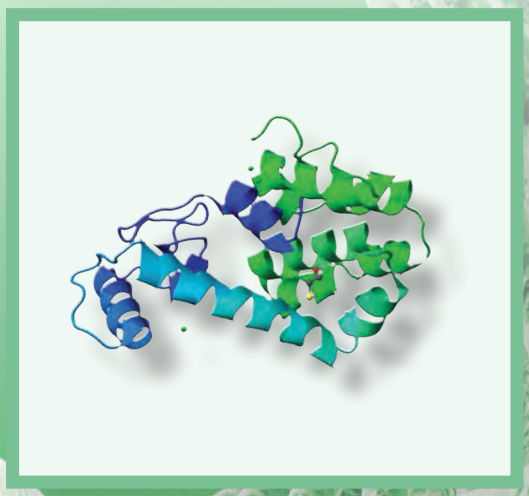
YMC EUROPE GMBH

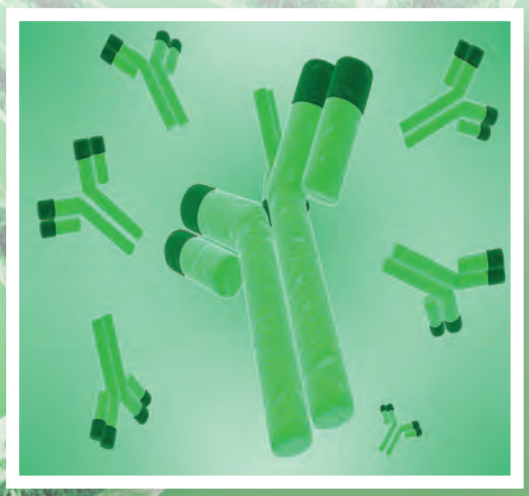
SEC • IEX • HIC • RP

Columns for Biomolecules

Proteins



Antibodies



Peptides

Oligonucleotides

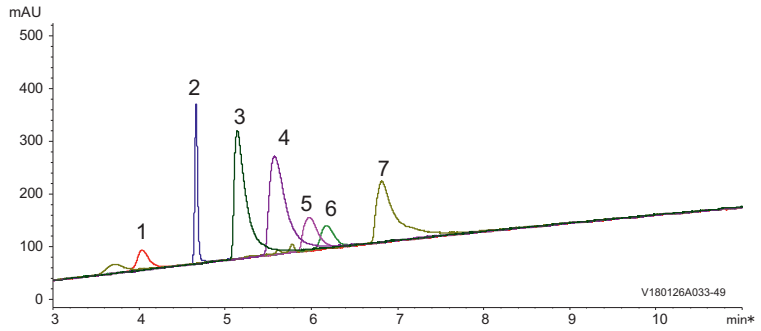
YMC-Triart Bio C4 - Widepore

- **Excellent reproducibility**
- **High pH stability**
- **Higher temperatures**
- **For HPLC and UHPLC: full scalability**
- **No MS bleeding**
- **No carryover effects**

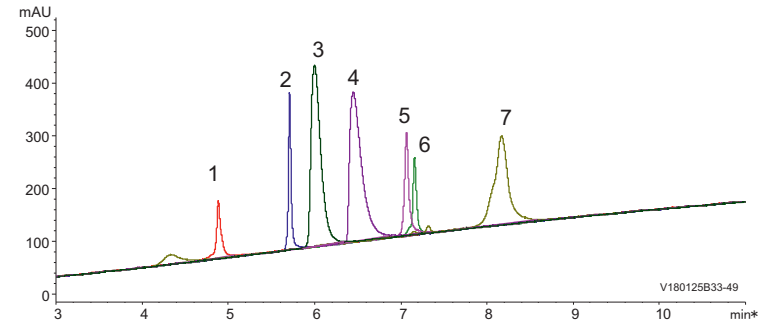
	Specifications
Base particle	organic / inorganic silica
Particle sizes	1.9, 3 and 5 µm
Pore size	30 nm / 300 Å
Bonding	trifunctional
pH range	1 ~ 10
Temperature range	pH 1 – 7: 90°C pH 7 – 10: 50°C

Proteins

XBridge Protein BEH C4 (3.5 µm, 30 nm)



YMC-Triart Bio C4 (3 µm, 30 nm)

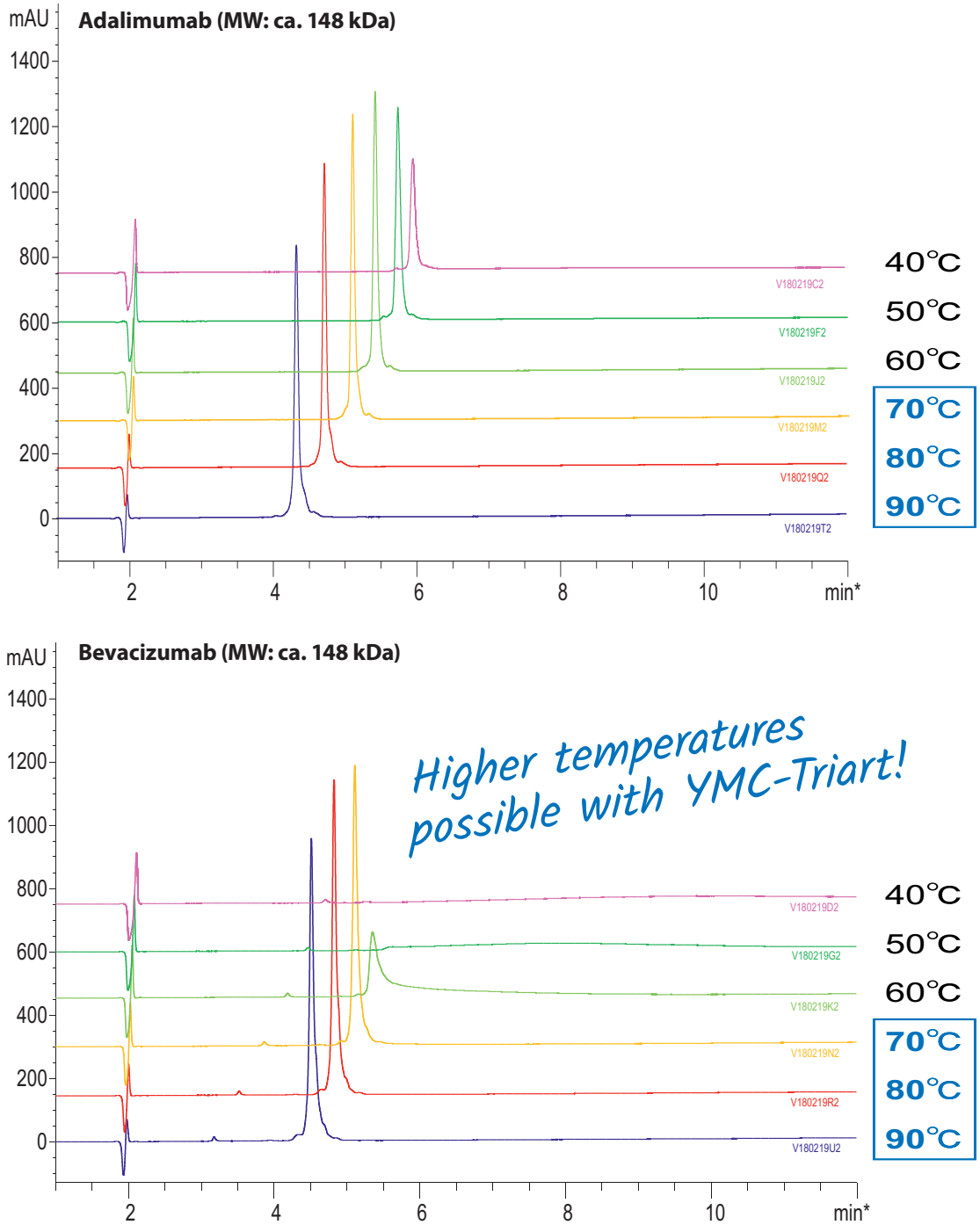


More retention! Sharper peaks!

