YMC

NEW

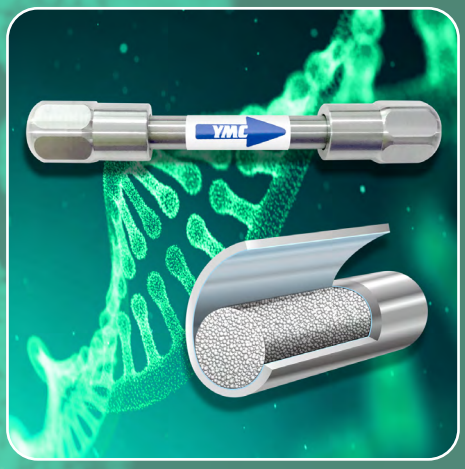
Bioinert Coated Columns

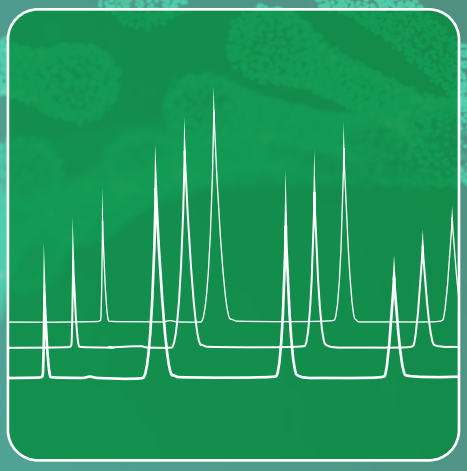
YMC Accura BioPro IEX

Oligonucleotides

Antibodies & Proteins

LC/MS Analyses





Highly accurate results

Exceptional recoveries

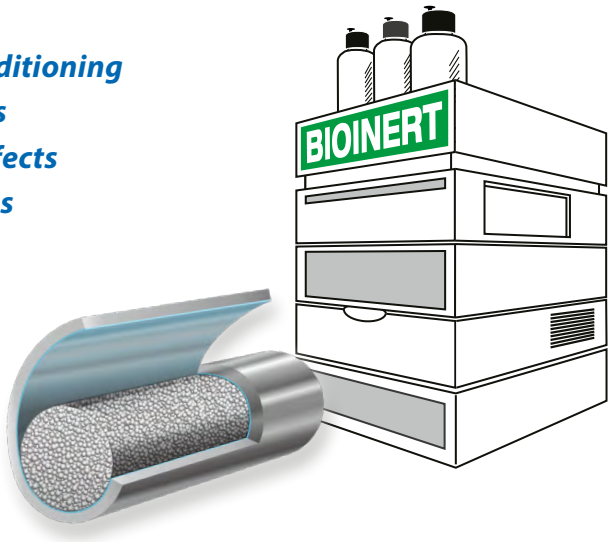
High throughput

Excellent reproducibility

Non-porous YMC Accura BioPro IEX

Features

- *Exceptionally high recoveries without preconditioning*
- *Very sharp peak shapes with high sensitivities*
- *Superior reproducibility and no carry-over effects*
- *High efficiency and rapid throughput analyses*
- *New rigid surface coated hardware*

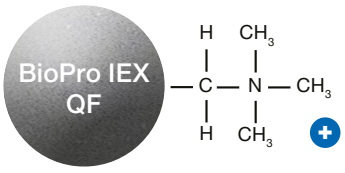


Ideal choice for

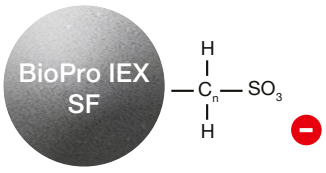
- *Oligonucleotides, nucleotides*
- *Antibodies, proteins and peptides*
- *Sensitive LC/MS analyses*

