



HILIC



HILIC – UHPLC/HPLC selectivity

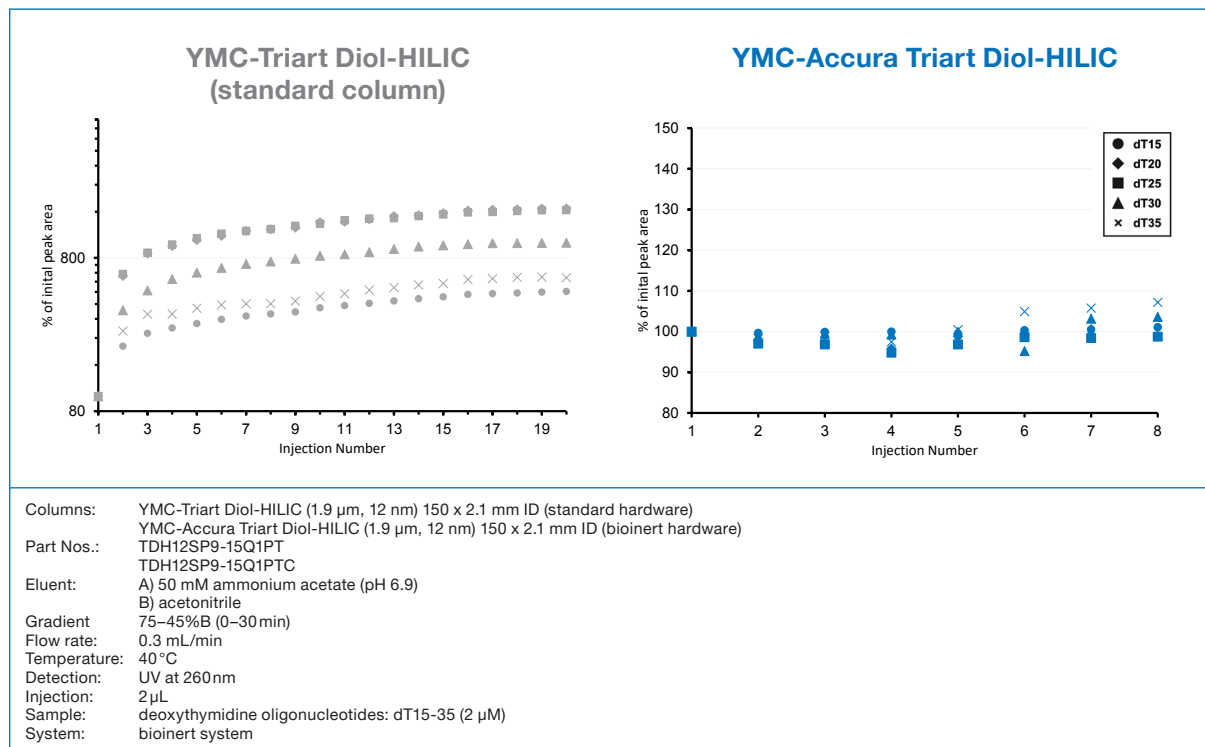
- Applicable to oligonucleotides, peptides, amino acids
- pH- and temperature stable
- Superior reproducibility
- Bioinert hardware available

	Base particle	Modification	Particle Size / μm	Pore Size / nm	pH range	Temperature range
YMC-Triart Diol-HILIC	organic/inorganic hybrid silica	Diol (USP L20)	1.9, 3, 5	12	2–10	50 °C



Bioinert YMC-Triart columns are available for improved sensitivity, peak shape and recovery of coordinating compounds such as nucleotides, oligonucleotides or phosphorylated proteins/peptides.

