

Expand Your Testing Capabilities

LC Columns For Clinical Research

- Comprehensive Drug Research Panels
- EtG/EtS
- THC-COOH
- 25-OH Vitamin D (Calcidiol)
- Bile Acids
- Fat Soluble Vitamins
- And More!

PHEN-RUC-00040 Revision: 1
PHEN-RUC-00040 Revision: 0

L No. KD056.54846025

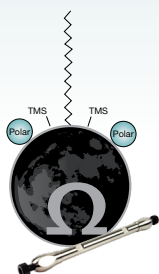


www.phenomenex.com/ClinicalLC

 phenomenex™

Introducing Our Most Popular LC Columns for Clinical Research

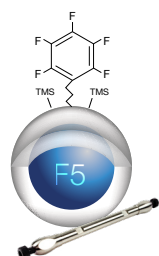
Whether you are looking to expand your portfolio, or just looking to optimize your separations, Phenomenex offers a wide variety of chemistries, particle morphologies, and particle sizes to tackle your analyses.



Luna™ Omega Polar C18

Recommended for Comprehensive Drug Research Panels, EtG/EtS, THC-COOH

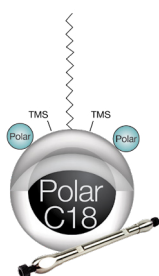
p. 4



Kinetex™ F5

Recommended for 25-OH Vitamin D (Calcidiol)

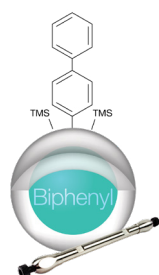
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Kinetex Polar C18

Recommended for Bile Acids

p. 8



Kinetex Biphenyl

Recommended for Fat Soluble Vitamins

p. 10

Find Your New UHPLC or HPLC Column

Browse Additional Chemistries and Find the Right Size and Dimensions for Your Work

p. 13

Looking for Additional Phases? Visit
www.phenomenex.com/HPLC

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Ultimate HPLC/UHPLC Combo

Gain Incredible Performance, Versatile Selectivities and Upgraded Throughput

explore

LUNA[™]
OMEGA

Cutting Edge
Fully Porous Silica
Particle

Luna is one of the most recognized HPLC brands on the market, delivering high efficiency, ruggedness, reproducibility, and dependability for a wide range of analyses.



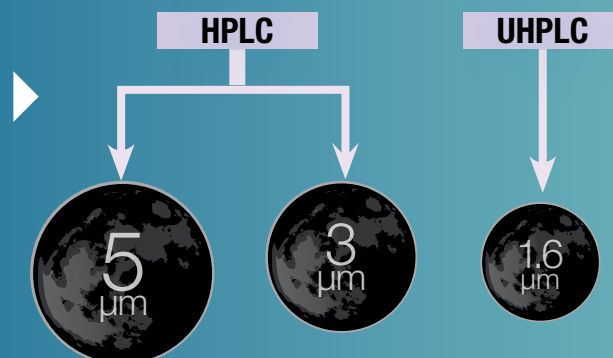
KINETEX[™]

The Chosen
Core-Shell Brand

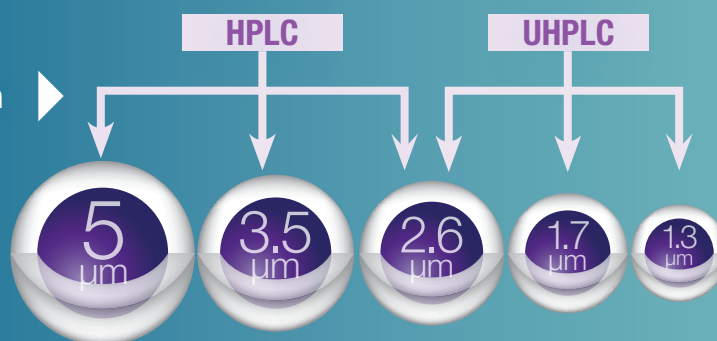
Kinetex Core-Shell Technology delivers dramatic improvements in efficiency over conventional fully porous media which can be leveraged to increase resolution, greatly improve productivity, reduce solvent consumption, and decrease costs.

Complete Scalable Solution from UHPLC to HPLC

Luna Omega Particle Selection



Kinetex Core-Shell Particle Selection



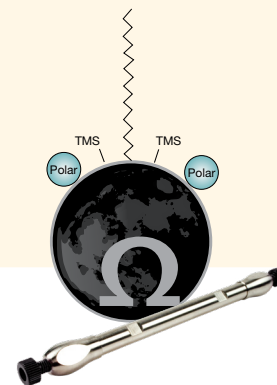
Dual Polar or Dual Polarity and Non-Polar Retention

Luna™ Omega Polar C18

Particle Type: Thermally modified fully porous silica

Column Type: UHPLC or HPLC

- Enhanced selectivity/retention for polar analytes
- 100 % aqueous stable



Comprehensive Drug Research Panels

The analysis of an extended comprehensive drug research panel can pose many challenges. With more than 50 compounds of varying polarities and charge states, a robust column with a unique selectivity is necessary to fully separate the analytes of interest. The ability to balance retention of polar and hydrophobic compounds makes the unique selectivity of Luna Omega Polar C18 LC column an excellent choice for this analysis.