Column size: 150 x 3.0 mm ID
Eluent: A) water/formic acid (100/0.1)
B) acetonitrile/formic acid (100/0.1)
Gradient: 10-95%B (0-15 min)
Flow rate: 0.4 mL/min
Temperature: 40 °C
Detection: UV at 220 nm
Injection: 4 µL (0.1~ 0.5 mg/mL)

Sample:
1. Cytochrome-C (12.4 kDa)
2. Insulin (5.7 kDa)
3. Transferrin (75 kDa)
4. BSA (66 kDa)
5. β-Lactoglobulin (18.3 kDa)
6. α-Chymotrypsinogen A (18.3 kDa)
7. Ovalbumin (45 kDa)

Antibodies



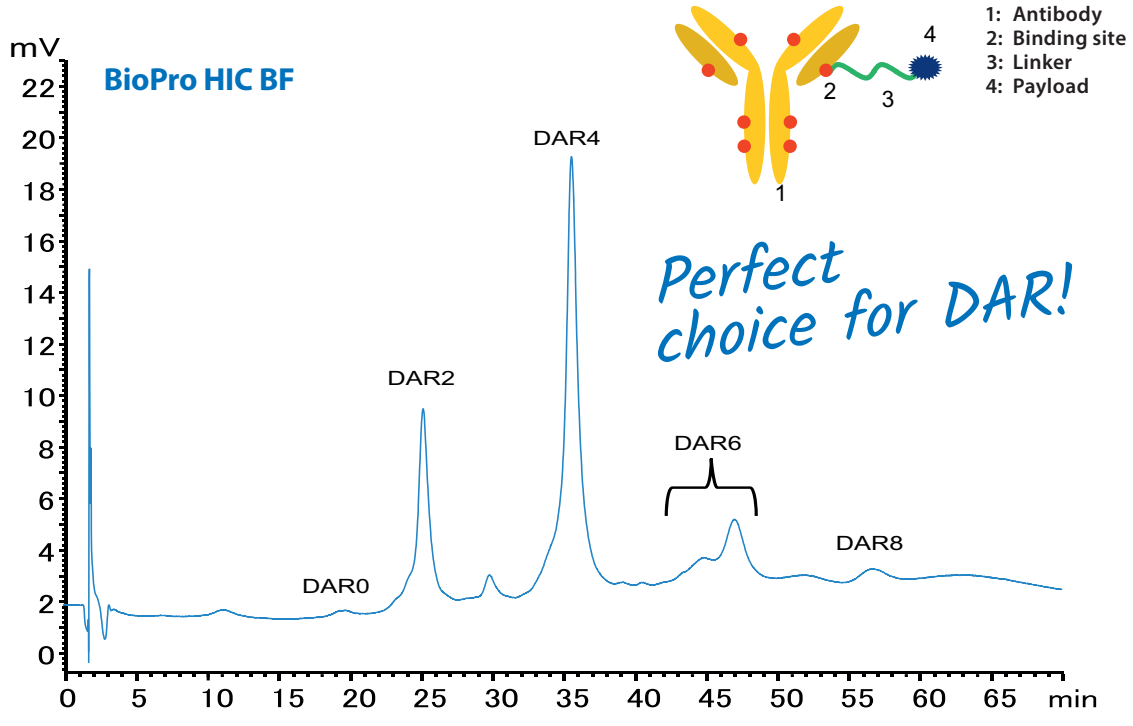
Column:	YMC-Triart Bio C4 (3 µm, 30 nm), 150 x 3.0 mm ID
Eluent:	A) water/TFA (100/0.1). B) acetonitrile/TFA (100/0.1)
Gradient:	30-60%B (0-15 min), 90%B (15-30min)
Detection:	UV at 220 nm
Flow rate:	0.4 mL/min
Sample:	Adalimumab (0.5 mg/mL) or Bevacizumab (0.5 mg/mL)
Injection:	4 µL

BioPro HIC BF

- **Especially designed for Antibodies, Antibody-drug conjugates (ADCs), Proteins**
- **High separation performance**
- **High-throughput analysis**
- **Excellent lot-to-lot reproducibility**
- **Long term stability**
- **Virtually no carryover effects**

	Specifications
Base particle	hydrophilic polymer (polymethacrylate)
Particle sizes	4 µm
Pore	non-porous
Functional group	butyl
pH range	2 – 12
Temperature range	10 – 60°C

Effective for Drug-to-Antibody Ratio (DAR) Analysis of ADCs



Column:	BioPro HIC BF (4 µm) 100x4.6 mm ID
Eluent:	A) 50 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8) containing 1.5 M $(NH_4)_2SO_4$/IPA (95/5)
	B) 50 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8)/IPA (80/20)
Gradient:	30%B (0-5 min)
	30-80%B (5-45 min)
	80%B (45-70 min)
Flow rate:	0.4 mL/min
Temperature:	25 °C
Detection:	UV at 280 nm
Injection:	20 µL

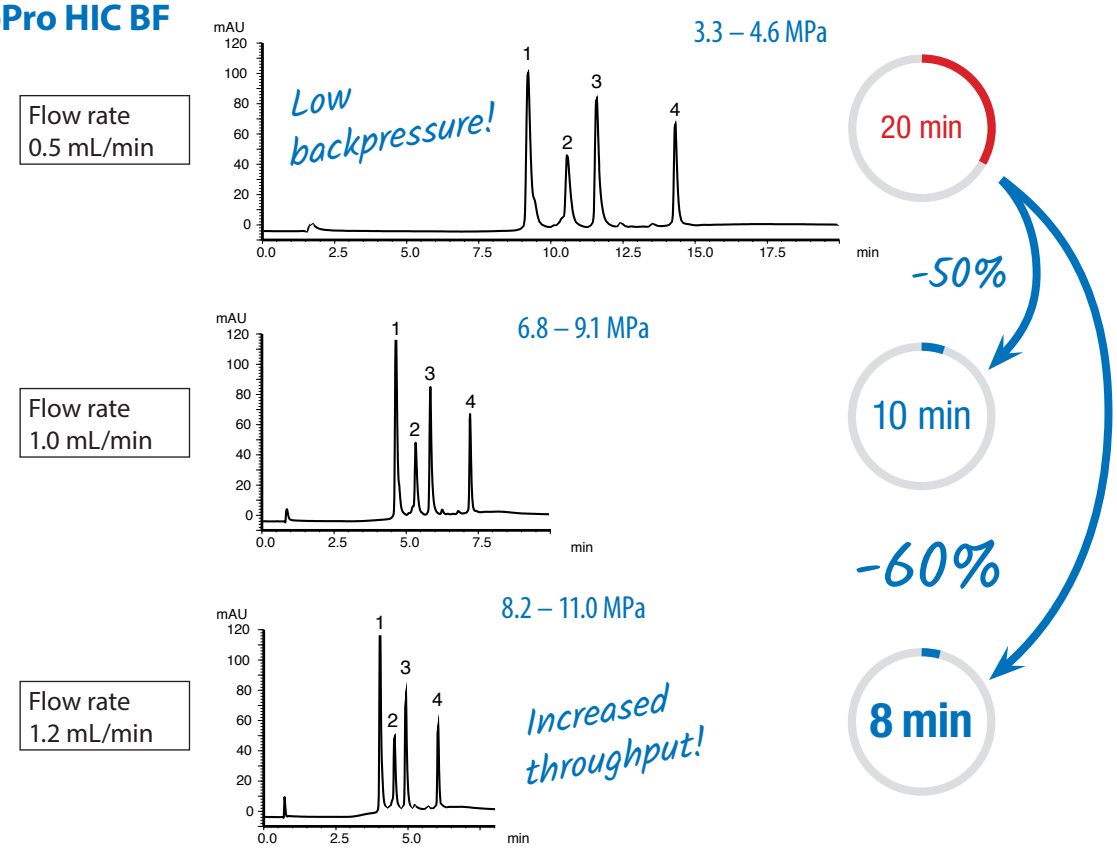
Sample:
Cystein-conjugated ADC mimic (1.25 mg/mL)

YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

* Some particle sizes are scheduled for a later release.

High Throughput at High Resolution

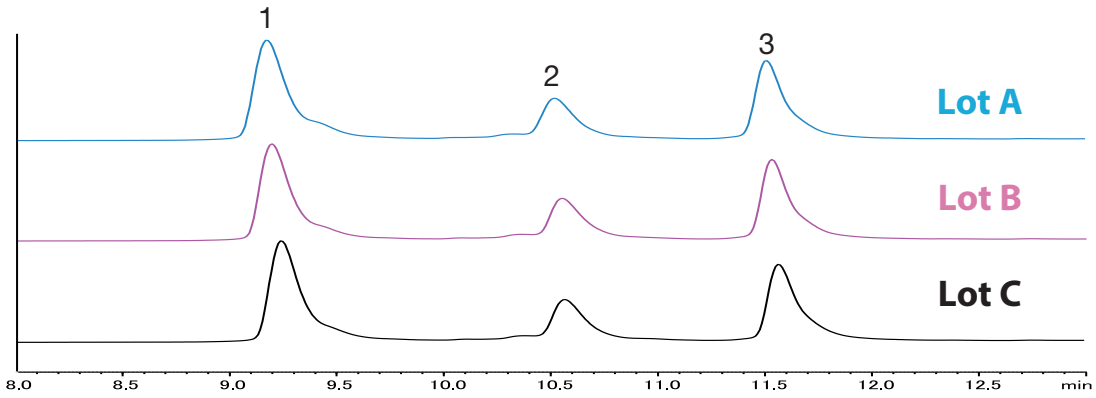
BioPro HIC BF



Column:		BioPro HIC BF (4 µm) 100 × 4.6 mm ID
Eluent:		A) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0) containing 2.0 M $(NH_4)_2SO_4$
		B) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0)
Gradient	0.5 mL/min:	0-100% B (0-11 min) 100% B (11-15 min)
	1.0 mL/min:	0-100% B (0-5.5 min) 100% B (5.5-5.8 min)
	1.2 mL/min:	0-100% B (0-4.58 min) 100% B (4.58-6.58 min)
Temperature:		25 °C
Detection:		UV at 280 nm
Injection:		15 µL

Samples:
1. Myoglobin (0.73 mg/mL)
2. Ribonuclease A (0.75 mg/mL)
3. Lysozyme (0.25 mg/mL)
4. α-Chymotrypsinogen A (0.25 mg/mL)