Specification

	YMC Accura BioPro IEX QF	YMC Accura BioPro IEX SF
Matrix	hydrophilic polymer (polymethacrylate)	hydrophilic polymer (polymethacrylate)
Particle size / µm	3, 5	3, 5
Pore size / nm	non-porous	non-porous
Charged group	$-CH_2N^+(CH_3)_3$	$-(CH_2)_3SO_3^-$
Counter ion	Cl^-	Na^+
Available pH range	2.0–12.0	2.0–12.0
Temperature range	4–60 °C	
Pressure limit	3 µm: 15–20 MPa, 5 µm: 10–30 MPa	
Column hardware	bioinert coated stainless steel	
Frit hardware		

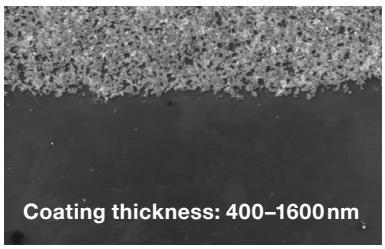


strong anion exchanger



strong cation exchanger

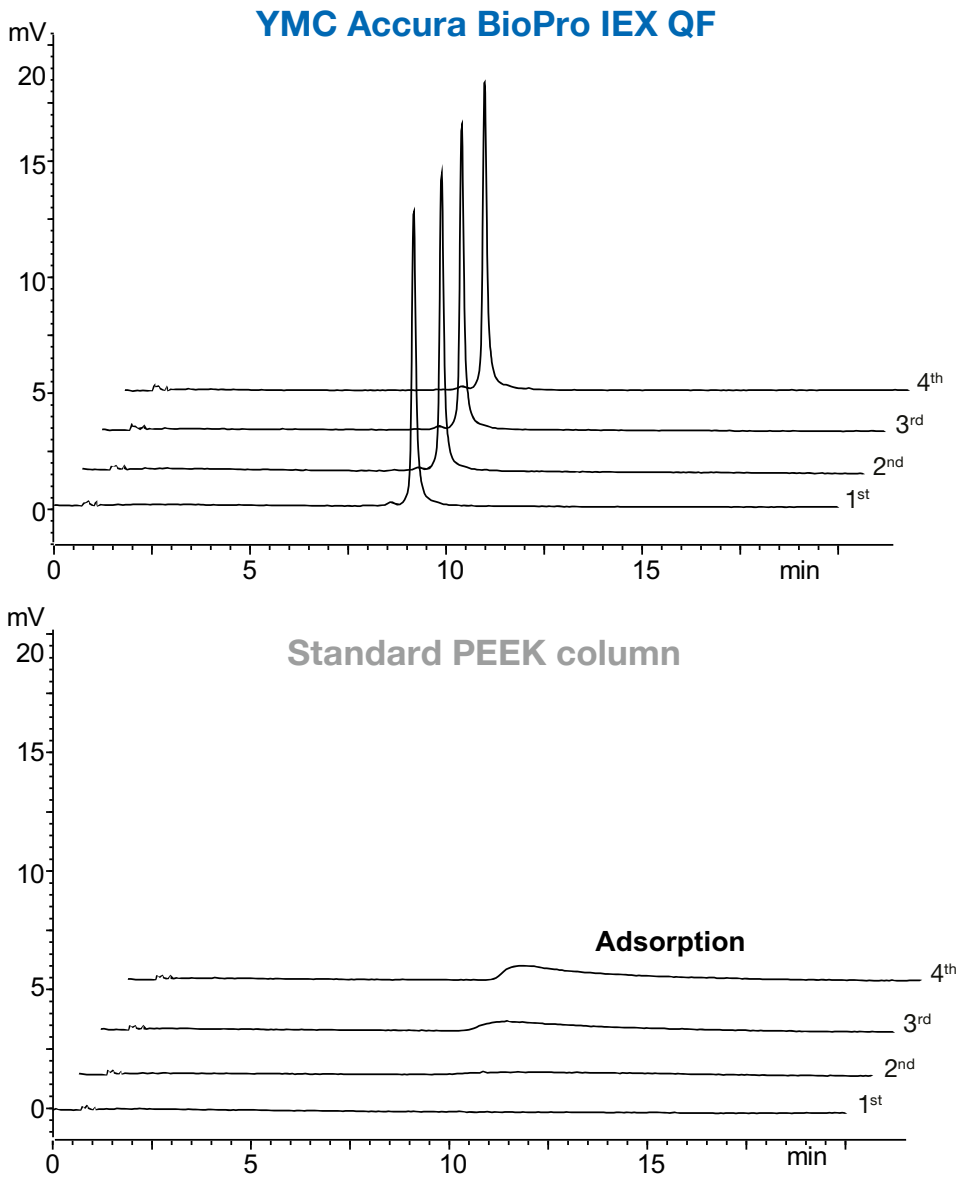
Durable bioinert coating



The robust bioinert coating used on YMC Accura hardware is 130 to 320-fold thicker making it more durable than other similar hardware concepts. A long-term inertness against sensitive substances is ensured.