Materials Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Surface Area (m ² /g)	Carbon Load (%)	pH Stability	Pressure Limit (bar)	USP Column Classification
Polar C18	1.6, 3, 5	100	260	9	1.5 - 8.5*	1034/600**	L1

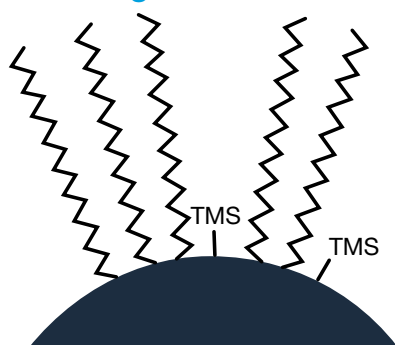
*pH stability under gradient conditions. pH stability is 1.5-10 under isocratic conditions.

**1.6µm Luna Omega columns are pressure stable up to 1034 bar and 3 or 5µm are stable up to 600 bar.

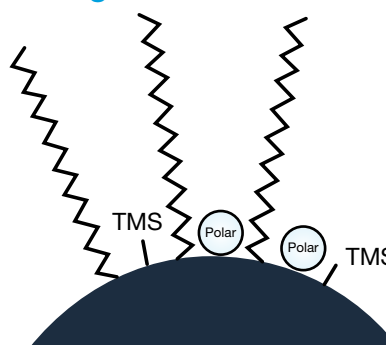
A C18, But Different

Luna Omega Polar C18 is a uniquely modified C18-based chemistry that has been optimized to improve the performance of polar analyses. This new particle surface chemistry makes the Polar C18 applicable to all industries that utilize UHPLC for mixtures of polar and non-polar compounds.

Luna Omega C18 Silica Surface

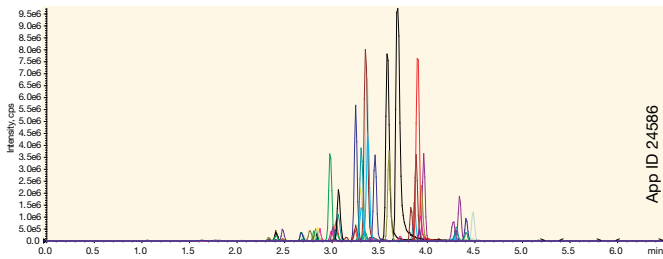


Luna Omega Polar C18 Silica surface



ESI+ Method

46 Drug Compounds in Under 6.5 Minutes!



App ID 24586

Positive Mode Comprehensive Drug Research Panel HPLC Conditions

Column: Luna™ Omega 5 µm Polar C18
Dimension: 50 x 4.6 mm
Part No.: [00B-4754-E0](#)
Guard: SecurityGuard™ Polar C18
Cartridge: [AJ0-7601](#)
Mobile Phase: A: 0.1 % Formic acid in Water
 B: Methanol
Gradient:

Time (min)	B (%)
0	5
3	95
5	95
5.01	5
6.5	5

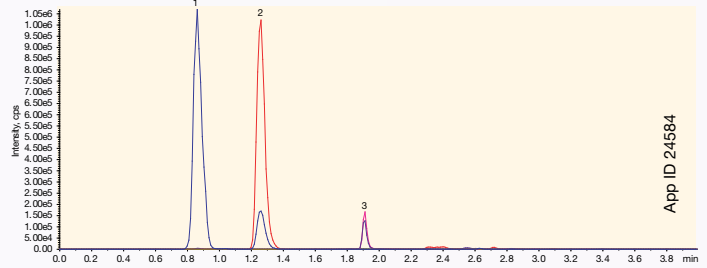
Flow Rate: 0.6 mL/min
Injection Volume: 10 µL
Temperature: Ambient
Instrument: Agilent® 1260 LC
Detector: MS/MS (SCIEX Triple Quad™ 4500)
Sample:

1. α-Hydroxyalprazolam
2. 6-MAM
3. 7-Aminoclonazepam
4. Amitriptyline
5. Amphetamine
6. Benzoylecgonine
7. Buprenorphine
8. Carisoprodol
9. Codeine
10. Cyclobenzaprine
11. EDDP
12. Fentanyl
13. Fluoxetine
14. Gabapentin
15. Hydrocodone
16. Hydromorphone
17. Imipramine
18. Lorazepam
19. MDMA
20. MDPV
21. Meperidine
22. Meprobamate
23. Methadone
24. Methamphetamine
25. Methylphenidate
26. Morphine
27. Naloxone
28. Norbuprenorphine
29. Nordiazepam
30. Norfentanyl
31. Norhydrocodone
32. Noroxycodone
33. Nortriptyline
34. O-Desmethyl-cis-tramadol
35. Oxazepam
36. Oxycodone
37. Oxymorphone
38. Paroxetine
39. Phencyclidine
40. Phentermine
41. Pregabalin
42. Ritalinic Acid
43. Tapentadol
44. Temazepam
45. Tramadol
46. Zolpidem Phenyl-4-COOH

One Column
for All Three
Methods!

