avantor™ authorized channel partner

Chromatography Solutions

Avantor® ACE® Excel® Oligo

U/HPLC Columns

Avantor® ACE®

UHPLC / HPLC COLUMNS FOR REPRODUCIBLE OLIGONUCLEOTIDE ANALYSIS

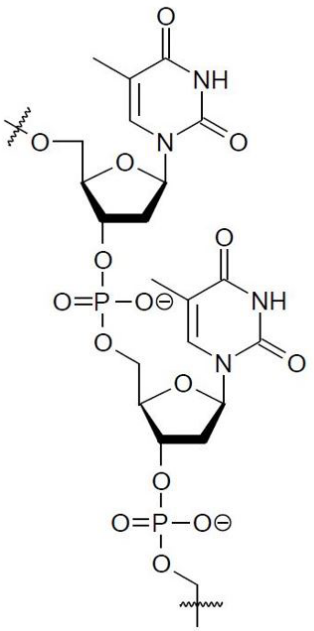
- Proprietary encapsulated stationary phase for oligonucleotide analysis
- Ultra-inert silica and high efficiency 1.7 and 3 µm particle sizes for optimum peak shape
- Extended pH stability up to 11.5 with LC-MS compatible buffers
- Highly reproducible stationary phase: Batch-to-batch and column-to-column
- Excellent column lifetime under oligonucleotide testing conditions

OLIGONUCLEOTIDE ANALYSIS

- Oligonucleotides are being synthesised for therapeutic usage against many diseases including genetic disorders and cancer
- Several impurities can be produced during oligonucleotide synthesis (e.g. failure sequences) which need to be separated from the desired product
- Ion-pair RPLC can be employed for the analysis of trityl-off deprotected oligonucleotides
- Triethylammonium acetate (TEAA) is used to ion pair with the negatively charged phosphodiester backbone of the oligonucleotide
- The stationary phase is chemically modified to withstand an extended pH range

OLIGONUCLEOTIDE LADDER STANDARD

- The oligonucleotide ladder standard demonstrated in this brochure consists of six DNA oligonucleotides of varying sequence length from 15 to 40 mer
- Each oligonucleotide sequence is made up of several thymidine monomers joined together via phosphodiester linkages as shown below



Structure of thymidine oligonucleotide

PRODUCT SPECIFICATIONS

Phase		Particle size (µm)	Pore size (Å)	Surface area (m^2/g)	Carbon load (%)	Recommended pH range
ACE Excel Oligo	Yes	1.7, 3	90	400	14.8	1.5 – 11.5

To extend column lifetime ACE UHPLC guard cartridges (EXL-1P15-GD2U / EXL-1P15-GD4U) are recommended. For the guard system, a guard cartridge holder (H0011) is also required.

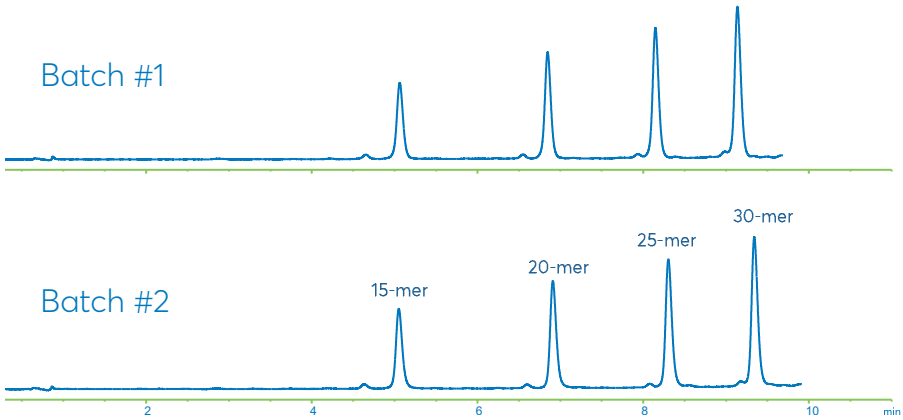
For HPLC column connections up to 6000 psi, PEEK™ fingertight fittings (ACE-CC10) are recommended - for further details please contact **chromsupport@avantorsciences.com**

For UHPLC column connections up to 25000 psi, reuseable fittings (EXL-CC10) are recommended - for further details please contact **chromsupport@avantorsciences.com**