Excellent Lot-to-Lot Reproducibility



Column:	BioPro HIC BF (4 µm) 100 x 4.6 mm ID
Eluent:	A) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0) containing 2.0 M $(NH_4)_2SO_4$
	B) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0)
Gradient:	0-100%B (0-11 min), 100%B (11-15 min)
Flow rate:	0.5 mL/min
Temperature:	25°C
Detection:	UV at 280 nm
Injection:	15 µL

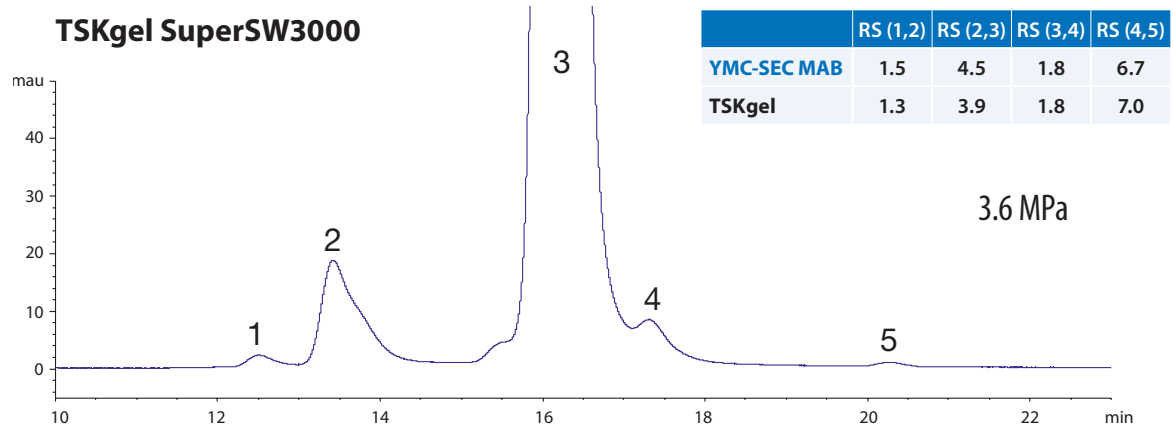
Samples:
1. Myoglobin (0.73 mg/mL)
2. Ribonuclease A (0.75 mg/mL)
3. Lysozyme (0.25 mg/mL)

YMC-SEC MAB

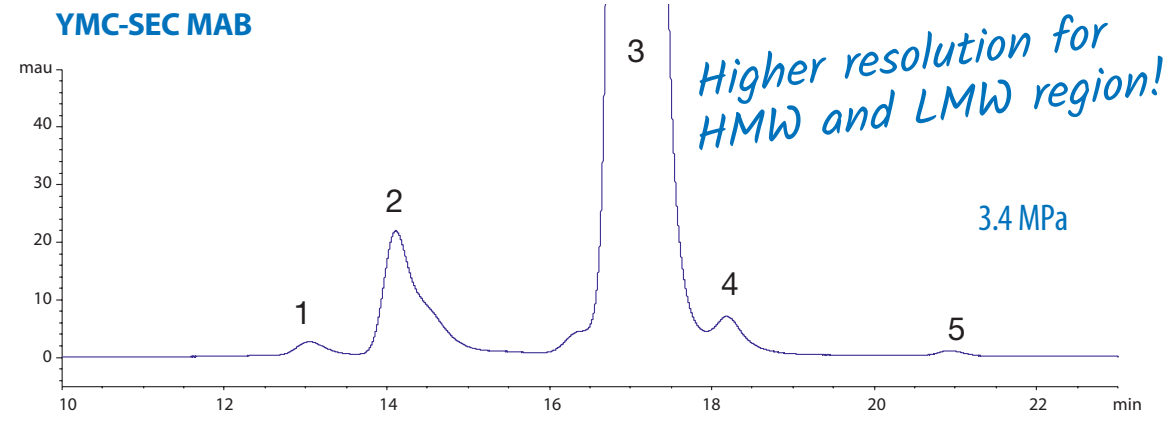
- **Selectivity for antibodies**
- **Monomers, fragments, aggregates**
- **High reproduciblity**

	Specifications
Base particle	silica
MW range	10 – 500 kDa
Particle sizes	3 µm (<2 µm*)
Pore size	25 nm / 250 Å
Functional group	dihydroxypropyl

Ideal Choice for Monoclonal Antibodies



	RS (1,2)	RS (2,3)	RS (3,4)	RS (4,5)
YMC-SEC MAB	1.5	4.5	1.8	6.7
TSKgel	1.3	3.9	1.8	7.0



Column size: 300 x 4.6 mm ID
Eluent: 0.1 M phosphate buffer (pH=7) cont. 0.2 M NaCl
Flow rate: 0.165 mL/min
Temperature: 25°C
Detection: UV at 280 nm
Cell path: 10 mm
Injection: 10 µL

Sample:
Avastin (5 mg/ 1mL eluent)

YMC-SEC MAB will be available mid-September.

YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

* Some particle sizes are scheduled for a later release.

YMC-Triart Bio C4, 1.9 µm UHPLC columns (max. pressure 1,000 bar)

Column ID (mm)	Column length (mm)						Guard cartridges* with 5 mm length
	20	30	50	75	100	150	(pack of 3)
2.0	TB30SP9-0202PT	TB30SP9-0302PT	TB30SP9-0502PT	TB30SP9-L502PT	TB30SP9-1002PT	TB30SP9-1502PT	TB30SP9-E5Q1CC**
2.1	TB30SP9-02Q1PT	TB30SP9-03Q1PT	TB30SP9-05Q1PT	TB30SP9-L5Q1PT	TB30SP9-10Q1PT	TB30SP9-15Q1PT	TB30SP9-E5Q1CC**
3.0	—	—	TB30SP9-0503PT	TB30SP9-L503PT	TB30SP9-1003PT	TB30SP9-1503PT	TB30SP9-E503CC

*Guard cartridge holder required, part no. XPCHUHP
**Guard cartridge: 2.1 mm ID

YMC-Triart Bio C4, 3 µm HPLC columns (max. pressure 450 bar)

Column ID (mm)	Column length (mm)							Guard cartridges* with 10 mm length
	20	33	50	75	100	150	250	(pack of 5)
2.1	TB30S03-02Q1PTH	TB30S03-H3Q1PTH	TB30S03-05Q1PTH	TB30S03-L5Q1PTH	TB30S03-10Q1PTH	TB30S03-15Q1PTH	—	TB30S03-01Q1GC
3.0	—	—	TB30S03-0503PTH	TB30S03-L503PTH	TB30S03-1003PTH	TB30S03-1503PTH	—	TB30S03-0103GC
4.6	—	TB30S03-H346PTH	TB30S03-0546PTH	TB30S03-L546PTH	TB30S03-1046PTH	TB30S03-1546PTH	TB30S03-2546PTH	TB30S03-0104GC

*Guard cartridge holder required, part no. XPGCH-Q1

YMC-Triart Bio C4, 5 µm HPLC columns (max. pressure 450 bar)

Column ID (mm)	Column length (mm)							Guard cartridges* with 10 mm length
	20	33	50	75	100	150	250	(pack of 5)
2.1	TB30S05-02Q1PTH	TB30S05-H3Q1PTH	TB30S05-05Q1PTH	TB30S05-L5Q1PTH	TB30S05-10Q1PTH	TB30S05-15Q1PTH	—	TB30S05-01Q1GC
3.0	—	—	TB30S05-0503PTH	TB30S05-L503PTH	TB30S05-1003PTH	TB30S05-1503PTH	—	TB30S05-0103GC
4.6	—	TB30S05-H346PTH	TB30S05-0546PTH	TB30S05-L546PTH	TB30S05-1046PTH	TB30S05-1546PTH	TB30S05-2546PTH	TB30S05-0104GC

*Guard cartridge holder required, part no. XPGCH-Q1 (2.1, 3, 4 mm ID)
XPCHSPW1 (10 mm ID)
**Max. pressure 100 bar

YMC-Triart Bio C4, 5 µm in YMC-Actus high-throughput semipreparative hardware (max. pressure 300 bar)

Column ID (mm)	Column length (mm)					Guard cartridges* with 10 mm length
	50	75	100	150	250	(pack of 5)
20	TB30S05-0520WX	TB30S05-L520WX	TB30S05-1020WX	TB30S05-1520WX	TB30S05-2520WX	TB30S05-0120CC
30	TB30S05-0530WX	TB30S05-L530WX	TB30S05-1030WX	TB30S05-1530WX	TB30S05-2530WX	TB30S05-0130CC
50	TB30S05-0553DX	—	TB30S05-1053DX	TB30S05-1553DX	TB30S05-2553DX	TB30S05-0553DXG**

*Guard cartridge holder required, part no. XPCHSPW2 (20 mm ID)/XPCHSPW3 (30 mm)
**No holder required for 50 x 50 mm ID guard columns (no cartridge)

BioPro HIC BF

Phase	Particle size [µm]	Functional group	Column ID [mm]	Column Length [mm]	Part number
BioPro HIC BF	4	butyl	4.6	100	BHB00S04-1046WT

YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

HPLC Analysis of Drug-to-Antibody Ratio (DAR) Using BioPro HIC BF

Antibody-Drug Conjugates (ADCs) are a recent development of an important class of highly potent biopharmaceutical drugs designed as a targeted therapy for the treatment of people with cancer. ADCs are monoclonal antibodies chemically linked to biologically active small molecule drugs. By combining powerful cell-killing abilities of potent agents with target-specific antibodies, ADCs deliver cytotoxic drugs to the diseased cells, while limiting the toxicity in the non-targeted ones. A significant attribute of ADCs is the average number of drugs conjugated to the antibodies, the drug-to-antibody ratio (DAR). The DAR value affects the efficiency of the drug, as low drug loading reduces the potency, while high drug loading can negatively affect pharmacokinetics and toxicity.