ESI- Method

EtG/EtS



App ID 24584

EtG/EtS HPLC Conditions

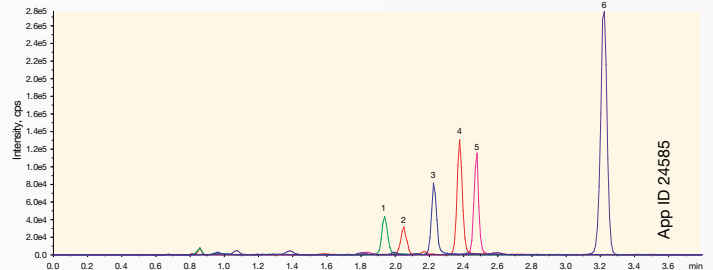
Column: Luna Omega 5 µm Polar C18
Dimension: 50 x 4.6 mm
Part No.: [00B-4754-E0](#)
Guard: SecurityGuard™ Polar C18
Cartridge: [AJ0-7601](#)
Mobile Phase: A: 0.1 % Formic acid in Water
 B: Methanol
Gradient:

Time (min)	B (%)
0	2
2	95
2.6	95
2.7	2
4	2

Flow Rate: 0.7 mL/min
Injection Volume: 10 µL
Temperature: Ambient
Instrument: Agilent 1260 LC
Detector: MS/MS (SCIEX Triple Quad 4500)
Sample:

1. Urinary interference
2. Ethyl sulfate (EtS)
3. Ethyl glucuronide (EtG)

Acidic Compounds, Barbiturates, and THC-COOH



App ID 24585

Negative Mode Comprehensive Drug Research Panel HPLC Conditions

Column: Luna Omega 5 µm Polar C18
Dimension: 50 x 4.6 mm
Part No.: [00B-4754-E0](#)
Guard: SecurityGuard Polar C18
Cartridge: [AJ0-7601](#)
Mobile Phase: A: 0.1 % Formic acid in Water
 B: Methanol
Gradient:

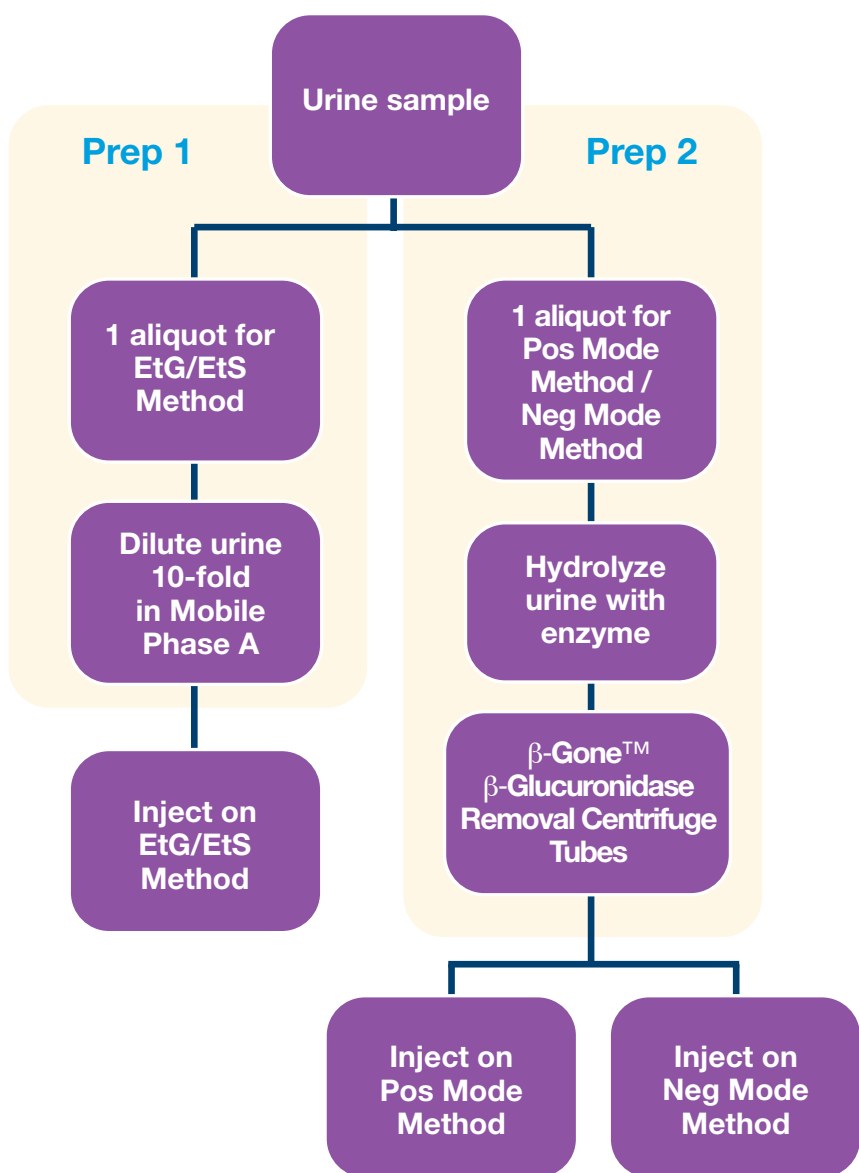
Time (min)	B (%)
0	50
1.5	95
2.5	95
2.6	50
3.8	50

Flow Rate: 0.7 mL/min
Injection Volume: 10 µL
Temperature: Ambient
Instrument: Agilent 1260 LC
Detector: MS/MS (SCIEX Triple Quad 4500)
Sample:

1. Phenobarbital
2. Urinary interference
3. Butalbital
4. Amobarbital/Pentobarbital
5. Secobarbital
6. THC-COOH

Sample Preparation for Drug Research Panels using Urine

Analyze a Comprehensive Drug Research Panel AND Ethanol Metabolites in a Single Workflow!



