

# YMC Solutions for Bioseparations



*YMC offers dozens of different separation chemistries in many different configurations for the separation of biomolecules.*

*Please contact YMC America to discuss the details of your application requirements.*

**YMC**  
**AMERICA, INC.**

[www.ymcamerica.com](http://www.ymcamerica.com)

# YMC-BioPro Ion Exchange Columns & Materials

The **YMC-BioPro** family of Ion Exchange (IEX) columns and materials includes SP (strong cation exchange) and QA (strong anion exchange) chemistries on a novel, newly developed hydrophilic polymer with low non-specific adsorption.

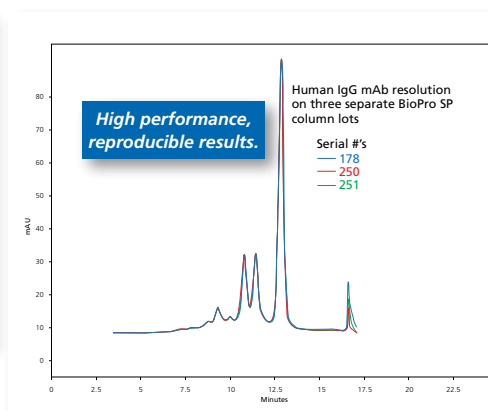
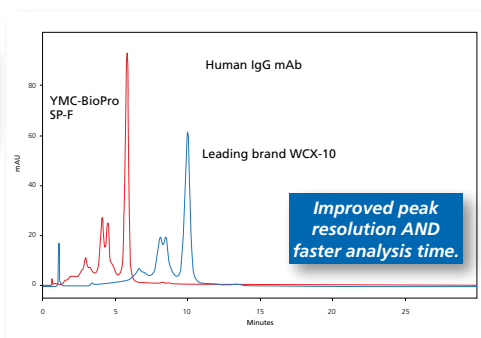
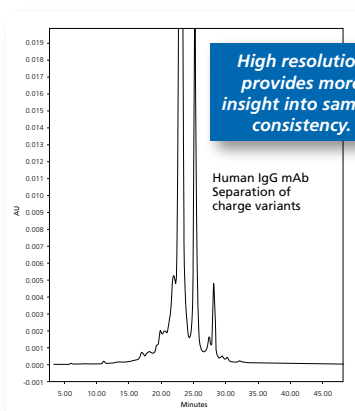
**YMC-BioPro IEX** Columns are available on 5 µm porous (QA and SP columns) and non-porous (QA-F and SP-F columns) types packed in biocompatible PEEK column housings in a variety of dimensions. In addition, 30 µm and 75 µm particles are available for preparative scale applications.

All of the **YMC-BioPro IEX** materials are characterized by their speed, reproducibility, and high dynamic binding capacity.

**YMC-BioPro – QA or SP**; porous or non-porous; 5, 30 or 75 µm – is well-suited for a broad range of biomolecule separations.

## YMC-BioPro SP-F for mAb Charge Variant Analyses

In the sample chromatograms shown here, 5 µm non-porous SP-F columns were used for the separation of human IgG mAb charge variants.



- **5 µm particles** present higher resolution compared to larger particles.
- **Non-porous particles** contribute to high speed, leading to faster analysis and higher throughput (e.g., run times as short as 5-7 minutes for monitoring cell culture).
- **Uniformly sized spherical particles** allow lower operating pressure (and in turn, higher flow rates and faster analysis).
- **Unique hydrophilic polymer** produces an SCX material with no non-specific binding – the entire sample is separated and quantified.
- **Covalently bonded SCX Chemistry** is durable & stable, and it exhibits improved resolution of mAb variants compared to competitive WCX and SCX chemistries.

## YMC-BioPro Specifications

	Pre-Packed Columns		Bulk Materials	
	YMC-BioPro QA-F/SP-F	YMC-BioPro QA/SP	YMC-BioPro Q30/S30	YMC-BioPro Q75/S75
<b>Matrix</b>	non-porous polymer beads	porous polymer beads	porous polymer beads	
<b>Dynamic binding capacity (mg/mL-resin)</b>	QA-F : >12 (BSA) SP-F : >10 (IgG)	QA : >110 (BSA) SP : > 70 (IgG)	Q30/Q75 : >160 (BSA) S30/S75 : > 160 (Lysozyme)	
<b>Charged group</b>	QA-F/QA : $-\text{CH}_2\text{N}^+(\text{CH}_3)_3$ SP-F/SP : $-(\text{CH}_2)_3\text{SO}_3^-$		Q30/Q75 : $-\text{CH}_2\text{N}^+(\text{CH}_3)_3$ S30/S75 : $-(\text{CH}_2)_3\text{SO}_3^-$	
<b>Counter Ion</b>	$\text{Cl}^-$ $\text{Na}^+$		$\text{Cl}^-$ $\text{Na}^+$	
<b>Particle size (µm)</b>	5		30	75
<b>pH range</b>	2 - 12			