As an example for ADCs, the unmodified cysteine-conjugated ADC mimic and its DAR with DAR values ranging from 2 to 8 is well resolved on the BioPro BF column (see fig. 1).

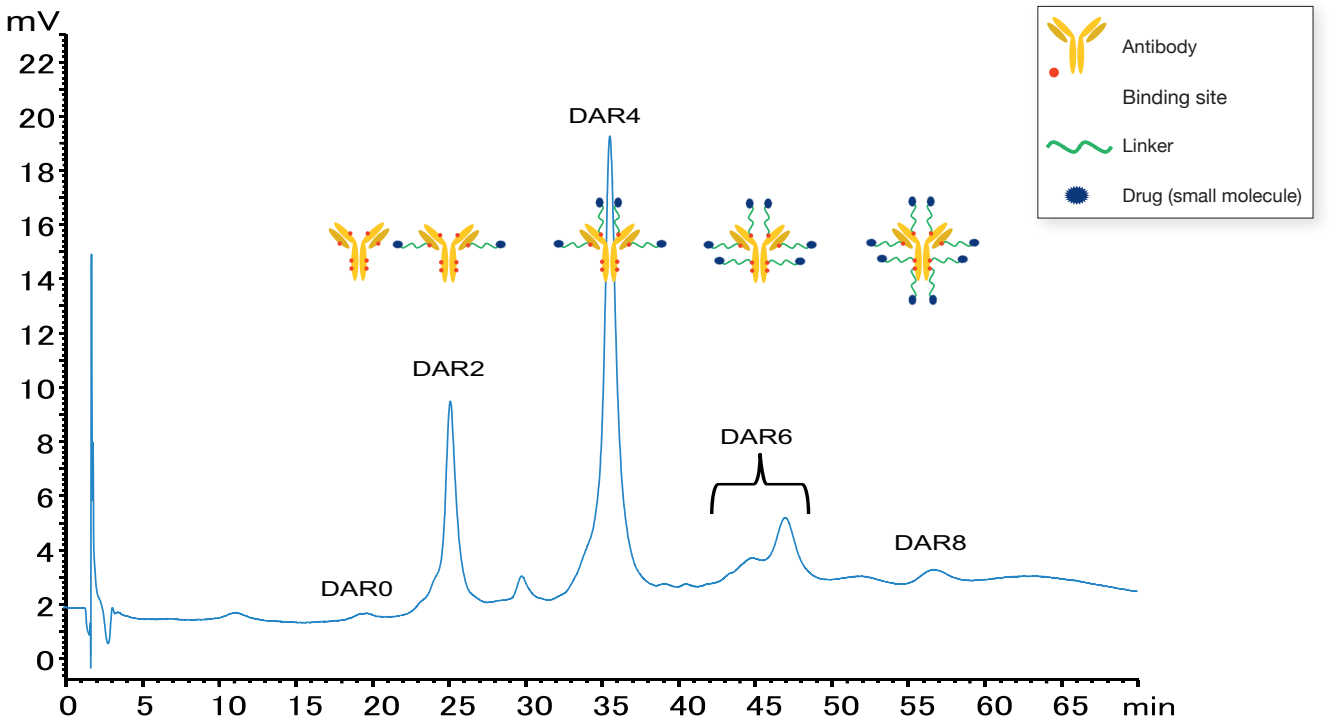


Fig. 1: Separation of antibody conjugates with different drug-to-antibody ratio (DAR) using BioPro HIC BF.

Table 1: Chromatographic conditions

Column:	BioPro HIC BF (4 µm) 100 x 4.6 mm ID
Part No.:	BHB00S04-1046WT
Eluent:	A) 50 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8) containing 1.5 M $(NH_4)_2SO_4$/IPA (95/5) B) 50 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8)/IPA (80/20)
Gradient:	Time [min] / Eluent B [%] 0 / 30 5 / 30 45 / 80 70 / 80
Flow rate:	0.4 mL/min
Temperature:	25 °C
Detection:	UV at 280 nm
Injection:	20 µL

YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

Since the attachment of a drug molecule alters the hydrophobicity of a mAb or ADC, a decreasing gradient of the lyotropic salt ammonium sulfate is required (see fig. 2).

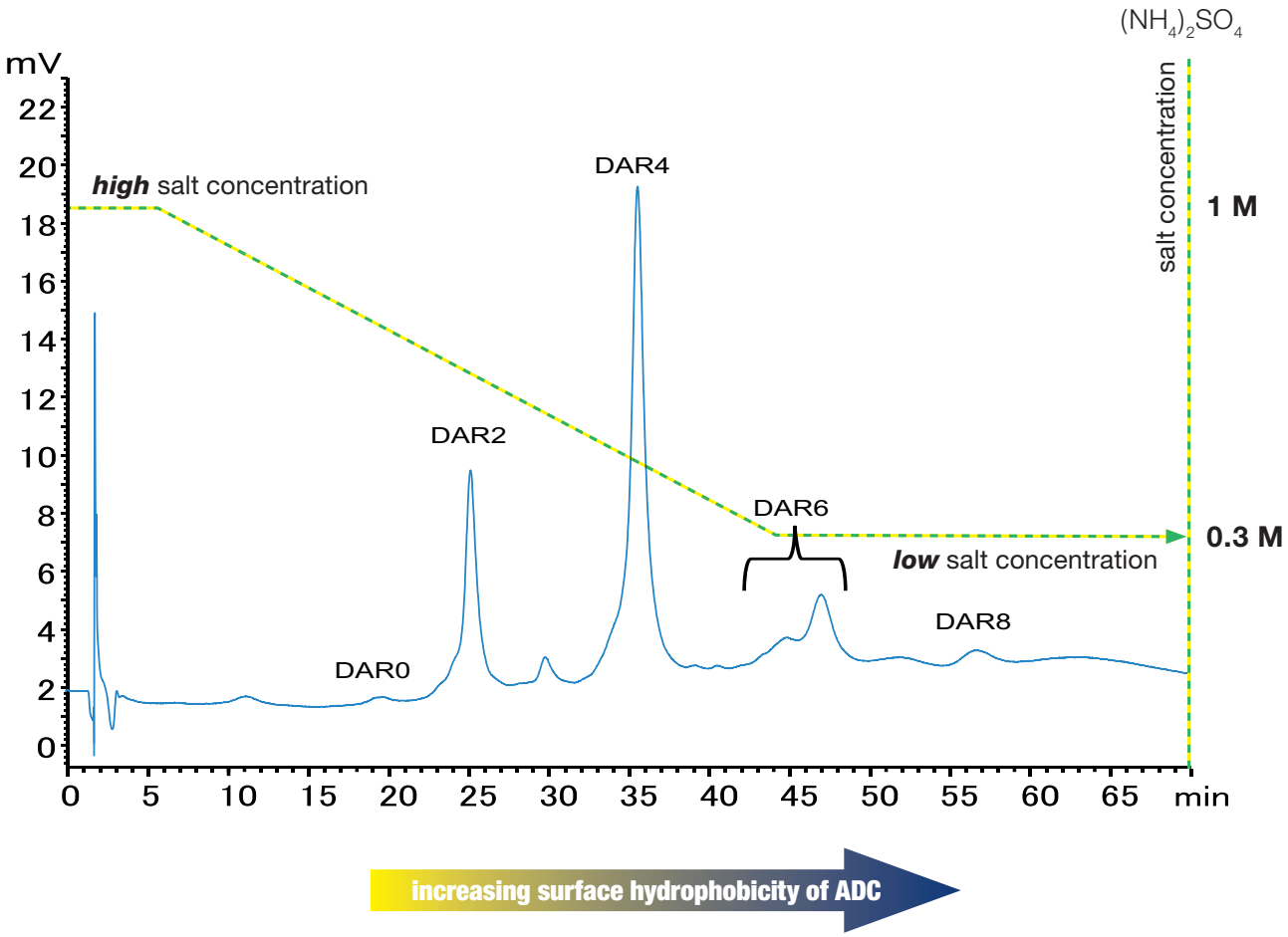


Fig. 2: HIC conditions for the separation of antibody conjugates with different drug-to-antibody ratio (DAR) using BioPro HIC BF.

HPLC Analysis of Oligonucleotides Using YMC's Non-porous AEX Columns

Oligonucleotides are important in genetic testing, research and forensics. For quite some time now, oligonucleotide-based approaches have been developed for different pharmaceutical applications.

Therefore, corresponding analytical methods have to be available. In addition to RP based methods, IEX methods can provide an alternative approach. The strong anion exchanger YMC-BioPro QA-F has a quaternary amine residue as the functional group. The non-porous YMC-BioPro QA-F offers high efficiency, exceptionally high resolution at low operating pressures.

A method for the determination of oligonucleotides using YMC-BioPro QA-F has been developed by YMC. 3 application examples are presented here.