Rapid Clean-up of Hydrolyzed Urine



www.phenomenex.com/BetaGone

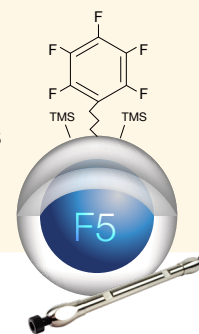


Kinetex™ F5

Particle Type: Core-shell

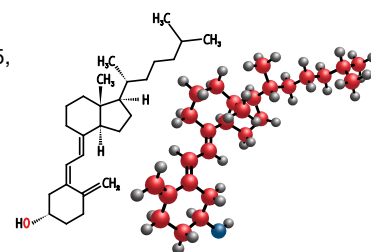
Column Type: UHPLC or HPLC

- 5 interaction mechanisms
- Greater reproducibility than other PFPs



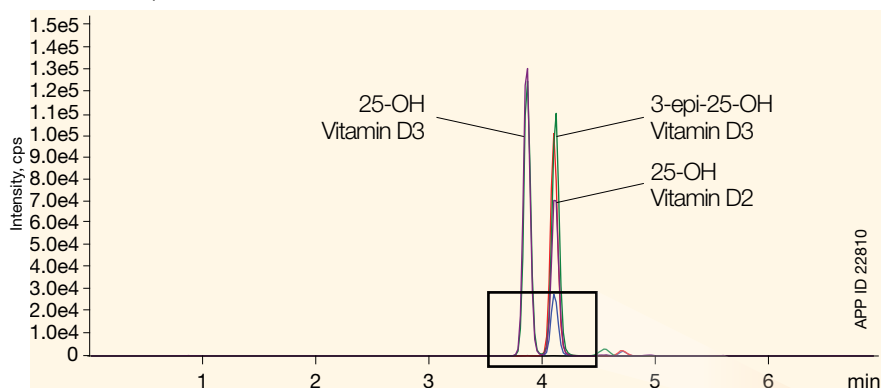
25-OH Vitamin D (Calcdiol)

The separation of structurally similar compounds, such as 25-OH Vitamin D2, 25-OH Vitamin D3, and 3-epi-25-OH Vitamin D3 can pose chromatographic challenges. When choosing a column chemistry to separate compounds such as these, it can be beneficial to take advantage of unique chemistries, such as Kinetex F5, which utilizes 5 different interaction mechanisms to provide a successful separation.



Fully Resolve Vitamin D3 Epimers Utilizing the Unique Separation Power of Kinetex F5

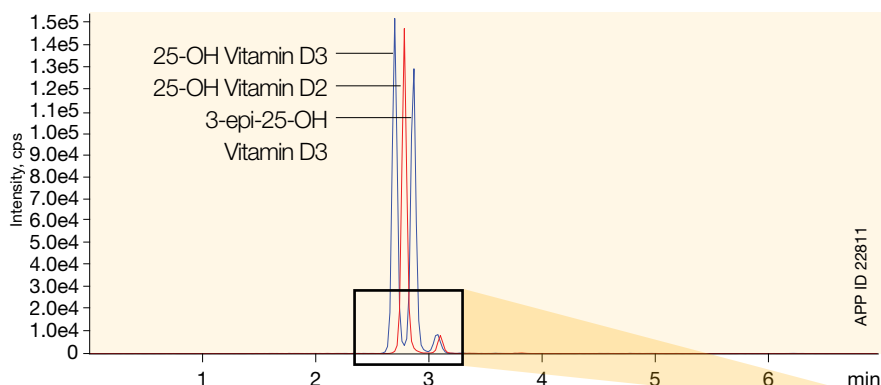
Kinetex 2.6 μm F5



Conditions for all columns:

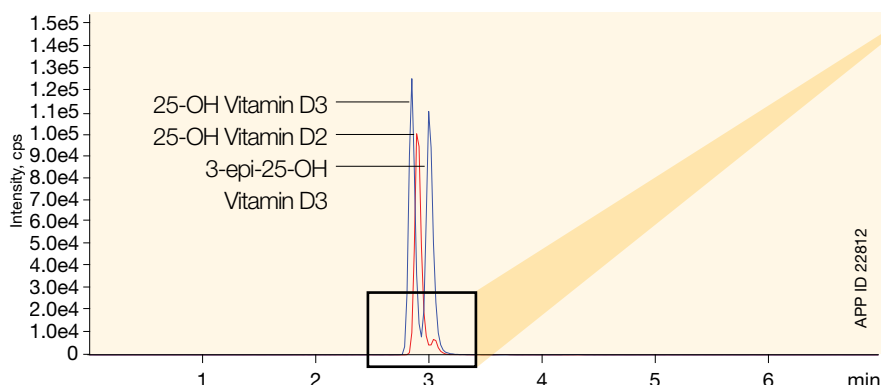
- Column:** Kinetex 2.6 μm F5
HALO 2.7 μm PFP
XSelect HSS 2.5 μm PFP
- Dimensions:** 100 x 4.6 mm
- Part No.:** [00D-4723-E0](#) (Kinetex)
- Guard:** SecurityGuard™ F5
- Cartridge:** [AJ0-9320](#)
- Mobile Phase:** A: 0.1% Formic acid in Water
B: 0.1% Formic acid in Methanol
- Isocratic:** A/B (15:85)
- Flow Rate:** 0.75 mL/min
- Temperature:** Ambient
- Detection:** MS/MS (SCIEX® API 4000™)
- Sample:** 1. 25-OH Vitamin D3
2. 25-OH Vitamin D2
3. 3-epi-25-OH Vitamin D3