In order to demonstrate its robustness, a YMC Accura column was packed multiple times. Even though this is quite a challenge for the column surface, the coating remains unaffected (SEM* picture: top area is bare steel for comparison).

*Scanning Electron Microscope

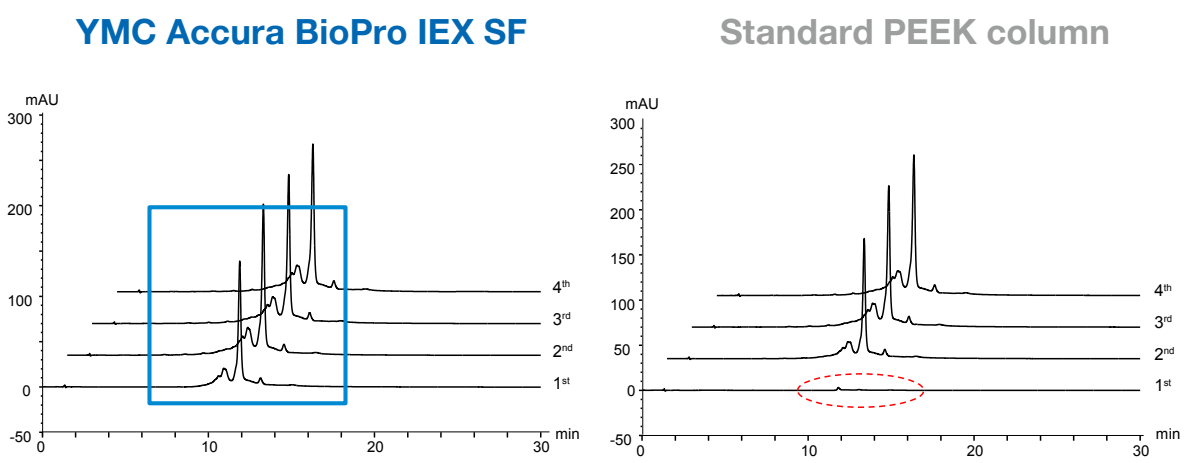
Sharp peaks and reliable recovery for oligonucleotides



Columns:	YMC Accura BioPro IEX QF (5 µm) 100 x 4.6 mm ID (bioinert coated hardware)
	BioPro IEX QF (5 µm) 100 x 4.6 mm ID (standard hardware)
Part Nos.:	QF00S05-1046PTC
	QF00S05-1046WP
Eluent:	A) 20 mM Tris-HCl (pH 8.1)
	B) 20 mM Tris-HCl (pH 8.1) containing 1.0 M $NaClO_4$
Gradient:	25–40%B (0–15 min), 40%B (15–20 min)
Flow rate:	1.0 mL/min
Temperature:	60 °C
Detection:	UV at 260 nm
Injection:	4 µL (5 nmol/mL)
Sample:	21mer RNA
System:	bioinert HPLC