Table 1: Chromatographic conditions

Column:	YMC-BioPro QA-F (5 µm) 100 x 4.6 mm ID	
Part No.:	QF00S05-1046WP	
Eluent:	A) 10 mM NaOH B) 10 mM NaOH containing 1.0 M $NaClO_4$	
Gradient:	Time [min]	Eluent B [%]
	0	25
	15	55
	20	100
Flow rate:	1.0 mL/min	
Temperature:	25 °C	
Detection:	UV at 260 nmn	
Injection:	4 µL (5 nmol/mL)	

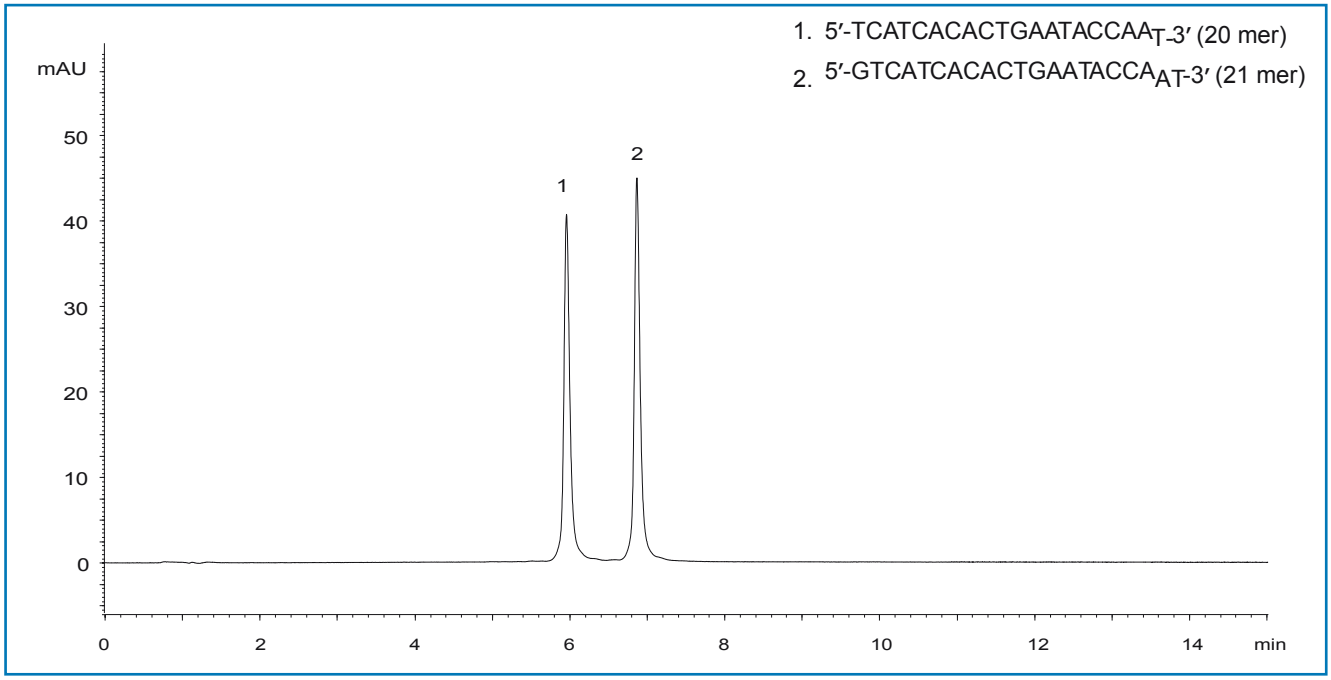


Figure 1: Separation of synthetic oligonucleotides (Single-strand DNA)

YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

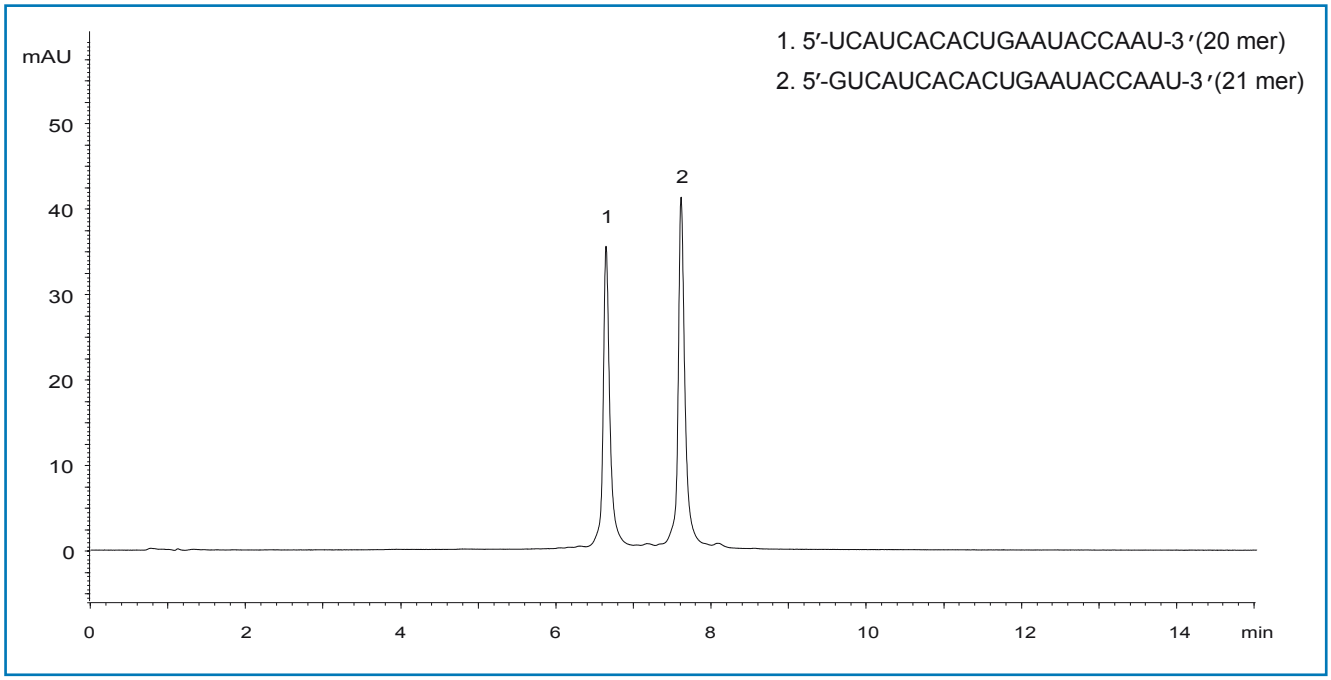


Figure 2: Separation of synthetic oligonucleotides (Single-strand RNA)

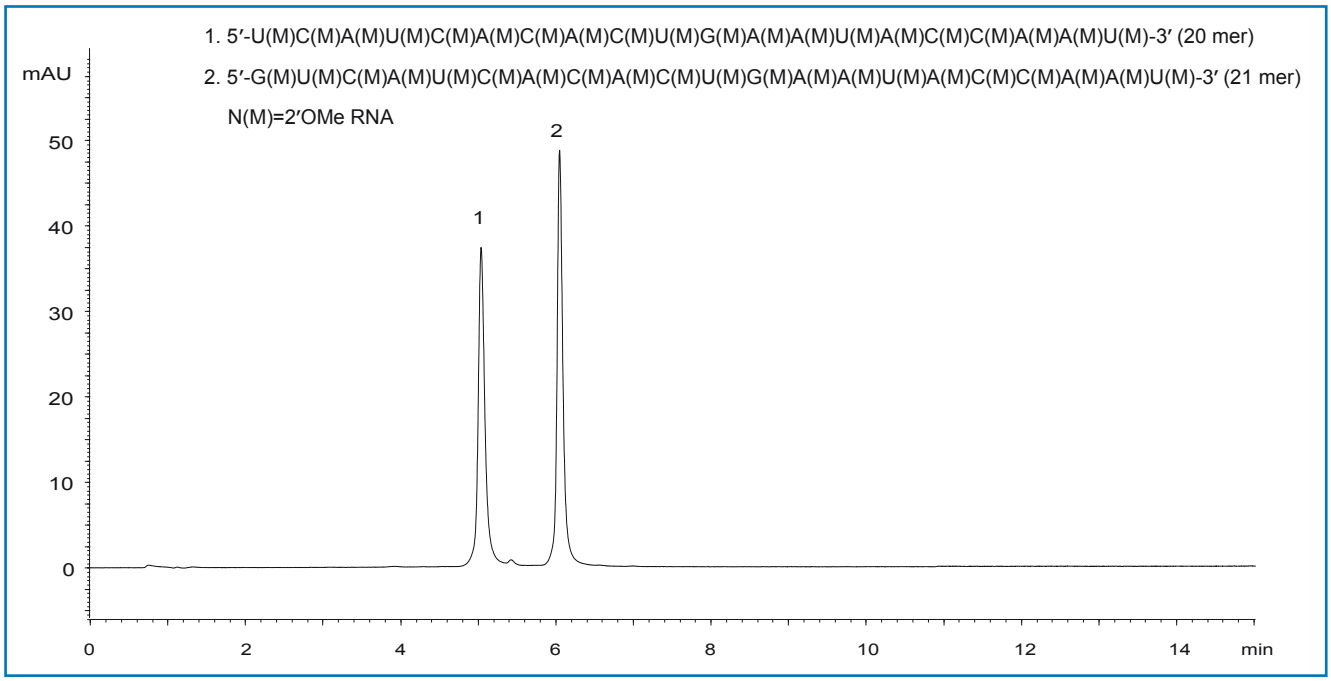


Figure 3: Separation of synthetic oligonucleotides (Single-strand RNA)