Advanced Material Technology HALO® 2.7 μm PFP



Baseline resolution

Waters® XSelect® HSS 2.5 μm PFP



Vitamin D3 epimers are not fully separated

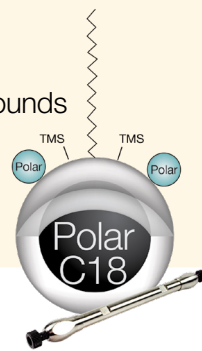
Comparative separations may not be representative of all applications.

Kinetex™ Polar C18

Particle Type: Core-shell

Column Type: UHPLC or HPLC

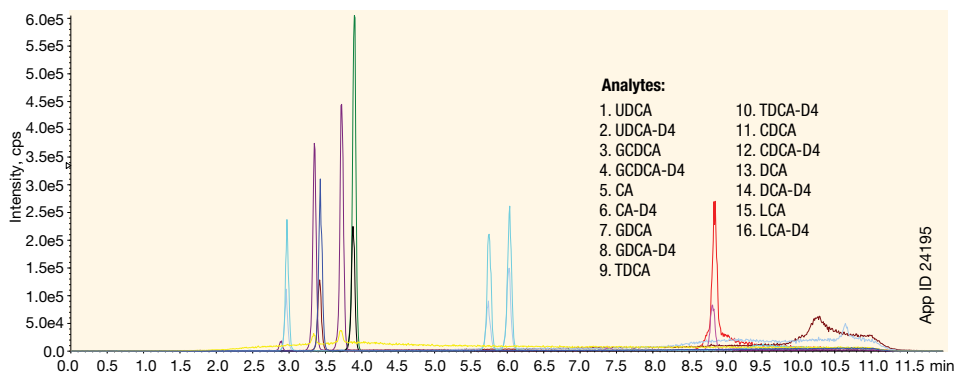
- Achieve separation of key isobaric compounds
- Enhanced retention for polar and non-polar analytes
- 100 % Aqueous stability



Bile Acids

Isobaric compounds, such as bile acids, can be challenging to separate, let alone to achieve baseline separation. The unique polar selectivity of Kinetex Polar C18, paired with the power of core-shell technology, provides both separation and the sensitivity required for isobaric separations.

Baseline Separation of 8 Bile Acids Including Isobaric Compounds



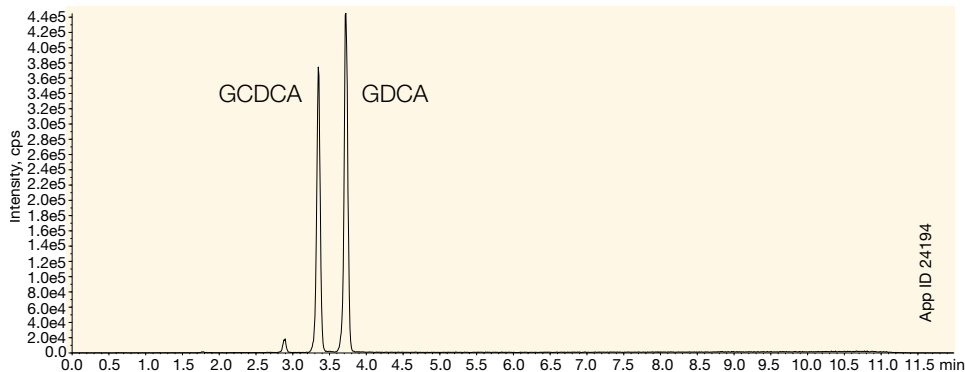
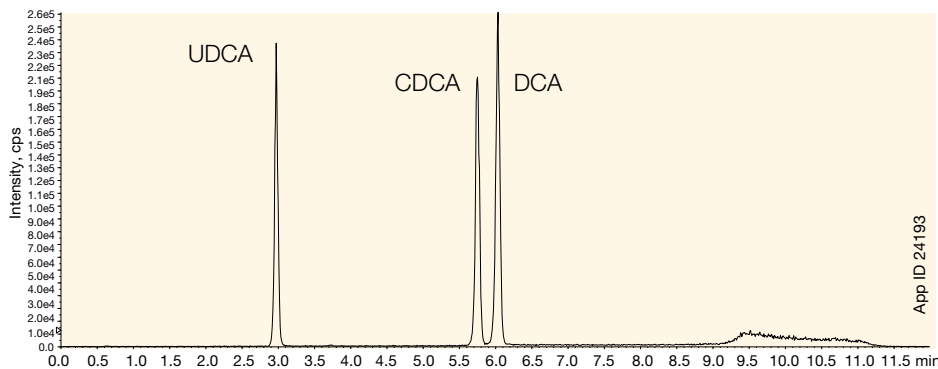
LC-MS/MS Conditions