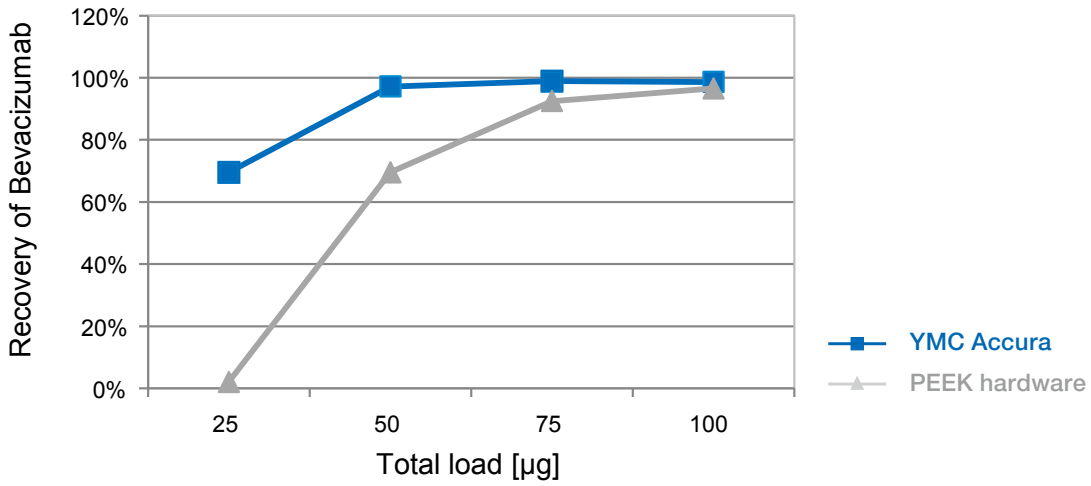
Oligonucleotides generally exhibit poor peak shape and therefore low recovery in AEX analysis, mainly due to adsorption onto the column hardware. YMC Accura BioPro IEX columns provide high recovery and very good peak shapes from the first injection. This makes YMC Accura BioPro IEX QF columns ideal for the analysis of oligonucleotides with reproducible results. The columns show stable peak areas from the 1st injection, so that no preconditioning is required.

No preconditioning required for reliable results



Columns:	YMC Accura BioPro IEX SF (5 µm) 100 x 4.6 mm ID (bioinert coated hardware)
	BioPro IEX SF (5 µm) 100 x 4.6 mm ID (standard hardware)
Part Nos.:	SF00S05-1046PTC
	SF00S05-1046WP
Eluent:	A) 20 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8)
	B) 20 mM NaH_2PO_4-Na_2HPO_4 (pH 6.8) containing 0.2 M NaCl
Gradient:	0–50%B (0–30 min), 0%B (30–45 min)
Flowrate:	0.5 mL/min
Temperature:	25 °C
Detection:	UV at 280 nm
Injection:	5 µL
Sample:	Bevacizumab (5 mg/mL)
System:	bioinert UHPLC