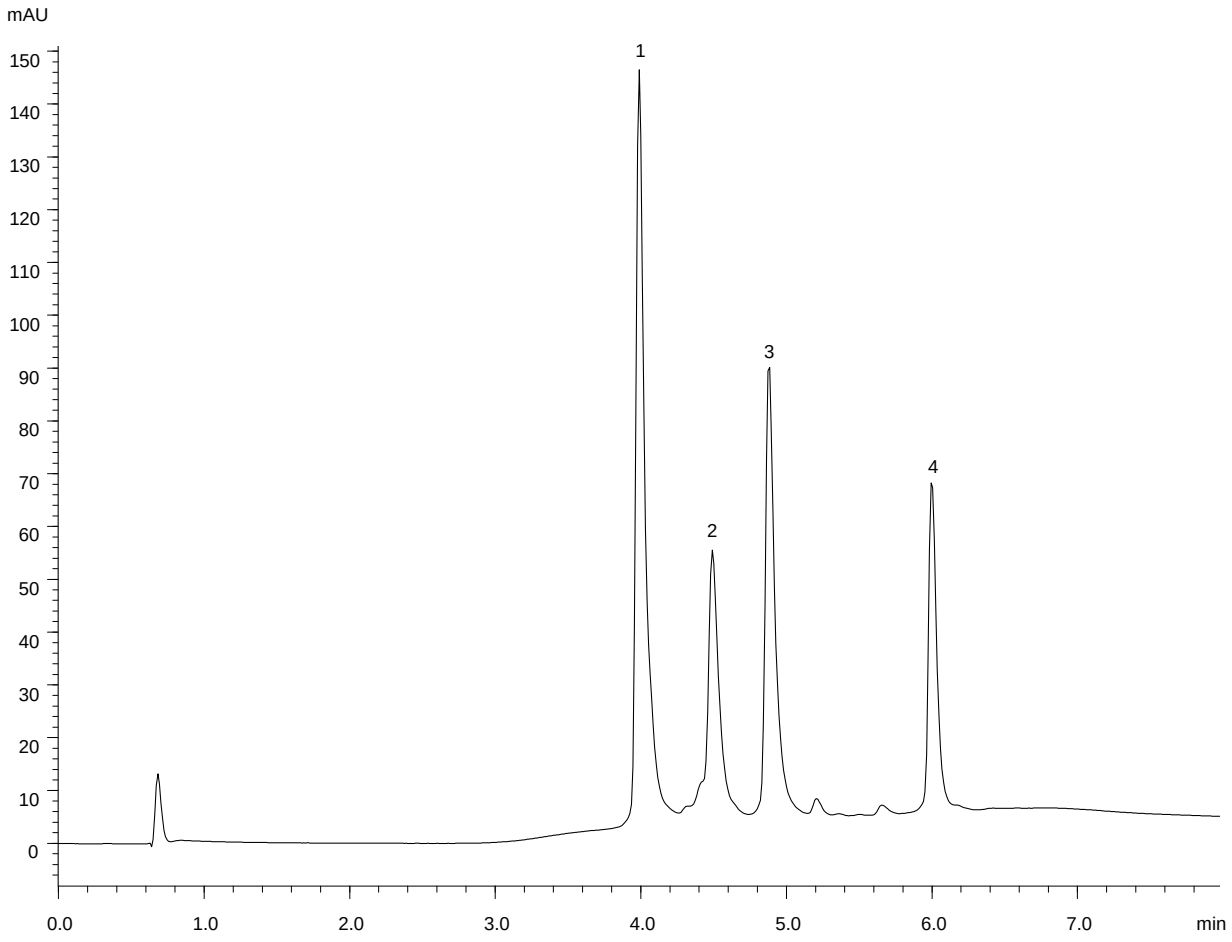
YMC Europe GmbH · Schöttmannshof 19 · 46539 Dinslaken · Phone +49 (0)2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

HPLC DATA SHEET

タンパク質
Proteins

L171208F02

1. Myoglobin (0.73 mg/mL)
2. Ribonuclease A (0.75 mg/mL)
3. Lysozyme (0.25 mg/mL)
4. α-Chymotrypsinogen A (0.25 mg/mL)



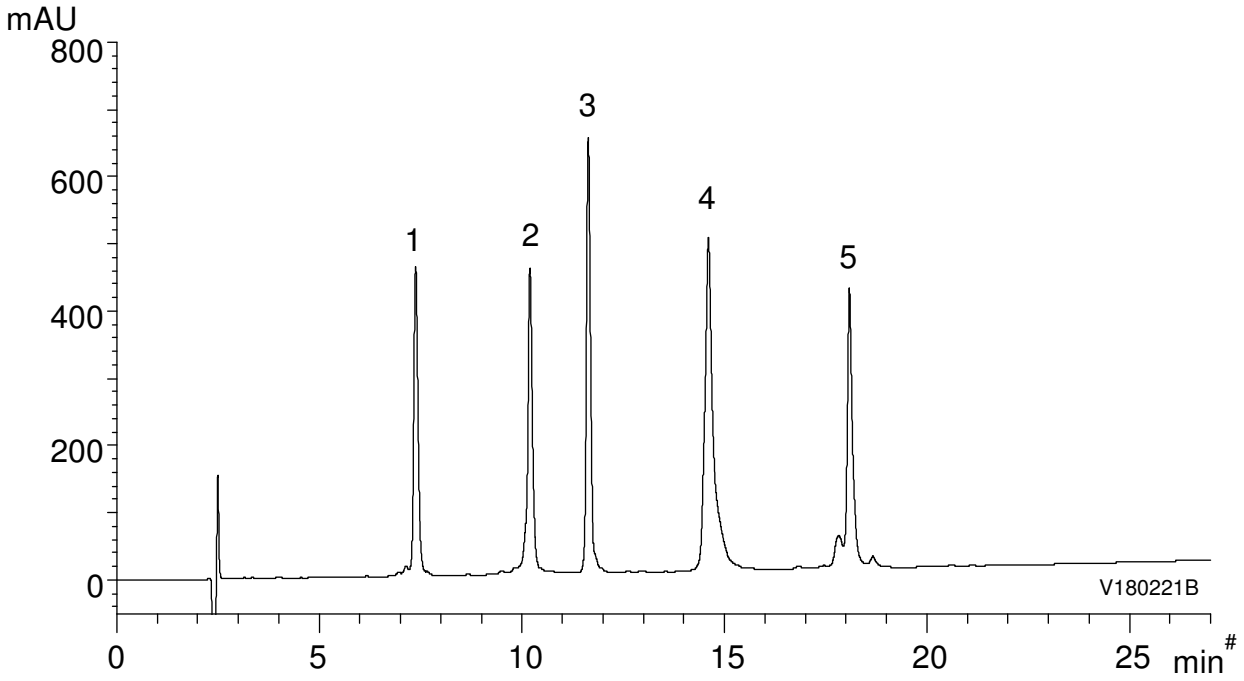
Column	: BioPro HIC BF (4 µm) 100 X 4.6 mmI.D.
Eluent	: A) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0) containing 2.0 M $(NH_4)_2SO_4$ B) 100 mM NaH_2PO_4-Na_2HPO_4 (pH 7.0) 0-100%B (0-4.58 min), 100%B (4.58-6.58 min)
Flow rate	: 1.2 mL/min
Temperature	: 25℃
Detection	: UV at 280 nm
Injection	: 15 µL

HPLC DATA SHEET

タンパク質（MW 5,700 ~ 66,000）
Proteins (MW 5,700 ~ 66,000)

V180221B

1. Ribonuclease A (Bovine pancreas) (MW 13,700)
2. Cytochrome *c* (Horse heart) (MW 12,400)
3. Insulin (Bovine pancreas) (MW 5,700)
4. BSA (MW 66,000)
5. α-Chymotrypsinogen A (Bovine pancreas) (MW 25,700)