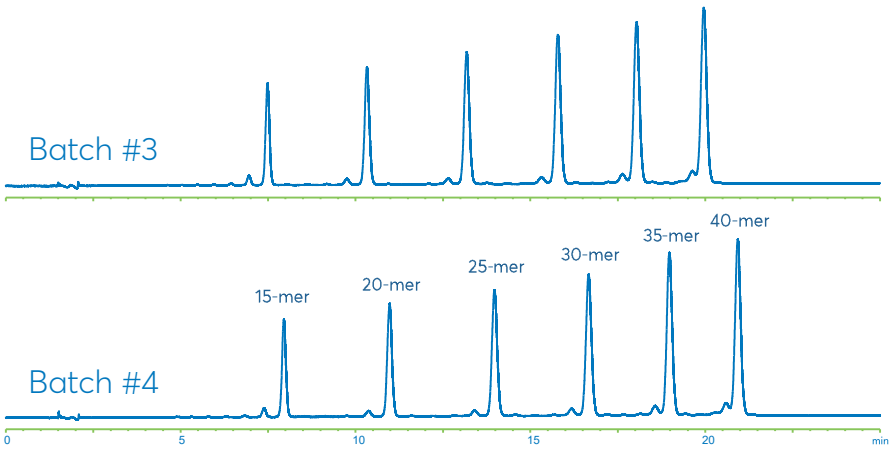
GUARANTEED REPRODUCIBILITY

– The ACE Excel Oligo column provides excellent batch-to-batch reproducibility as shown below

BATCH-TO-BATCH REPRODUCIBILITY



Columns: ACE Excel 1.7 Oligo, 50x2.1 mm
Cat. No.: EXL-1715-0502
Mobile phase A: 80 mM TEAA in H_2O (pH 7.0)
Mobile phase B: 80 mM TEAA in MeCN
Gradient: 12 – 15% B in 10 min
Flow rate: 0.2 ml/min
Temperature: 60 °C
Injection: 5 µl
Detection: 260 nm

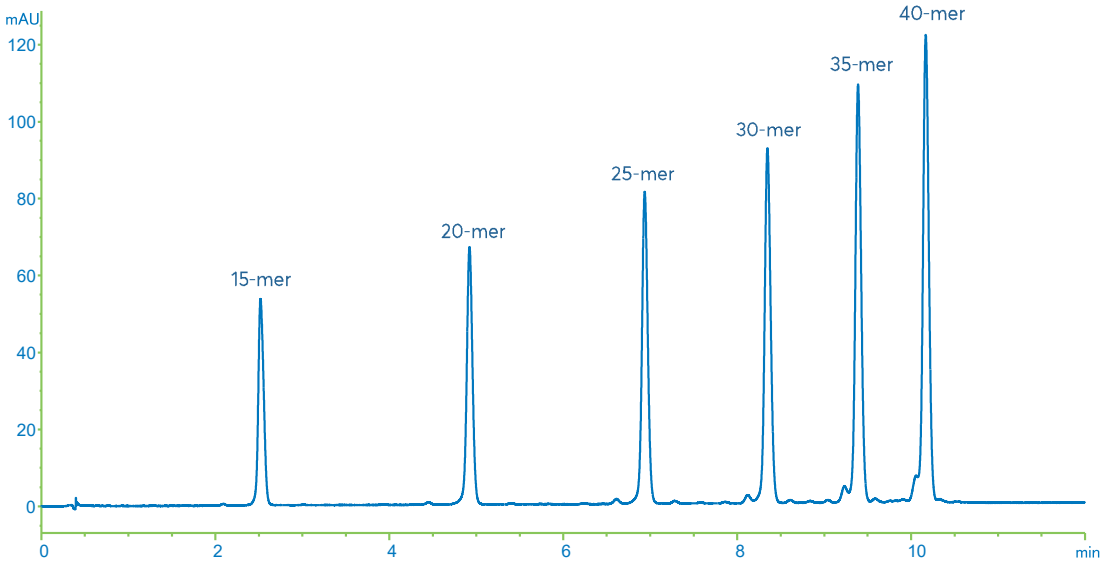


Columns: ACE Excel 3 Oligo, 150x4.6 mm
Cat. No.: EXL-1115-1546
Mobile phase A: 80 mM TEAA in H_2O (pH 7.0)
Mobile phase B: 80 mM TEAA in MeCN
Gradient: 12 – 15% B in 30 min
Flow rate: 1.0 ml/min
Temperature: 60 °C
Injection: 20 µl
Detection: 260 nm

