

## UHPLC Size Exclusion Column

# YMC-Pack Diol 2 $\mu\text{m}$

### Features

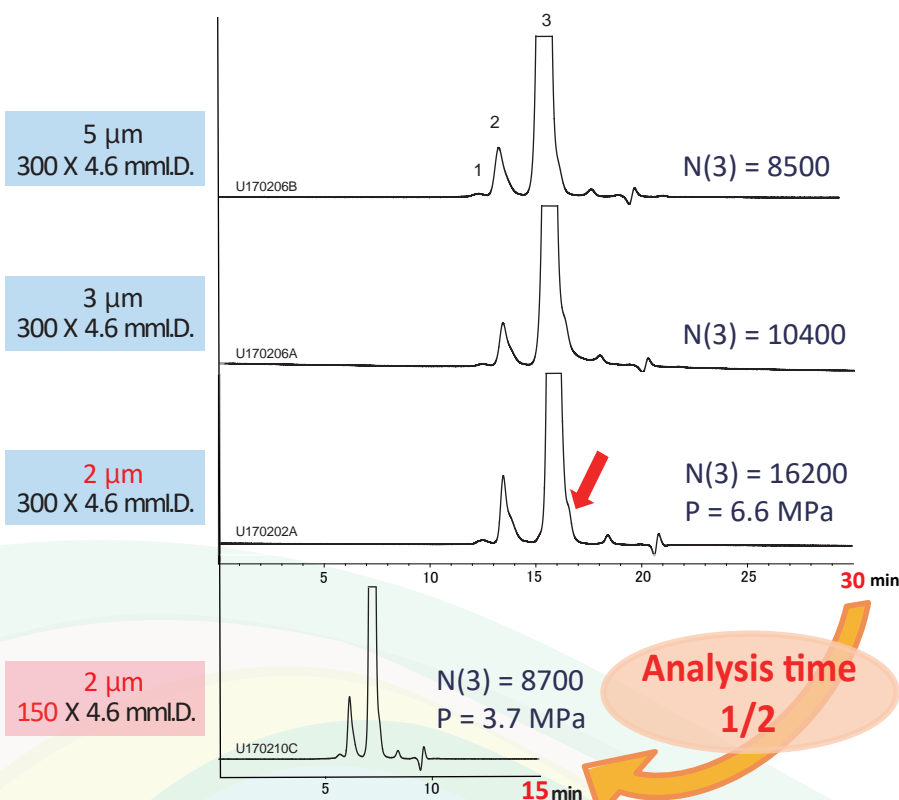
- Improvement in resolution and throughput on size exclusion chromatography
- More accurate quantitation of monoclonal antibodies with two products; Diol-300 for aggregates analysis and Diol-200 for fragments analysis
- Smooth method transfer from HPLC to UHPLC achieved by identical selectivity across particle sizes
- Very low nonspecific adsorption of proteins

### Specifications

	Diol-200	Diol-300
Base	Silica gel	
Functional group	Dihydroxypropyl	
Particle size	2 $\mu\text{m}$	
Pore size	200 $\text{Å}$	300 $\text{Å}$
Usable pH range	5.0 - 7.5	
Pressure limit	45 MPa (Regular use 30 MPa)	
Molecular weight range	5,000 - 300,000	20,000 - 1,000,000

## High resolution and high throughput analysis of monoclonal antibody

### Analysis of humanized monoclonal IgG1



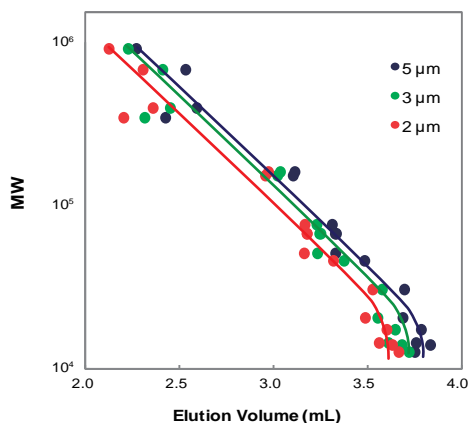
Particle size ( $\mu\text{m}$ )	Column size I.D. X length (mm)	Rs (1, 2)	Rs (2, 3)
5	4.6 X 300	0.88	2.67
3	4.6 X 300	1.03	3.18
2	4.6 X 300	1.17	4.15
2	4.6 X 150	0.85	2.75

Column : YMC-Pack Diol-300  
 Eluent : 0.1 M  $\text{KH}_2\text{PO}_4$ - $\text{K}_2\text{HPO}_4$  (pH 7.0) containing 0.2 M NaCl  
 Flow rate : 0.2 mL/min  
 Temperature : ambient  
 Detection : UV at 280 nm

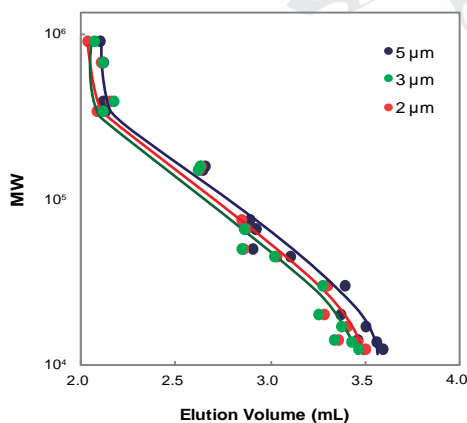
2  $\mu\text{m}$  YMC-Pack Diol column greatly improved resolution between aggregates and monomer peak. Furthermore, a shoulder peak that eluted after the monomer peak was partially separated. By using 150 mm length column, 50% less run time was achieved, while the resolution was the same as 5  $\mu\text{m}$ , 300 mm length column. The backpressure of 300 mm length column was only 6.6 MPa. It suggests that the column can be used with both UHPLC and HPLC.