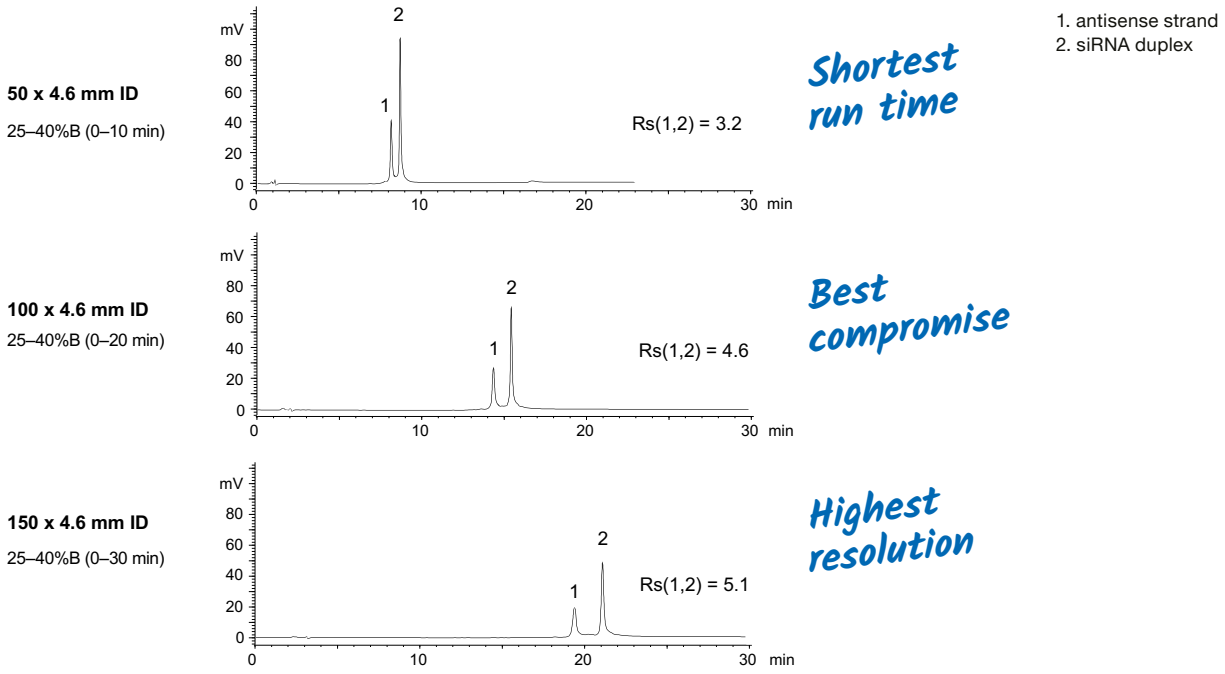
Higher recovery for low loading amounts



The high inertness of YMC Accura BioPro IEX columns also requires no preconditioning in CEX analyses. Especially at low loading amounts, YMC Accura BioPro IEX SF columns provide higher recoveries compared to the standard PEEK column.

Column dimensions according to analysis type

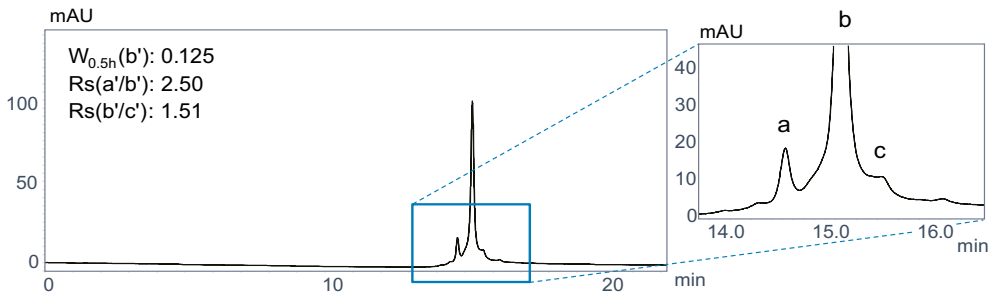
Different column lengths for each separation purpose



Columns:	YMC Accura BioPro IEX QF (5 µm)	Flow rate:	0.5 mL/min
Part Nos.:	QF00S05-0546PTC	Temperature:	60 °C
	QF00S05-1046PTC	Detection:	UV at 260 nm
	QF00S05-1546PTC	Injection:	8 µL (each 5 nmol/mL)
Eluent:	A) 20 mM Tris-HCl (pH 8.1)	System:	bioinert HPLC
	B) 20 mM Tris-HCl (pH 8.1) containing 1.0 M $NaClO_4$		

YMC Accura BioPro IEX columns are available with different lengths for specific purposes. Short columns provide short run times and high throughput, whilst retaining good resolution. Longer columns offer a higher resolution that is required for challenging samples, such as the separation of single- and double-stranded RNA.