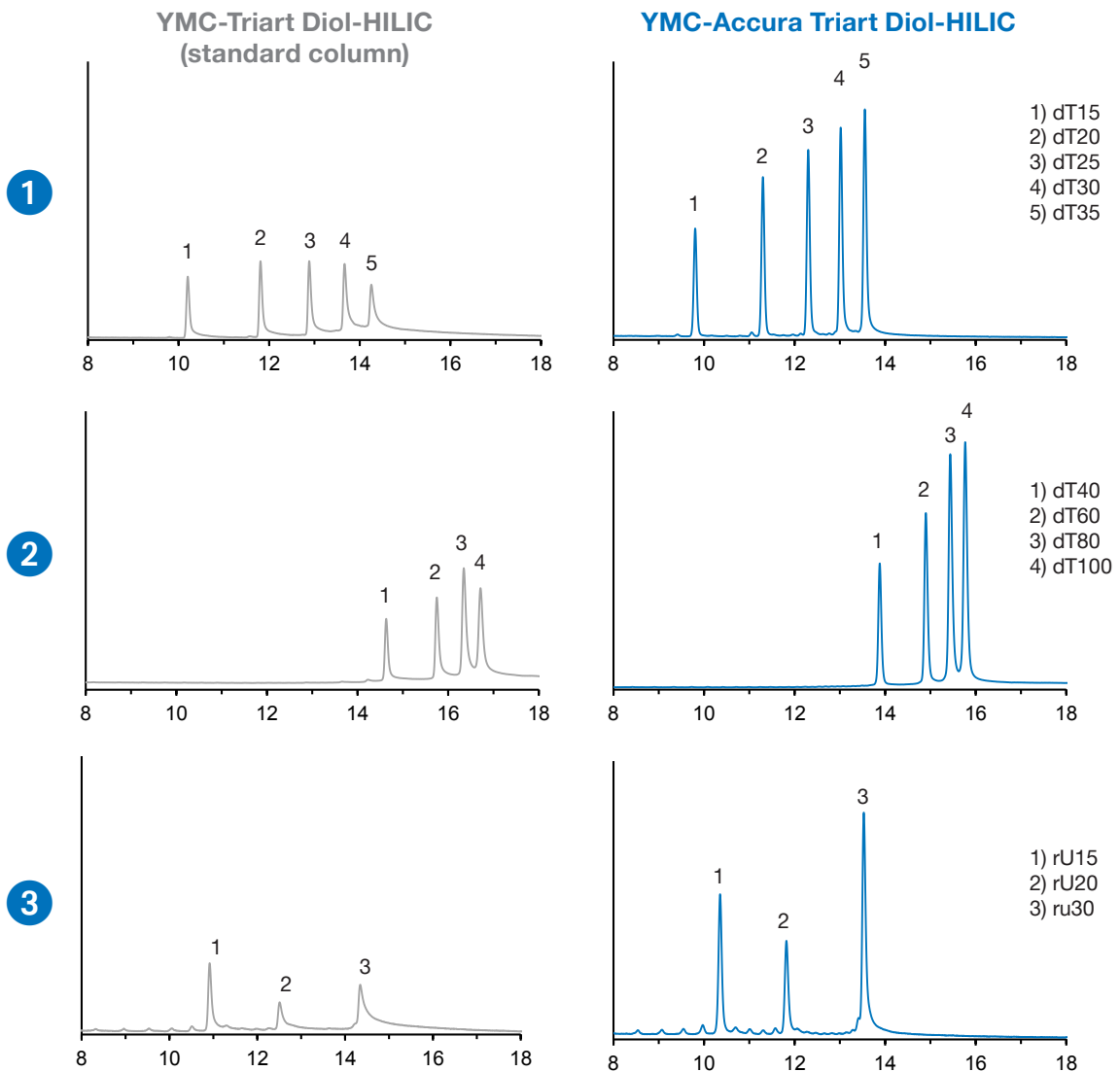
Pre-conditioning of a stainless-steel and a bioinert coated column with short DNA mixture



Pre-conditioning is a typical procedure when working with stainless-steel columns. Using a bioinert column such as YMC-Accura Triart usually achieves great performance from the first injection when working with an IP-RP phase. HILIC phases still need some pre-conditioning when a bioinert column is used; however, the number of injections is remarkably reduced. While 20 injections are necessary for the stainless-steel column, the YMC-Accura column is already conditioned after 8 injections, with very little difference (less than 10%) between initial and final peak areas.