## Calibration curves of various proteins for three different particle sizes

### Diol-300



### Diol-200



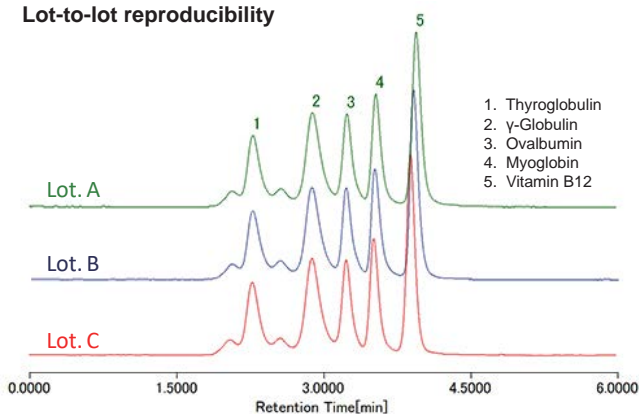
	MW
1. IgM	900,000
2. Thyroglobulin	670,000
3. IgA	390,000
4. Fibrinogen	340,000
5. γ-Globulin	158,000
6. IgG	150,000
7. Transferrin	75,000
8. HSA (human serum albumin)	66,000
9. α1-Antitrypsin	50,000
10. Ovalbumin	45,000
11. Carbonic anhydrase	30,000
12. Trypsin inhibitor	20,100
13. Myoglobin	17,000
14. α-Lactalbumin	14,100
15. Ribonuclease A	13,700
16. Cytochrome c	12,400

2 μm YMC-Pack Diol column has an identical calibration curve to 3 μm column and 5 μm column. This would realize smooth method transfer between HPLC and UHPLC.

Column : YMC-Pack Diol, 300 X 4.6 mm.I.D.  
 Eluent : 0.1 M KH<sub>2</sub>PO<sub>4</sub>-K<sub>2</sub>HPO<sub>4</sub> (pH 7.0) containing 0.2 M NaCl  
 Flow rate : 0.165 mL/min  
 Temperature : 25°C  
 Detection : UV at 280 nm

## Excellent reproducibility and durability

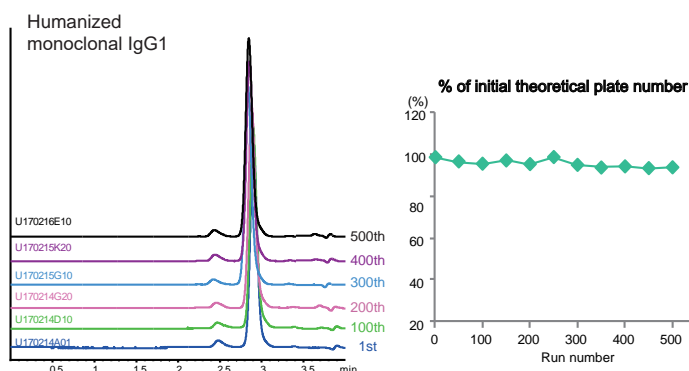
### Lot-to-lot reproducibility



Column : YMC-Pack Diol-300 2 μm  
 150 X 4.6 mm.I.D.  
 Eluent : 0.1 M NaH<sub>2</sub>PO<sub>4</sub>-Na<sub>2</sub>HPO<sub>4</sub> (pH 7.0)  
 containing 0.2 M NaCl  
 Flow rate : 0.5 mL/min  
 Temperature : ambient  
 Detection : UV at 280 nm

2 μm YMC-Pack Diol column has excellent lot-to-lot reproducibility. This feature is ideal for quality control of protein-based drugs including monoclonal antibodies.

### Durability (repeatability)



Column : YMC-Pack Diol-300 2 μm  
 150 X 4.6 mm.I.D.  
 Eluent : 0.1 M KH<sub>2</sub>PO<sub>4</sub>-K<sub>2</sub>HPO<sub>4</sub> (pH 7.0)  
 containing 0.2 M NaCl  
 Flow rate : 0.5 mL/min  
 Temperature : 25°C  
 Detection : UV at 280 nm

2 μm YMC-Pack Diol column maintained its performance for more than 500 injections on monoclonal antibody analysis.

## Ordering Information

Packing material	Particle size (μm)	Pore size (Å)	Column size inner diameter X length (mm)	Product number
Diol-200	2	200	4.6 X 150	DL20S02-1546PTH
			4.6 X 300	DL20S02-3046PTH
Diol-300	2	300	4.6 X 150	DL30S02-1546PTH
			4.6 X 300	DL30S02-3046PTH

## Worldwide Availability

YMC America, Inc.  
[www.ymcamerica.com](http://www.ymcamerica.com)

YMC Europe GmbH  
[www.ymc.de](http://www.ymc.de)

YMC India Pvt. Ltd.  
[www.ymcindia.com](http://www.ymcindia.com)

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[www.ymc.sg](http://www.ymc.sg)

YMC Taiwan Co., Ltd.  
[www.ymctaiwan.com](http://www.ymctaiwan.com)



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