Ideally suited for native IEX-MS



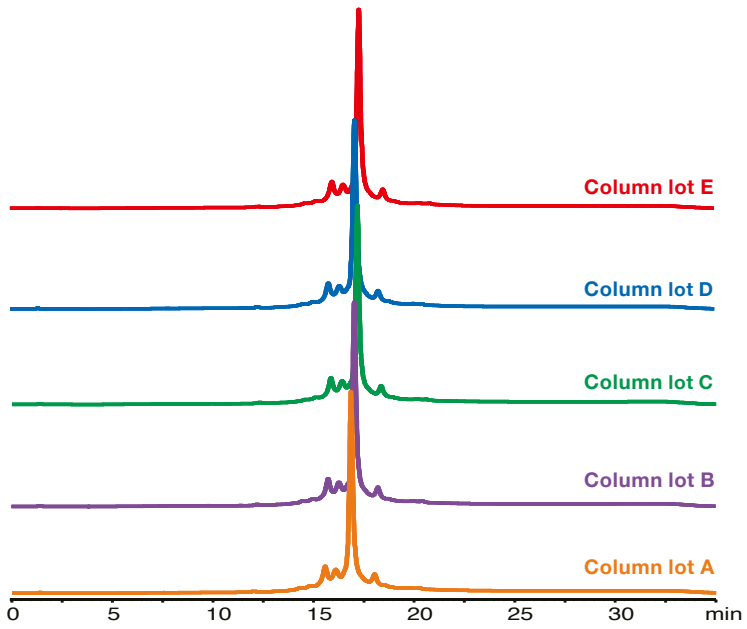
Column:	YMC Accura BioPro IEX SF (3 µm) 100 x 2.1 mm ID	Temperature:	25 °C
Part No.:	SF00S03-10Q1PTC	Detection:	UV at 280 nm
Eluent[1)]:	A) 20 mM CH_3COONH_4-CH_3COOH (pH 5.6)	Injection:	2 µL
	B) 140 mM CH_3COONH_4-10 mM NH_4HCO_3 (pH 7.4)	Sample:	Trastuzumab (1 mg/mL)
Gradient:	20%B (0–2 min), 20–100%B (2–18 min), 100%B (18–22 min)	System:	bioinert UHPLC
Flow rate:	0.1 mL/min		

1) Anal. Chem. 2018, 90, 13013-13020.

Smaller column IDs that allow lower flow rates and volatile mobile phases are necessities for coupling to mass detection. Such high sensitivity analyses are ideally performed using YMC Accura BioPro IEX columns. Another positive effect is the decreased solvent consumption and lower amount of sample required.

Reproducibility and stability

Excellent batch-to-batch reproducibility

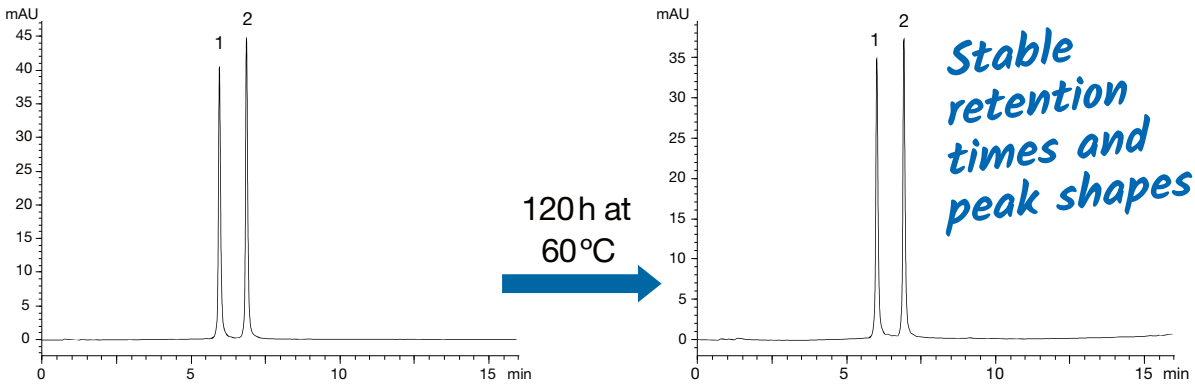


Ideal for use in quality control!

