SSA0S30-1008AT
Biopro S30	11.3 mm id x 100 mm	10ml	SSA0S30-10K3AT
Biopro Q75	8 mm id x 100 mm	5ml	QAA0S75-1008AT
Biopro Q75	11.3 mm id x 100 mm	10ml	QAA0S75-10K3AT
Biopro S75	8 mm id x 100 mm	5ml	SPA0S75-1008AT
Biopro S75	11.3 mm id x 100 mm	10ml	SPA0S75-10K3AT

### Worldwide Availability

YMC Co., LTD.  
www.ymc.co.jp

YMC Europe GmbH  
www.ymc.de

YMC Switzerland LLC  
www.ymc-schweiz.ch

YMC Shanghai Rep. Office  
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