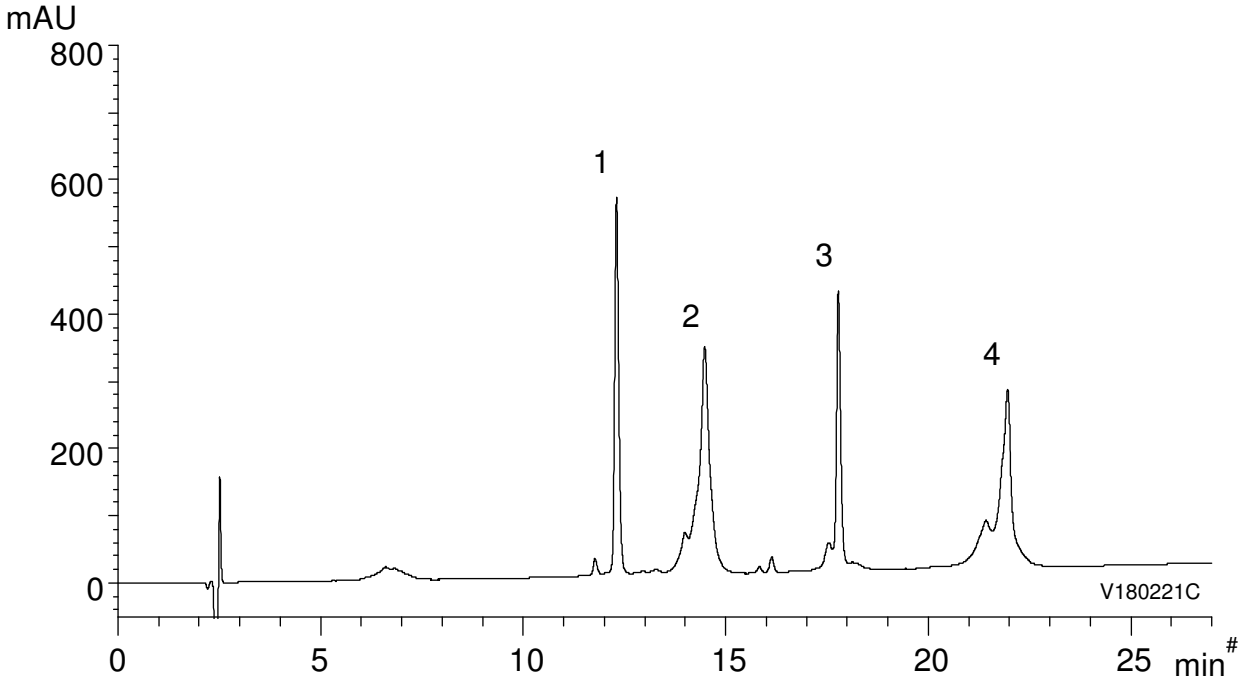
Column	: YMC-Triart Bio C4 (5 µm, 30 nm)
	150 X 3.0 mmI.D.
Eluent	: A) water/TFA (100/0.1)
	B) acetonitrile/TFA (100/0.1)
	20-60%B (0-27 min), 90%B (27-35 min)
Flow rate	: 0.4 mL/min
Temperature	: 70℃
Detection	: UV at 220 nm
Injection	: 10 µL (0.25 ~ 0.50 mg/mL)

HPLC DATA SHEET

タンパク質（MW 14,300 ~ 77,000）
Proteins (MW 14,300 ~ 77,000)

V180221C

1. Lysozyme (Chicken egg white)	(MW 14,300)
2. Conalbumin (Chicken egg white)	(MW 77,000)
3. β-Lactoglobulin A (Bovine milk)	(MW 18,400)
4. Ovalbumin	(MW 45,000)



Column	: YMC-Triart Bio C4 (5 µm, 30 nm) 150 X 3.0 mmI.D.
Eluent	: A) water/TFA (100/0.1) B) acetonitrile/TFA (100/0.1) 20-60%B (0-27 min), 90%B (27-35 min)
Flow rate	: 0.4 mL/min
Temperature	: 70℃
Detection	: UV at 220 nm
Injection	: 10 µL (0.15 ~ 0.60 mg/mL)

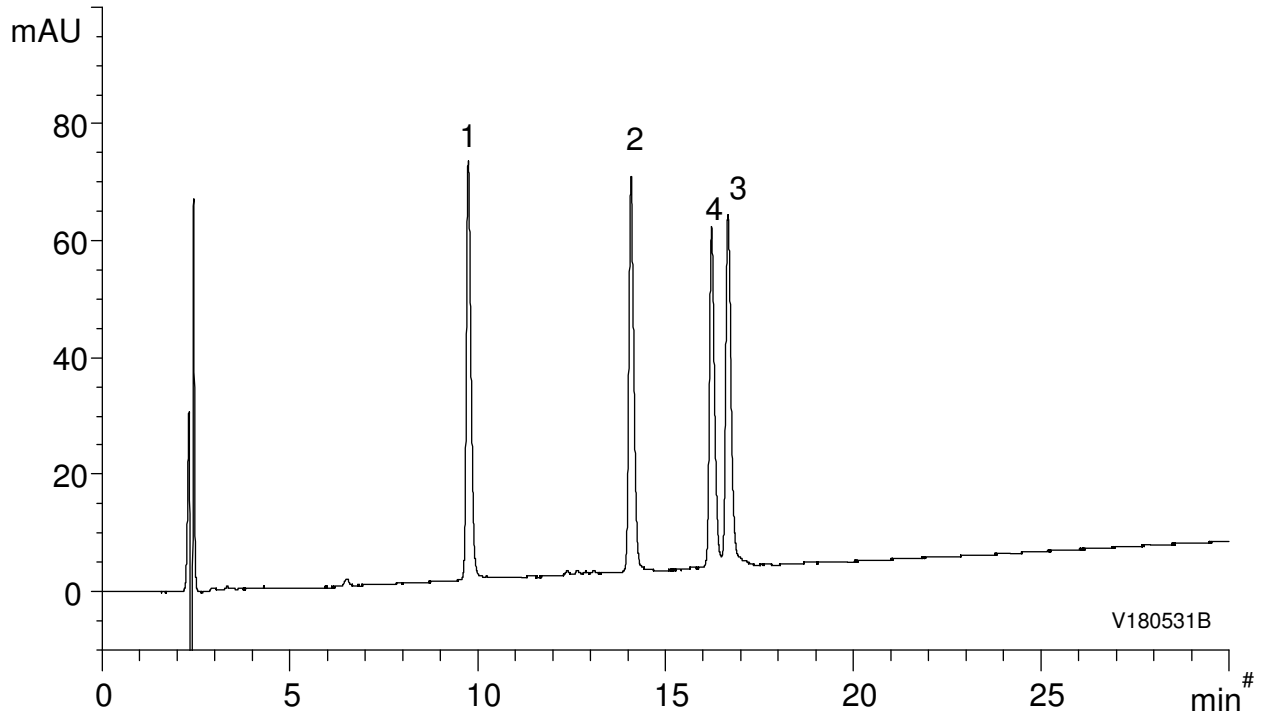
HPLC DATA SHEET

アミロイドβタンパク質
Amyloid β proteins

V180531B

1. Amyloid β (1-38) (Human) (MW 4132)
2. Amyloid β (1-40) (Human) (MW 4330)
3. Amyloid β (1-42) (Human) (MW 4514)
4. Amyloid β (1-43) (Human) (MW 4615)

Amyloid β (1-43) :
Asp-Ala-Glu-Phe-Arg-His-Asp-Ser-Gly-Tyr-Glu-Val-His-His-Gln-Lys-Leu-Val-Phe-Phe-Ala-Glu-Asp-Val-Gly-Ser-Asn-Lys-Gly-Ala-Ile-Ile-Gly-Leu-Met-Val-Gly-Gly-Val-Val-Ile-Ala-Thr



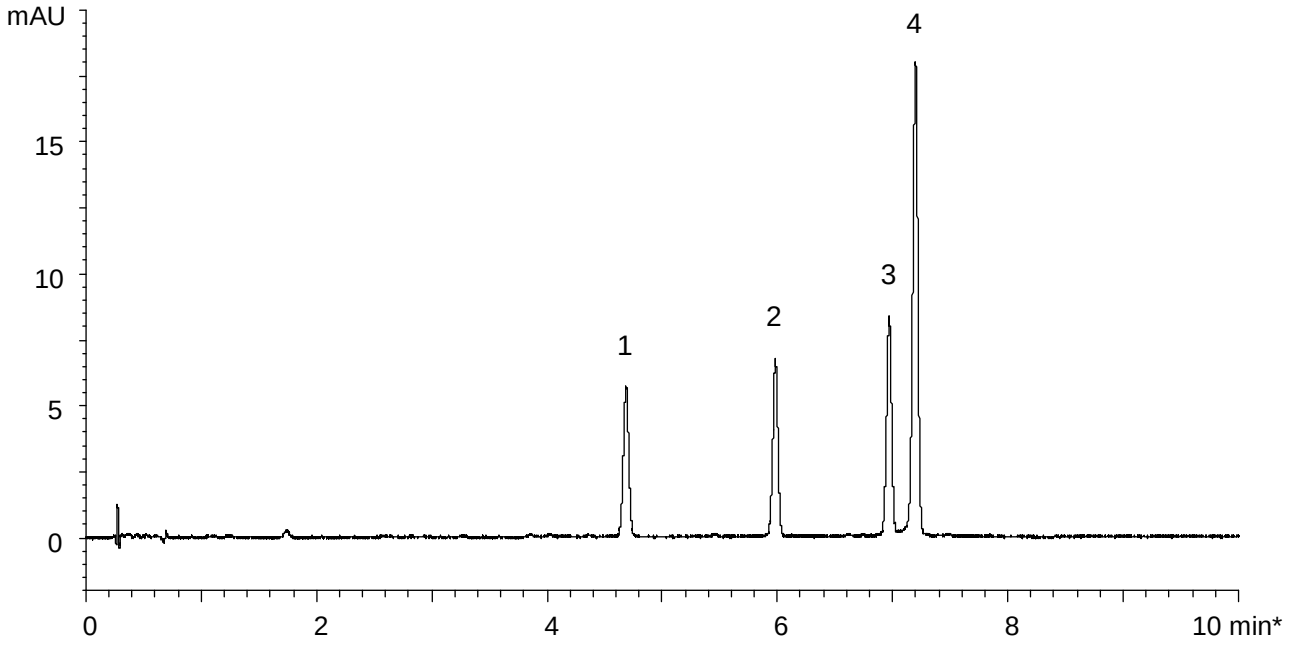
Column	: YMC-Triart Bio C4 (3 µm, 30 nm)
	150 X 3.0 mmI.D.
Eluent	: A) water/TFA (100/0.1)
	B) acetonitrile/TFA (100/0.1)
	25-40%B (0-30 min), 90%B (30-40 min)
Flow rate	: 0.4 mL/min
Temperature	: 70℃
Detection	: UV at 220 nm
Injection	: 4 µL (each 0.1 mg/mL)