Column:	BioPro IEX SF (5 µm) 100 x 4.6 mm ID	Flow rate:	0.5 mL/min
Part No.:	SF00S05-1046WP	Temperature:	25 °C
Eluent:	A) 20 mM NaH_2PO_4-Na_2HPO_4 (pH 6.5)	Detection:	UV at 215 nm
	B) 20 mM NaH_2PO_4-Na_2HPO_4 (pH 6.5) containing 0.2 M NaCl	Injection:	10 µL
Gradient:	0–50%B (0.5–30 min)	Sample:	Monoclonal antibody (IgG1)

BioPro IEX columns exhibit excellent batch-to-batch reproducibility – as in this example – for mAb analysis with resolution of peaks for small charge variants. All gel batches are inspected by rigorous quality control tests and must meet the required criteria before release.
BioPro IEX columns are the best choice for the quality control of mAbs, proteins, oligonucleotides and other biopharmaceuticals.

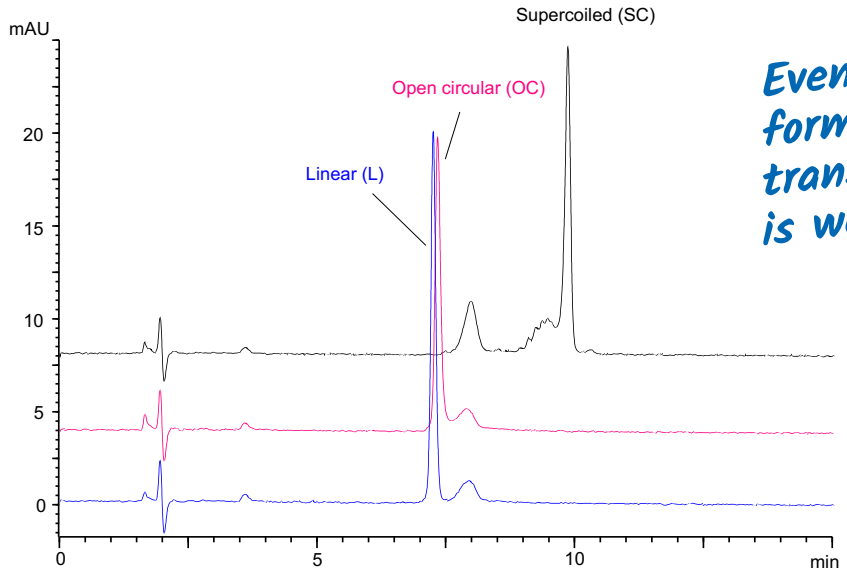
High temperature stability



Stable retention times and peak shapes

Column:	BioPro IEX QF (5 µm) 100 x 4.6 mm ID	Temperature:	25 °C
Part No.:	QF00S05-1046WP	Detection:	UV at 260 nm
Eluent:	A) 10 mM NaOH	Injection:	4 µl (each 5 nmol/ml)
	B) 10 mM NaOH containing 1.0 M $NaClO_4$	Sample:	1) 5'-TCATCACACTGAATACCAAT-3' (DNA 20mer)
Gradient:	25–55%B (0–15 min), 100%B (15–20 min)		2) 5'-GTCATCACACTGAATACCAAT-3' (DNA 21mer)
Flow rate:	1.0 ml/min		