**YMC's focus on reproducibility from column-to-column & from lot-to-lot enables reliable lab-to-lab and site-to-site results.**

# YMC-Pack Diol Size Exclusion (SEC) Columns

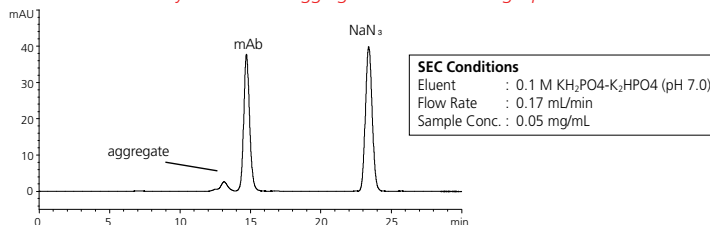
**YMC-Pack Diol-SEC** is a size exclusion chromatography column utilizing a silica gel base. Diol-120, 200, and 300 are suitable for separation or molecular weight determination of proteins with molecular weights of 10,000 to several hundred thousand. Diol-60 is the most suitable for separation of peptides or oligosaccharides whose molecular weights are 10,000 or less.

- Utilizes silica gel base with high resistance to pressure
- Wide range of pore sizes to suit wide range of applications
- Range of column diameters (mm): 2.0, 3.0, 4.6, 6.0, 8.0
- Range of column lengths (cm): 25, 30, 50
- Useful for molecular weight determination of proteins and sugars
- Minimal secondary interactions; low non-specific binding
- Low detectable bleed with light scattering detection
- Cost effective

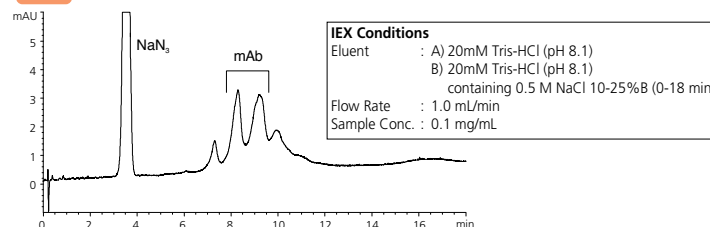
## Comparison of SEC and IEX Separation of mAb

### SEC YMC-Pack Diol-200 5 µm, 300 X 4.6 mm I.D.

*Diol-200 successfully resolved the aggregate from the main IgG peak*



### IEX YMC-BioPro QA-F 5 µm, 30 X 4.6 mm I.D.



**Sample and Common Conditions**  
 Temperature: ambient (25°C)  
 Detection : UV at 220 nm  
 Injection : 10 µL  
 Sample : a commercially available mouse monoclonal IgG1 (Anti-human IgG4) (purified by DEAE chromatography, containing NaN<sub>3</sub>)

# YMC-Pack Pro C18 Reversed-phase Columns

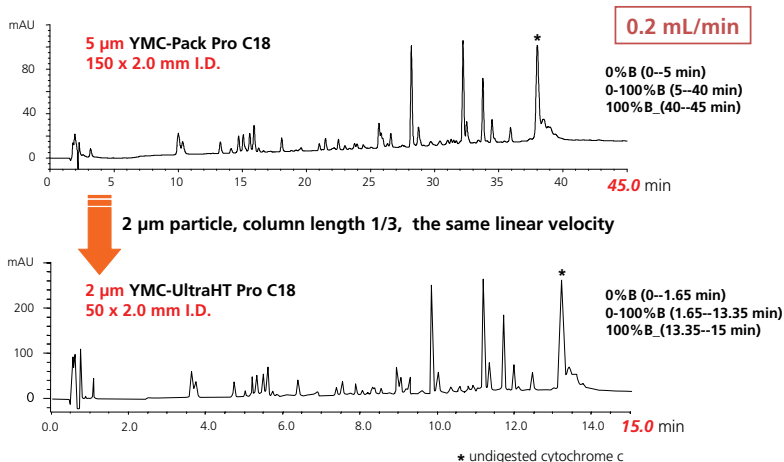
**YMC-Pack Pro C18** uses tightly controlled, highly purified silica as its base, a high-coverage C18 bonding (16%), and a unique end-capping procedure utilizing Lewis acid/Lewis base chemistry. Together, these provide unequalled separations with sharp and symmetrical peaks for all types of organic molecules.

**YMC-Pack Pro C18** is offered in four particle sizes: 2 µm (UltraHT), 3 µm, 5 µm, and 10 µm – methods are easily scaled among the different sizes.

- Highly inert, ultrapure, pH neutral silica
- Extremely rigorous physical and chemical specifications
- Novel Lewis acid/Lewis base end-capping
- Very high efficiency columns
- 120Å pore size
- pH range of 2.0 – 8.0

YMC also offers a number of other C18 and other reversed-phase materials.