HPLC DATA SHEET

合成オリゴヌクレオチド （一本鎖 RNA）
Synthetic oligonucleotides（Single-strand RNA）

F180403J

1. 5’-CAC UGA AUA CCA AU-3’ (14mer)
2. 5’-UCA CAC UGA AUA CCA AU-3’ (17mer)
3. 5’-UCA UCA CAC UGA AUA CCA AU-3’ (20mer)
4. 5’-GUC AUC ACA CUG AAU ACC AAU-3’ (21mer)



Column	: YMC-Triart C18 (1.9 µm, 12 nm)
	50 X 2.1 mmI.D.
Eluent	: A) 200 mM HFIP*-8 mM triethylamine
	B) methanol
	10-20%B (0-10 min)
Flow rate	: 0.42 mL/min
Temperature	: 65℃
Detection	: UV at 260 nm
Injection	: 1 µL (2-4 nmol/mL)

* 1,1,1,3,3,3-hexafluoro-2-propanol

Analytical stationary phases for BioLC from YMC

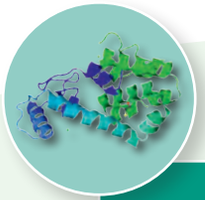
Mode		Product	Phase (silica-based unless stated)	End-Capped	USP Class No.	Particle size (µm)	Pore size (nm)	pH	Max. Temperature	Typical Applications
HIC	C4	BioPro HIC BF*	non-porous butyl bonded HIC phase, high troughput, polymethacrylate particle	—	—	<3, 4	—	2.0–12.0	60 °C	proteins, antibodies, antibody drug conjugates (ADC)
Ion Exchange		BioPro IEX QA (YMC-BioPro QA)	porous anion exchanger, high exchange capacity, polymethacrylate particle	—	—	5	porous	2.0–12.0	60 °C	proteins, antibodies, peptides, (oligo)nucleotides
		BioPro IEX QF (YMC-BioPro QA-F)	non-porous anion exchanger, high troughput, polymethacrylate particle	—	—	3, 5	—	2.0–12.0	60 °C	proteins, antibodies, peptides, (oligo)nucleotides
		BioPro IEX SP (YMC-BioPro SP)	porous cation exchanger, high exchange capacity, polymethacrylate particle	—	—	5	porous	2.0–12.0	60 °C	proteins, antibodies, peptides, (oligo)nucleotides
		BioPro IEX SF (YMC-BioPro SP-F)	non-porous cation exchanger, high troughput, polymethacrylate particle	—	—	3, 5	—	2.0–12.0	60 °C	proteins, antibodies, peptides, (oligo)nucleotides
Size Exclusion		YMC-Pack Diol-60	versatile phase for gel filtration separations for MW < 10,000 Da	—	L20	3, 5	6	5.0–7.5	40 °C	peptides and small proteins, oligosaccharides
		YMC-Pack Diol-120	versatile phase for gel filtration separations for MW 5,000 to 100,000 Da	—	L20	3, 5	12	5.0–7.5	40 °C	intermediate proteins, oligosaccharides
		YMC-Pack Diol-200	versatile phase for gel filtration separations for MW 5,000 to 300,000 Da	—	L20	2, 3, 5	20	5.0–7.5	40 °C	large proteins, polysaccharides
		YMC-Pack Diol-300	versatile phase for gel filtration separations for MW 20,000 to 1,000,000 Da	—	L20	2, 3, 5	30	5.0–7.5	40 °C	very large proteins, antibodies, polysaccharides
		YMC-SEC MAB*	size exclusion column specifically dedicated to antibodies for MW 10,000 to 500,000 Da	—	L20	<2, 3	25	5.0–7.5	40 °C	antibodies, aggregates, fragments, large proteins
Reversed Phase	C4	YMC-Triart Bio C4*	pH-stable widepore organic/inorganic hybrid particle	yes	L26	1.9, 3, 5	30	1.0–10.0	pH<7: 90 °C pH>7: 50 °C	proteins, antibodies, peptides, high temperature applications, LC/MS separations
		YMC-Pack C4	traditional C4, widepore available	yes	L26	3, 5	30	2.0–7.5	50 °C	peptides, proteins
	C8	YMC-Triart C8	pH-stable organic/inorganic hybrid particle	yes	L7	1.9, 3, 5	12	1.0–12.0	pH<7: 90 °C pH>7: 50 °C	(oligo)nucleotides, high temperature applications, LC/MS separations
		YMC-Pack C8	traditional C8, widepore available	yes	L7	3, 5	20	2.0–7.5	50 °C	peptides and small proteins
		YMCbasic	monomeric bonded chains of C8 and smaller	—	L7	3, 5	20	2.0–7.5	50 °C	peptides, peptide mapping
	C18	YMC-Triart C18	pH-stable organic/inorganic hybrid particle, 100% aqueous conditions possible	yes	L1	1.9, 3, 5	12	1.0–12.0	pH<7: 90 °C pH>7: 50 °C	peptides, (oligo)nucleotides, peptide mapping, high temperature applications, LC/MS separations
		YMC-Pack Pro C18	ultra high purity silica, very low residual non-specific interactions	yes	L1	2, 3, 5	12	2.0–8.0	50 °C	peptides, peptide mapping
		Hydrosphere C18	ultra high purity silica, can be used in 100% aqueous eluents	yes	L1	2, 3, 5	12	2.0–8.0	50 °C	peptides, (oligo)nucleotides, nucleosides, peptide mapping
		Meteoric Core C18 BIO	silica based Core-Shell particle with larger pore	yes	L1	2.7	16	1.5–10.0	pH<7: 70 °C pH>7: 50 °C	peptides, small proteins
		Meteoric Core C18	silica based Core-Shell particle	yes	L1	2.7	8	1.5–10.0	pH<7: 70 °C pH>7: 50 °C	peptides, peptide mapping

*some particle sizes are scheduled for a later release

YMC Europe GmbH · Schöttmannshof 19 · D-46539 Dinslaken · Phone +49 (0) 2064 427-0 · Fax +49 (0) 2064 427-222 · Email: info@ymc.de · www.ymc.de

YMC Columns for Biomolecules

YMC EUROPE GMBH



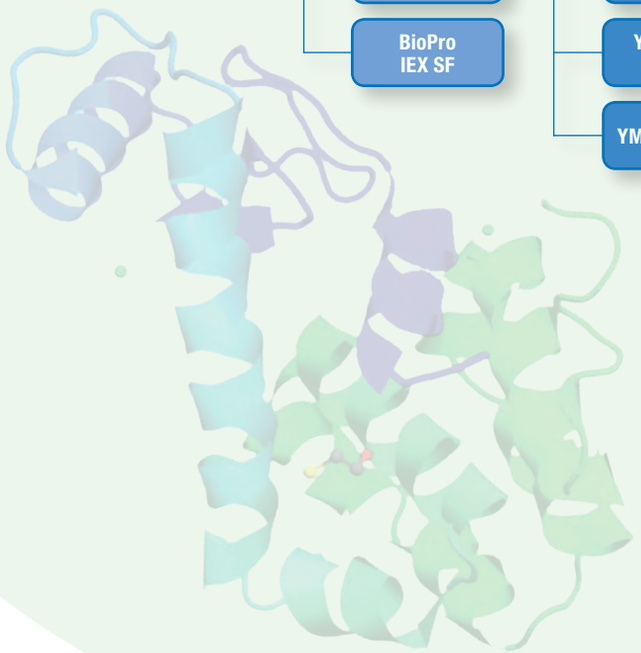
Proteins / Peptides

HIC
- BioPro HIC BF

IEX
- BioPro IEX QA
- BioPro IEX QF
- BioPro IEX SP
- BioPro IEX SF

SEC
- YMC-Pack Diol-60
- YMC-Pack Diol-120
- YMC-Pack Diol-200
- YMC-Pack Diol-300
- YMC SEC MAB

RP
- <5 kDa
  - YMC-Triart C18
  - YMC-Pack Pro C18
  - Hydrosphere C18
  - Meteoric Core C18
- 5–20 kDa
  - YMC-Pack C8, 200 Å
  - YMCbasic
  - Meteoric Core C18 BIO
- 20–100 kDa
  - YMC-Triart Bio C4
  - YMC-Pack C4, 300 Å



(Monoclonal) Antibodies

HIC
- BioPro HIC BF

IEX
- BioPro IEX QA
- BioPro IEX QF
- BioPro IEX SP
- BioPro IEX SF

SEC
- YMC-Pack Diol-200
- YMC-Pack Diol-300
- YMC SEC MAB

Oligonucleotides / Nucleic Acids

RP
- YMC-Triart C18
- YMC-Triart C8
- Hydrosphere C18

IEX
- BioPro IEX QA
- BioPro IEX QF

BioLC overview analytical 8/2018