Significantly better oligonucleotide separation

Improved chromatographic results using bioinert coated YMC-Accura Triart column



Columns: YMC-Triart Diol-HILIC (1.9 μ m, 12 nm) 150 x 2.1 mm ID (standard hardware)
 YMC-Accura Triart Diol-HILIC (1.9 μ m, 12 nm) 150 x 2.1 mm ID (bioinert hardware)

Part Nos.: TDH12SP9-15Q1PT
 TDH12SP9-15Q1PTC

Eluent: A) 50 mM ammonium acetate (pH 6.9)
 B) acetonitrile

Gradient: 75–45%B (0–30 min)

Flow rate: 0.3 mL/min

Temperature: 40 °C

Detection: UV at 260nm

Injection: 2 μ L

Sample: deoxythymidine oligonucleotides: dT15-35 (2 μ M) and dT40-100 (2 μ M)
 RNA oligonucleotides: rU15-30 (2 μ M)

System: bioinert system

dT15-35 **1**
 dT40-100 **2**
 rU15-30 **3**

By courtesy of University of Geneva,
 Institute of Pharmaceutical Sciences of Western Switzerland (ISPSO)

After conditioning and analysing the short DNA oligonucleotide mixture of dT15-35, longer DNA oligonucleotides dT40-100 and short RNA oligonucleotides rU15-30 are analysed. Higher sensitivities, peak areas and less tailing are achieved using the bioinert YMC-Accura Triart Diol-HILIC column. Non-specific adsorption does not vary according to length, even though the adsorption is usually higher for longer oligonucleotides in IP-RP.