Analysis of topological isomers of plasmids

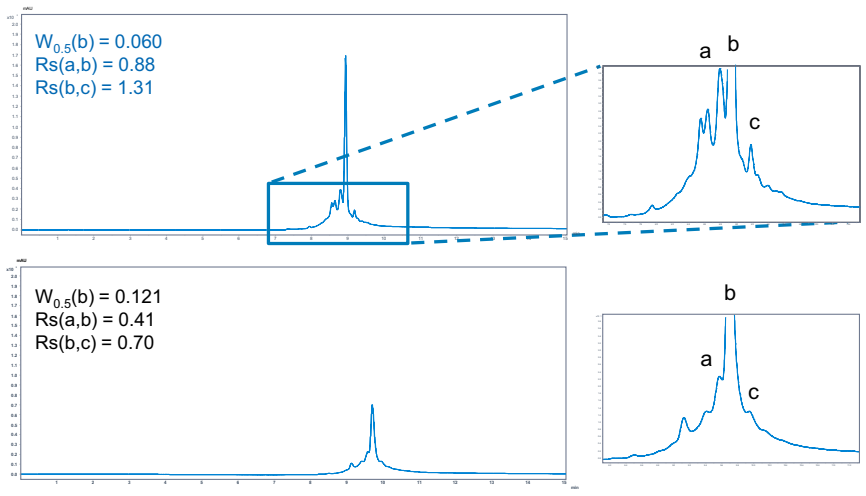


Even the supercoiled form with high transfection efficiency is well separated.

Column: YMC Accura BioPro IEX QF (5 µm) 100 x 4.6 mm ID
Part No.: QF00S05-1046PTC
Eluent: A) 20 mM Tris-HCl (pH 8.5)
B) 20 mM Tris-HCl (pH 8.5) containing 1.0 M NaCl
Gradient: 77%B (0–1 min), 77–85%B (1–15 min)
Flow rate: 0.4 mL/min

Temperature: 25 °C
Detection: UV at 260 nm
Injection: 1 µL (50–65 µg/mL)
Samples: pUC19 plasmid extracted from *E. coli* (2686 bp) (SC)
pUC19 plasmid digested with nicking endonuclease Nt.BspQI (OC)
pUC19 plasmid digested with restriction enzyme BamHI (L)
System: bioinert UHPLC

Higher resolution for monoclonal antibody analyses



Better resolution and peak width!

YMC Accura BioPro IEX SF
100 x 4.6 mm ID

ProPac 3R SCX
100 x 4.0 mm ID

Column: YMC Accura BioPro IEX SF (3 µm) 100 x 4.6 mm ID
Part No.: SF00S03-1046PTC
Eluent: A) 10 mM MES*-NaOH (pH 6.6)
B) 10 mM MES*-NaOH (pH 6.6) containing 1 M NaCl
Gradient: 0–20%B (0–15 min)
Flow rate: 0.5 mL/min for 4.6 mm ID, 0.378 mL/min for 4.0 mm ID

Temperature: 25 °C
Detection: UV at 280 nm
Injection: 2 µL for 4.6 mm ID, 1.5 µL for 4.0 mm ID
Sample: Bevacizumab (5 mg/mL)
System: bioinert UHPLC

ProPac is a trademark of Thermo Fisher Scientific Inc.

*2-(*N*-morpholino) ethanesulfonic acid

Ordering information

3 µm non-porous analytical columns, bioinert coated hardware (max. pressure 15–20 MPa)

Phase	Column ID (mm)	Column length (mm)		
		50 (15 MPa)	100 (15 MPa)	150 (20 MPa)
YMC Accura BioPro IEX QF	2.1 4.6	QF00S03-05Q1PTC QF00S03-0546PTC	QF00S03-10Q1PTC QF00S03-1046PTC	QF00S03-15Q1PTC QF00S03-1546PTC
YMC Accura BioPro IEX SF	2.1 4.6	SF00S03-05Q1PTC SF00S03-0546PTC	SF00S03-10Q1PTC SF00S03-1046PTC	SF00S03-15Q1PTC SF00S03-1546PTC

5 µm non-porous analytical columns, bioinert coated hardware (max. pressure 10–30 MPa)

Phase	Column ID (mm)	Column length (mm)			
		50 (10 MPa)	100 (12 MPa)	150 (18 MPa)	250 (30 MPa)
YMC Accura BioPro IEX QF	2.1 4.6	QF00S05-05Q1PTC QF00S05-0546PTC	QF00S05-10Q1PTC QF00S05-1046PTC	QF00S05-15Q1PTC QF00S05-1546PTC	– QF00S05-2546PTC
YMC Accura BioPro IEX SF	2.1 4.6	SF00S05-05Q1PTC SF00S05-0546PTC	SF00S05-10Q1PTC SF00S05-1046PTC	SF00S05-15Q1PTC SF00S05-1546PTC	– SF00S05-2546PTC

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