Column: Kinetex 2.6µm Polar C18
Dimension: 100 x 2.1 mm
Part No.: [00D-4759-AN](#)
Guard: SecurityGuard™ Polar C18
Cartridge: [AJ0-9532](#)
Mobile Phase: A: 2 mM Ammonium Acetate (pH 6.9)
 B: Methanol/Acetonitrile (50/50)
Gradient

Time (min)	B (%)
0	45
9	70
9.5	70
9.51	45
12.0	45

Flow Rate: 0.4 mL/min
Injection Volume: 5 µL
Temperature: 50 °C
System: Agilent® 1260
Detection: MS/MS ESI- (SCIEX® Triple Quad™ 4500)

Achieve Baseline Separation of Isobaric Compounds!



Phases	Description	Selectivity Profile
<p>Luna Omega C18 Rugged and highly efficient C18 with strong focus on hydrophobic retention of non-polar and polar compounds</p>		
<p>Luna Omega Polar C18 100% aqueous stability and enhanced selectivity/retention for polar analytes without diminishing useful non-polar retention. The C18 ligand provides general hydrophobic interactions while a polar modified particle surface provides enhanced polar compound retention.</p>		
<p>Luna Omega PS C18 Unique, 100% aqueous stable mixed-mode phase that provides both polar and non-polar retention. The surface contains a positive charged ligand which aids in the retention of acidic compounds through ionic interactions, while the C18 ligand promotes general reversed phase hydrophobic retention. The positively charged surface also improves basic compound peaks shape through ionic repulsion.</p>		

Important! Measurements illustrated here are not absolute, but a relative measurement to other Phenomenex columns. In this display, the individual measurements cannot be compared to each other.

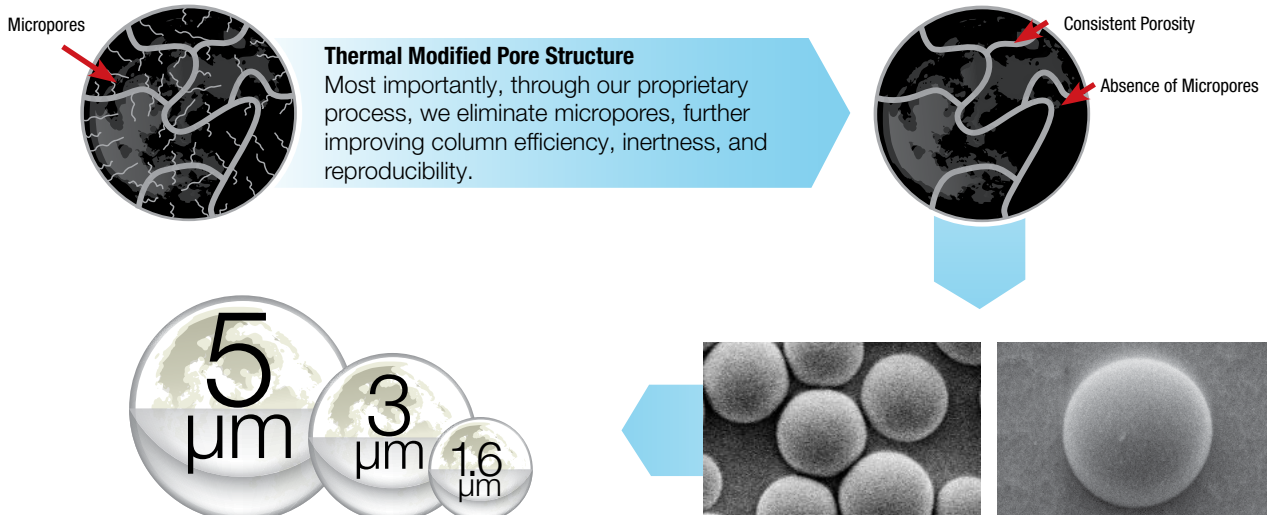
Material Characteristics

Luna Omega Phases	Particle Sizes (µm)	Pore Size (Å)	Surface Area (m ² /g)	Carbon Load (%)	pH Stability
C18	1.6, 3, 5	100	260	11	1.5 - 8.5*
Polar C18	1.6, 3, 5	100	260	9	1.5 - 8.5*
PS C18	1.6, 3, 5	100	260	9	1.5 - 8.5*

* pH stability under gradient conditions. pH stability is 1.5 - 10.0 under isocratic conditions.

Novel Design and Manufacturing Process

Within the novel manufacturing process of Luna Omega silica, we implement a proprietary processing technique to gain greater particle inertness, a stronger particle morphology, and more consistent porosity.

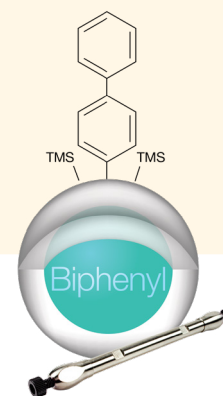


Kinetex™ Biphenyl

Particle Type: Core-shell

Column Type: UHPLC or HPLC

- Aromatic Pi-Pi Interactions
- Hydrophobic Interactions
- Weak Ionic or Dipole-Dipole Interactions



Fat-soluble Vitamins

Fat-soluble vitamins, such as vitamin A (retinol) and E, are carried to the body's fat tissues and stored. Being able to successfully separate these fat-soluble vitamins is a useful tool for analytical and clinical labs. In this application note, we present an LC-MS/MS method to separate fat-soluble vitamins, and their different analogues, by utilizing the Kinetex 2.6 Biphenyl LC column.