MASS-SPEC COMPATIBLE

The ACE Oligo column is compatible with typical MS method conditions for oligonucleotide analysis

HFIP is commonly used in the mobile phase and was used for the separation shown below, in combination with dibutylamine



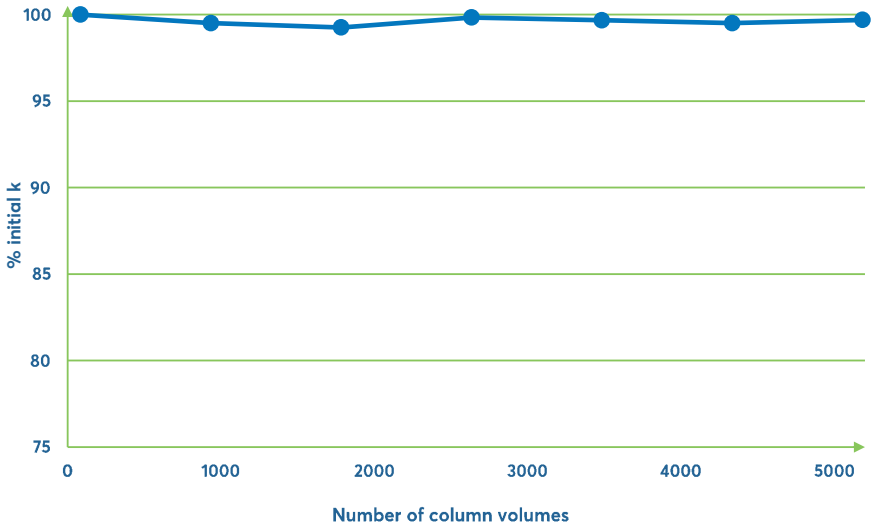
Oligonucleotide separation using MS friendly conditions

Sample: Oligonucleotide ladder standard
Column: ACE Excel 1.7 Oligo, 100x2.1 mm
Cat. No.: EXL-1715-1002
Mobile phase A: 15 mM dibutylamine + 25 mM 1,1,1,3,3,3-hexafluoropropan-2-ol in H_2O
Mobile phase B: 15 mM dibutylamine + 25 mM 1,1,1,3,3,3-hexafluoropropan-2-ol in MeOH
Gradient: 30 – 50% B in 15 min
Flow rate: 0.6 ml/min
Temperature: 60 °C
Injection: 10 µl
Detection: 260 nm

EXCELLENT COLUMN STABILITY

– The ACE Oligo column shows excellent stability for oligonucleotide analysis over 5000 column volumes as shown below

COLUMN STABILITY STUDY



Column stability study under oligonucleotide analysis conditions

Sample: Oligonucleotide ladder standard
Mobile phase A: 100 mM TEAA in H_2O (pH 7.0)
Mobile phase B: 100 mM TEAA in MeCN (pH 7.0)
Gradient: 10 – 14% B in 10 min
Flow rate: 0.6 ml/min
Temperature: 65 °C
Injection: 5 µl
Detection: 260 nm

ORDERING INFORMATION

U/HPLC hardware with 1000 bar / 15000 psi pressure limit

Column dimensions	1.7 µm	3 µm
50 x 2.1 mm	EXL-1715-0502	EXL-1115-0502
100 x 2.1 mm	EXL-1715-1002	EXL-1115-1002
150 x 2.1 mm	-	EXL-1115-1502
50 x 4.6 mm	-	EXL-1115-0546
100 x 4.6 mm	-	EXL-1115-1046
150 x 4.6 mm	-	EXL-1115-1546

Description	Cat. No.
UHPLC guard for 2.1 mm id columns (3pk)	EXL-1P15-GD2U
UHPLC guard for 4.6 mm id columns (3pk)	EXL-1P15-GD4U

Related products

Description	Cat. No.
UHPLC guard holder	H0011

MORE DIMENSIONS AVAILABLE.