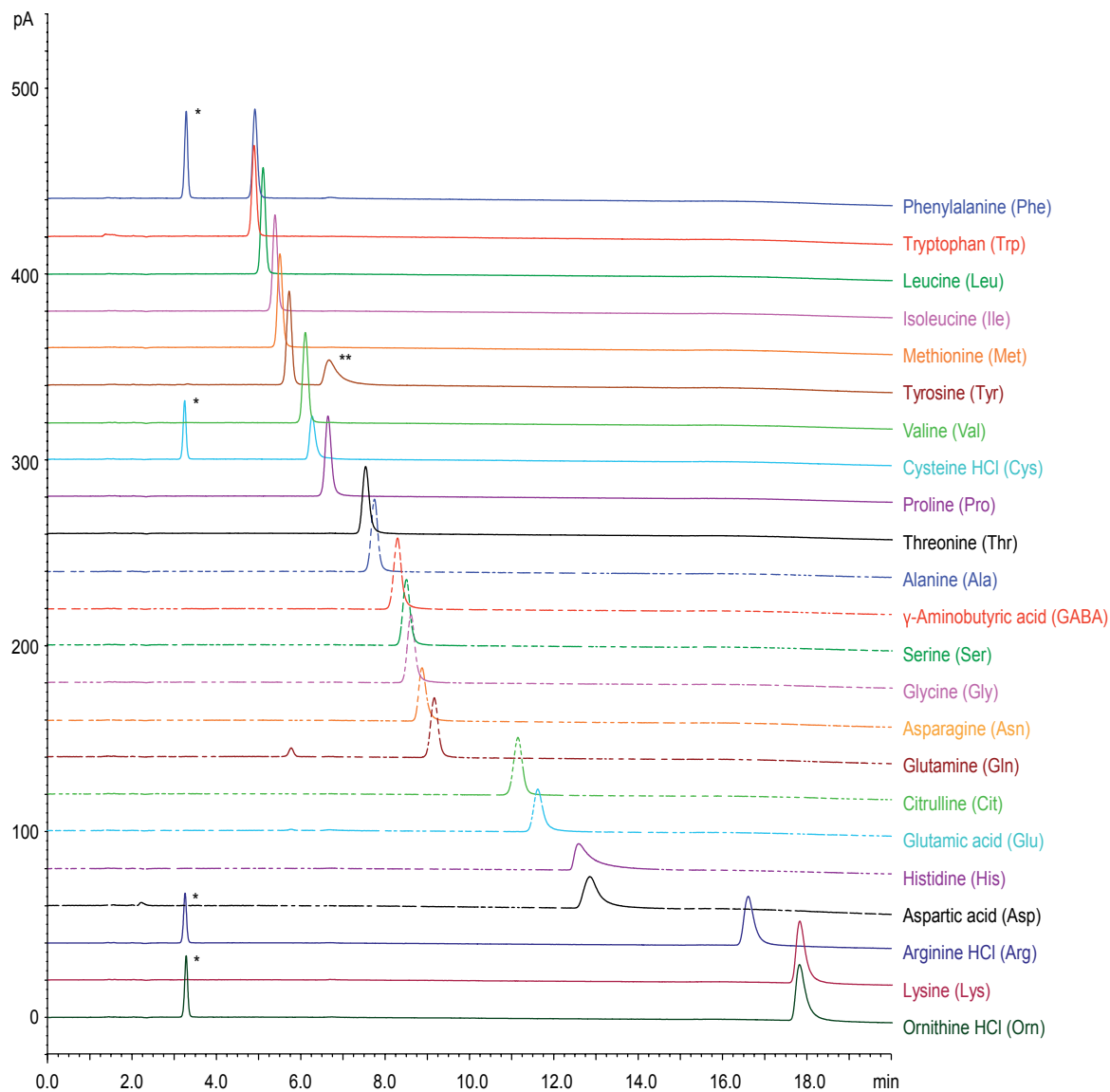
Reference: H. Lardeux, A. Goyon, K. Zhang, J.M. Nguyen, M.A. Lauber, D. Guillaume, V. D'Atri, The impact of low adsorption surfaces for the analysis of DNA and RNA oligonucleotides, J. Chromatogr. A 1677 (2022) 463324.

HILIC – Amino acids

Ideal choice for reliable analysis of hydrophilic compounds

Free amino acids in HILIC mode

* Chloride ion contained in the sample solution
 ** Sodium ion contained in the sample solution



Column: YMC-Triart Diol-HILIC (5 μm, 12 nm) 150 x 4.6 mm ID
 Part No.: TDH12S05-1546PTH
 Eluent: A) 100 mM HCOOH-HCOONH₄ (pH 3.6)
 B) acetonitrile
 Gradient: 83–80%B (0–12 min), 80–68%B (12–20 min)
 Flow rate: 1.0 mL/min
 Temperature: 40 °C
 Detection: Corona® CAD® (Charged Aerosol Detector)
 Injection: 10 μL (0.1 mg/mL)

Corona and CAD are trademarks of Thermo Fisher Scientific.

1.9 µm UHPLC columns (max. pressure 100 MPa)

Phase	Column ID [mm]	Column length [mm]				
		30	50	75	100	150
YMC-Triart Diol-HILIC	2.0	TDH12SP9-0302PT	TDH12SP9-0502PT	TDH12SP9-L502PT	TDH12SP9-1002PT	TDH12SP9-1502PT
	2.1	TDH12SP9-03Q1PT	TDH12SP9-05Q1PT	TDH12SP9-L5Q1PT	TDH12SP9-10Q1PT	TDH12SP9-15Q1PT
	3.0	–	TDH12SP9-0503PT	TDH12SP9-L503PT	TDH12SP9-1003PT	TDH12SP9-1503PT

1.9 µm bioinert coated UHPLC columns (max. pressure 100 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Accura Triart Diol-HILIC	2.1	TDH12SP9-05Q1PTC	TDH12SP9-10Q1PTC	TDH12SP9-15Q1PTC

1.9 µm PEEK-lined UHPLC columns (max. pressure 100 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Triart Diol-HILIC metal-free	2.1	TDH12SP9-05Q1PTP	TDH12SP9-10Q1PTP	TDH12SP9-15Q1PTP

Special column connectors required.