## Peptide Mapping



*Biochromatographers know that peptide mapping is a demanding application, and is a true test of resolution and reproducibility. These chromatograms demonstrate the reproducibility/scalability of peptide mapping using 5 µm and 2 µm materials. The use of the 2 µm UltraHT column enables much shorter runtime without loss of resolution.*

YMC America welcomes your inquiry concerning product selection and applicability.  
[www.ymcamerica.com](http://www.ymcamerica.com) - [info@ymcamerica.com](mailto:info@ymcamerica.com) - 610-266-8650

## Ordering Information

### BioPro IEX

Product number	Phase	Pore size(Å)	Particle size(µm)	Length (mm)	I.D. (mm)	Intended Use
SF00S05-0346WP	BioPro SP-F	non-porous	5	30	4.6	fastest analysis
SF00S05-0546WP	BioPro SP-F	non-porous	5	50	4.6	fast analysis, more resolution
SF00S05-1046WP	BioPro SP-F	non-porous	5	100	4.6	fast analysis, best resolution
SPA0S05-0546WP	BioPro SP	1000	5	50	4.6	quick analysis, higher capacity
SPA0S05-1046WP	BioPro SP	1000	5	100	4.6	quick analysis, higher capacity, best resolution
SPA0S30-0546WP	BioPro SP	1000	30	50	4.6	scouting column for polishing
SPA0S75-0546WP	BioPro SP	1000	75	50	4.6	scouting column for capture
QF00S05-0346WP	BioPro QA-F	non-porous	5	30	4.6	fastest analysis
QF00S05-0546WP	BioPro QA-F	non-porous	5	50	4.6	fast analysis, more resolution
QF00S05-1046WP	BioPro QA-F	non-porous	5	100	4.6	fast analysis, best resolution
QAA0S05-0546WP	BioPro QA	1000	5	50	4.6	quick analysis, higher capacity, best resolution
QAA0S30-0546WP	BioPro QA	1000	30	50	4.6	scouting column for polishing
QAA0S75-0546WP	BioPro QA	1000	75	50	4.6	scouting column for capture

### Diol SEC

DL12S05-3008WT	Diol-GFC	120	5	300	8.0	standard column
DL12S05-5008WT	Diol-GFC	120	5	500	8.0	standard column, best resolution
DL12S05-3046WT	Diol-GFC	120	5	300	4.6	for increased sensitivity
DL12S05-3002WT	Diol-GFC	120	5	300	2.0	for sample limited applications
DL20S05-3008WT	Diol-GFC	200	5	300	8.0	standard column
DL20S05-5008WT	Diol-GFC	200	5	500	8.0	standard column, best resolution
DL20S05-3006WT	Diol-GFC	200	5	300	6.0	buffer saver column
DL20S05-3046WT	Diol-GFC	200	5	300	4.6	for increased sensitivity
DL20S05-3002WT	Diol-GFC	200	5	300	2.0	for sample limited applications
DL30S05-3008WT	Diol-GFC	300	5	300	8.0	standard column
DL30S05-3006WT	Diol-GFC	300	5	300	6.0	buffer saver column
DL30S05-3046WT	Diol-GFC	300	5	300	4.6	for increased sensitivity
DL30S05-3002WT	Diol-GFC	300	5	300	2.0	for sample limited applications

### Peptide Mapping

AS12S02-0502WT	Pro C18	120	2	50	2.0	for low dispersion HPLC, fast HPLC
AS12S02-0503WT	Pro C18	120	2	50	3.0	solvent saver, fast HPLC
AS12S02-0546WT	Pro C18	120	2	50	4.6	standard HPLC bore
AS12S02-1002WT	Pro C18	120	2	100	2.0	for low dispersion HPLC, enhanced resolution
AS12S02-1003WT	Pro C18	120	2	100	3.0	solvent saver, enhanced resolution
AS12S02-1046WT	Pro C18	120	2	100	4.6	standard column, enhanced resolution
AS12S02-1502WT	Pro C18	120	2	150	2.0	for low dispersion HPLC, best resolution
AS12S02-1503WT	Pro C18	120	2	150	3.0	solvent saver, best resolution
AS12S02-L502WT	Pro C18	120	2	75	2.0	for low dispersion HPLC, medium resolution
AS12S02-L503WT	Pro C18	120	2	75	3.0	solvent saver, medium resolution
AS12S03-1502WT	Pro C18	120	3	150	2.0	for low dispersion HPLC, high resolution
AS12S03-1503WT	Pro C18	120	3	150	3.0	solvent saver, high resolution
AS12S03-1546WT	Pro C18	120	3	150	4.6	standard column, high resolution
AS12S05-2502WT	Pro C18	120	5	250	2.0	for low dispersion HPLC, longer run times, high resolution
AS12S05-2503WT	Pro C18	120	5	250	3.0	solvent saver, longer run times, high resolution
AS12S05-2546WT	Pro C18	120	5	250	4.6	standard column, longer run times, high resolution

1. Prices are effective in North America, Central America, and South America. Contact YMC America for information concerning orders from outside of these regions.

2. Prices and product availability are subject to change without notice. Orders are subject to the normal terms and conditions of order acceptance at YMC America. Contact YMC America for information.

3. YMC America welcomes your inquiry concerning product selection and applicability.



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