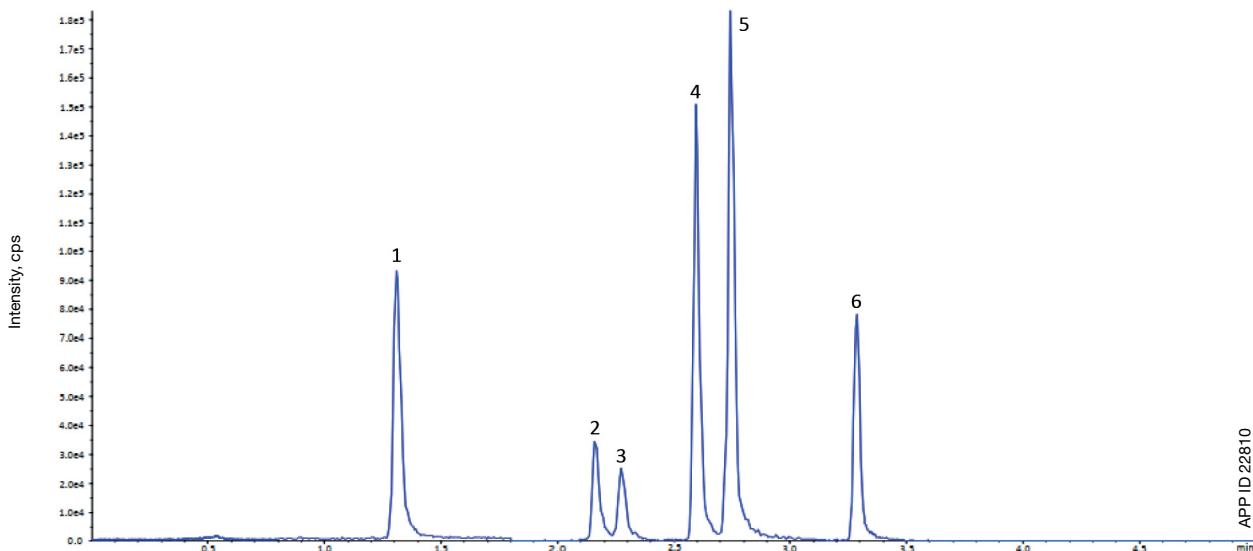
MRM Transitions

Peak No.	Analyte	Q1 (m/z)	Q3 (m/z)
1	Vitamin A (Retinol)	269.2	93
2	Vitamin E (γ -Tocopherol)	415.3	149.22
3	Vitamin E (α -Tocopherol)	429.4	163.2
4	Vitamin K2 (MK-4)	445.4	187.1
5	Vitamin K1	451.3	187.2
6	Vitamin K2 (MK-7)	649.5	187

LC-MS/MS Conditions

Column:	Kinetex 2.6 μm μm Biphenyl		
Dimension:	50 x 3.0 mm		
Part No.:	00B-4622-Y0		
Mobile Phase:	A: Water		
	B: Acetonitrile/Isopropyl alcohol (1:1)		
Gradient	Time (min)	B (%)	Flow Rate (mL/min)
	0	65	0.6
	2	95	0.6
	2.01	95	0.5
	3.5	95	0.5
	3.51	65	0.6
	5	65	0.6
Injection Volume:	10 μL		
Temperature:	25 $^{\circ}\text{C}$		
LC System:	Agilent® 1260 Infinity		
Detector:	LC-MS/MS		
Detection:	MS/MS ESI- (SCIEX®Triple Quad™ 4500)		

Kinetex 2.6 μm Biphenyl



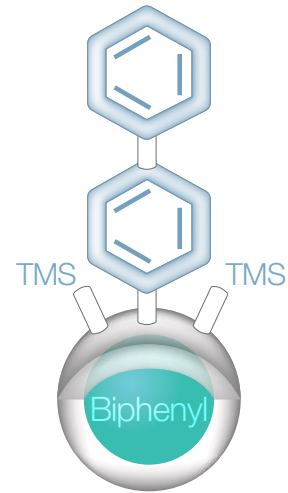
Kinetex Biphenyl

- Remarkable separation power
- Rugged and reliable
- 100 % aqueous stable



Selectivity That a C18 Just Can't Give You!

Think high performance, enhanced retention, and the ability to go where a traditional C18 can't. The Kinetex Biphenyl offers the high performance benefits of a core-shell particle with a unique stationary phase capable of becoming the go-to selectivity for reversed phase method development. Use Kinetex Biphenyl columns to get enhanced retention, higher sensitivity, and overall better results; especially for aromatic compounds.