3 µm HPLC columns (max. pressure 20–45 MPa)

Phase	Column ID [mm]	Column length [mm]					
		50	75	100	150	250	(pack of 5)
YMC-Triart Diol-HILIC	2.0	TDH12S03-0502WT	TDH12S03-L502WT	TDH12S03-1002WT	TDH12S03-1502WT	TDH12S03-2502WT	TDH12S03-01Q1GC
	2.1	TDH12S03-05Q1PTH	TDH12S03-L5Q1PTH	TDH12S03-10Q1PTH	TDH12S03-15Q1PTH	TDH12S03-25Q1PTH	TDH12S03-01Q1GC
	3.0	TDH12S03-0503WT	TDH12S03-L503WT	TDH12S03-1003WT	TDH12S03-1503WT	TDH12S03-2503WT	TDH12S03-0103GC
	4.6	TDH12S03-0546WT	TDH12S03-L546WT	TDH12S03-1046WT	TDH12S03-1546WT	TDH12S03-2546WT	TDH12S03-0104GC

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

3 µm bioinert coated HPLC columns (max. pressure 45 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Accura Triart Diol-HILIC	2.1	TDH12S03-05Q1PTC	TDH12S03-10Q1PTC	TDH12S03-15Q1PTC
	4.6	TDH12S03-0546PTC	TDH12S03-1046PTC	TDH12S03-1546PTC

3 µm PEEK-lined HPLC columns (max. pressure 45 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Triart Diol-HILIC metal-free	2.1	TDH12S03-05Q1PTP	TDH12S03-10Q1PTP	TDH12S03-15Q1PTP
	4.6	TDH12S03-0546PTP	TDH12S03-1046PTP	TDH12S03-1546PTP

Special column connectors required.

HILIC – Ordering Information

5 µm HPLC columns (max. pressure 20–45 MPa)

Phase	Column ID [mm]	Column length [mm]					
		50	75	100	150	250	(pack of 5)
YMC-Triart Diol-HILIC	2.0	TDH12S05-0502WT	TDH12S05-L502WT	TDH12S05-1002WT	TDH12S05-1502WT	TDH12S05-2502WT	TDH12S05-01Q1GC
	2.1	TDH12S05-05Q1PTH	TDH12S05-L5Q1PTH	TDH12S05-10Q1PTH	TDH12S05-15Q1PTH	TDH12S05-25Q1PTH	TDH12S05-01Q1GC
	3.0	TDH12S05-0503WT	TDH12S05-L503WT	TDH12S05-1003WT	TDH12S05-1503WT	TDH12S05-2503WT	TDH12S05-0103GC
	4.6	TDH12S05-0546WT	TDH12S05-L546WT	TDH12S05-1046WT	TDH12S05-1546WT	TDH12S05-2546WT	TDH12S05-0104GC

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

5 µm bioinert coated HPLC columns (max. pressure 45 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Accura Triart Diol-HILIC	2.1	TDH12S05-05Q1PTC	TDH12S05-10Q1PTC	TDH12S05-15Q1PTC
	4.6	TDH12S05-0546PTC	TDH12S05-1046PTC	TDH12S05-1546PTC

5 µm PEEK-lined HPLC columns (max. pressure 45 MPa)

Phase	Column ID [mm]	Column length [mm]		
		50	100	150
YMC-Triart Diol-HILIC metal-free	2.1	TDH12S05-05Q1PTP	TDH12S05-10Q1PTP	TDH12S05-15Q1PTP
	4.6	TDH12S05-0546PTP	TDH12S05-1046PTP	TDH12S05-1546PTP

Special column connectors required.

Further dimensions and guard cartridges available in regular stainless-steel hardware.