

## UHPLC Size Exclusion Column

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

### Features

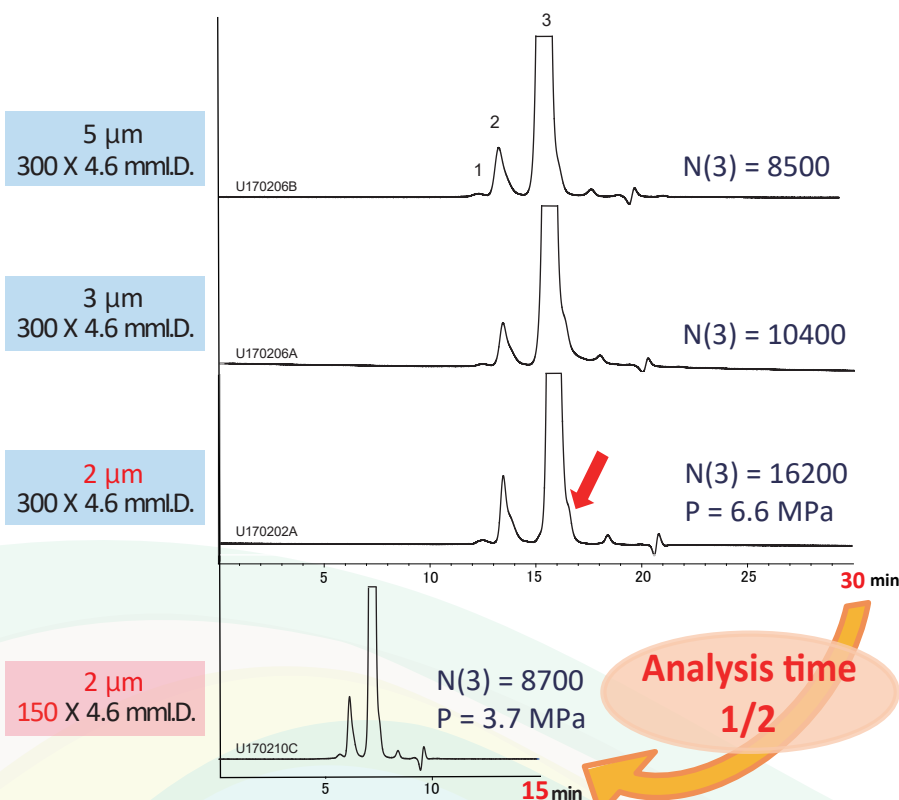
- Improvement in resolution and throughput on size exclusion chromatography
- More accurate quantitation of monoclonal antibodies with two products; Diol-300 for aggregates analysis and Diol-200 for fragments analysis
- Smooth method transfer from HPLC to UHPLC achieved by identical selectivity across 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 $\text{\AA}$	300 $\text{\AA}$
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



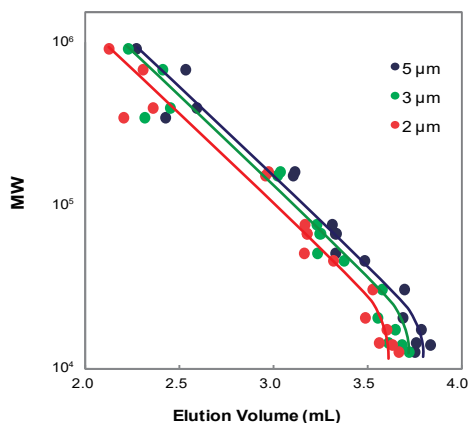
Particle size ( $\mu\text{m}$ )	Column size I.D. X length (mm)	Rs (1, 2)	Rs (2, 3)
5	4.6 X 300	0.88	2.67
3	4.6 X 300	1.03	3.18
2	4.6 X 300	1.17	4.15
2	4.6 X 150	0.85	2.75

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

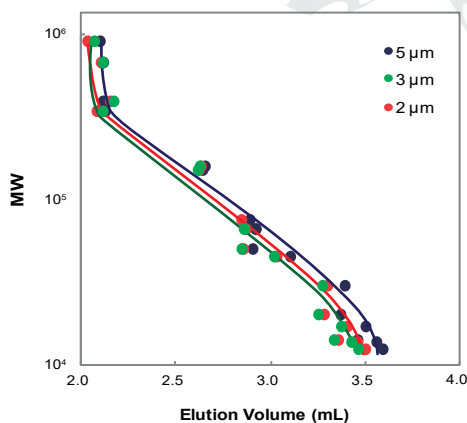
2  $\mu\text{m}$  YMC-Pack Diol column greatly improved resolution between aggregates and monomer peak. Furthermore, a shoulder peak that eluted after the monomer peak was partially separated. By using 150 mm length column, 50% less run time was achieved, while the resolution was the same as 300 mm length 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



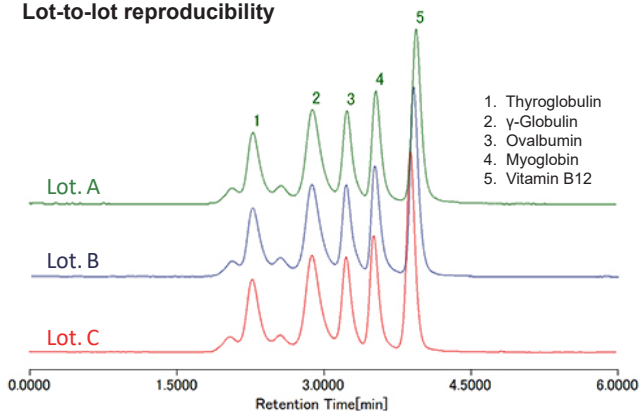
	MW
1. IgM	900,000
2. Thyroglobulin	670,000
3. IgA	390,000
4. Fibrinogen	340,000
5. γ-Globulin	158,000
6. IgG	150,000
7. Transferrin	75,000
8. HSA (human serum albumin)	66,000
9. α1-Antitrypsin	50,000
10. Ovalbumin	45,000
11. Carbonic anhydrase	30,000
12. Trypsin inhibitor	20,100
13. Myoglobin	17,000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

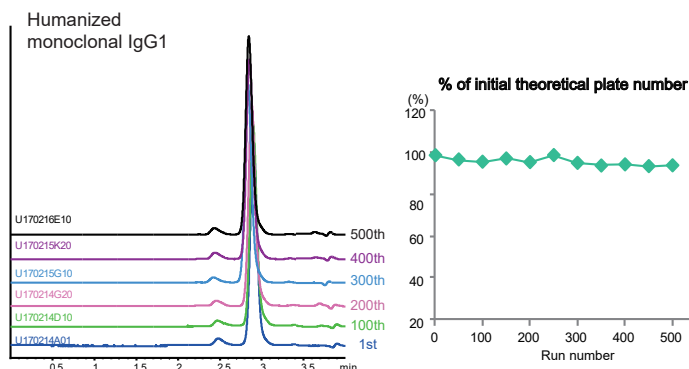
Column : YMC-Pack Diol, 300 X 4.6 mm I.D.  
 Eluent : 0.1 M KH<sub>2</sub>PO<sub>4</sub>-K<sub>2</sub>HPO<sub>4</sub> (pH 7.0) containing 0.2 M NaCl  
 Flow rate : 0.165 mL/min  
 Temperature : 25°C  
 Detection : UV at 280 nm

## Excellent reproducibility and durability

### Lot-to-lot reproducibility



### Durability (repeatability)



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>-NaH<sub>2</sub>PO<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.

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)

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

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YMC SINGAPORE TRADELINKS PTE. LTD.  
[www.ymc.sg](http://www.ymc.sg)

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



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