Aromatic Pi-Pi Interactions

Between aromatic rings and pi electrons of target molecule and the double aromatic rings of the Biphenyl ligand

Hydrophobic Interactions

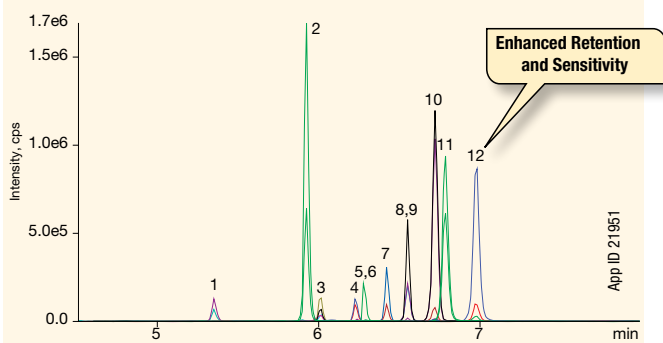
Between carbon skeleton of Biphenyl ligand and target analytes

Weak Ionic or Dipole-Dipole Interactions

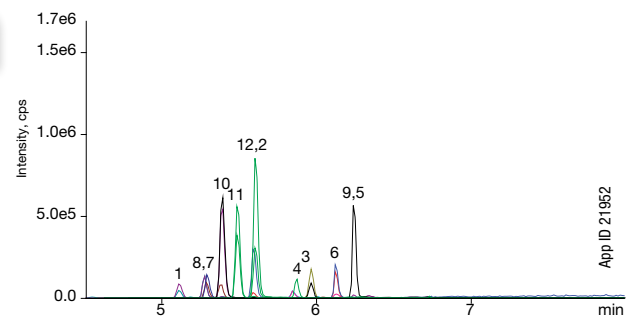
High electron density created by dual ring structure behaves similar to a weak cation exchanger, giving enhanced retention for basic analytes

Mycotoxins

Kinetex 2.6 μ m Biphenyl



Waters® SunFire® 3.5 μ m C18



Conditions for both columns:

Column: Kinetex 2.6 μ m Biphenyl
Waters SunFire 3.5 μ m C18
Dimensions: 50 x 2.1 mm
Part No.: 00B-4622-AN
Mobile Phase: A: 5 mM Ammonium acetate with 0.1% Acetic acid
B: Methanol with 5 mM Ammonium acetate with 0.1% Acetic acid

Gradient: Time (min)	% B
0	2
2	2
5	80
5.2	98
8	98
8.01	2
11	2

Flow Rate: 0.45 mL/min
Temperature: 40 °C
Detection: MS/MS (SCIEX® API 4000™)

Sample:

- 15-Acetyldeoxynivalenol
- DAS
- FB1
- HT-2 Toxin
- FB2
- T-2 Toxin
- Aflatoxin M1
- Aflatoxin G2
- Ochratoxin A
- Aflatoxin G1
- Aflatoxin B2
- Aflatoxin B1

Comparative separations may not be representative of all applications.

Kinetex Biphenyl

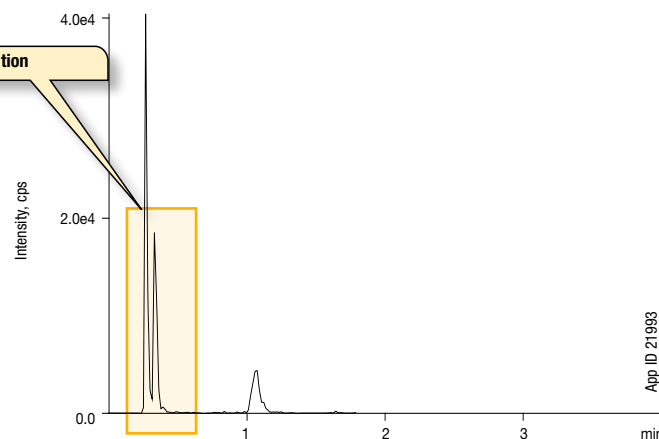
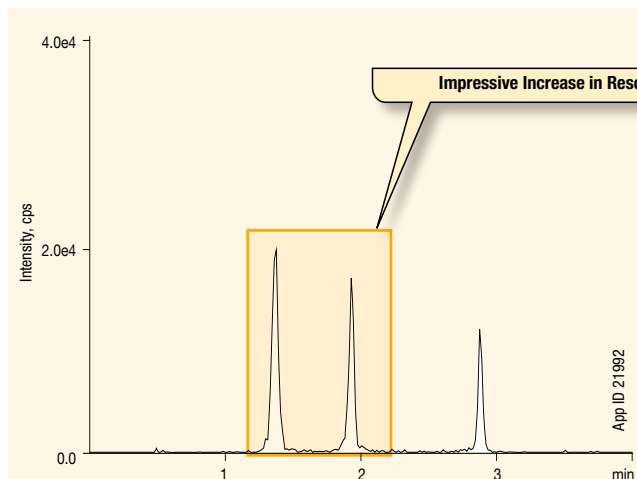
Enhanced Separation Power



Kinetex Biphenyl is a high efficiency core-shell product capable of adding extra separation power to your analysis of non-polar and polar compounds.

Kinetex 2.6 μm Biphenyl

Advanced Materials Technology, Inc.
Fused-Core® 2.7 μm C18



Conditions for both columns:
Column: Kinetex 2.6 μm Biphenyl
 Fused-Core 2.7 μm C18
Dimensions: 50 x 2.1 mm
Part No.: [00B-4622-AN](#)
Mobile Phase: A: 0.1% Formic acid in Water
 B: 0.1% Formic acid in Methanol

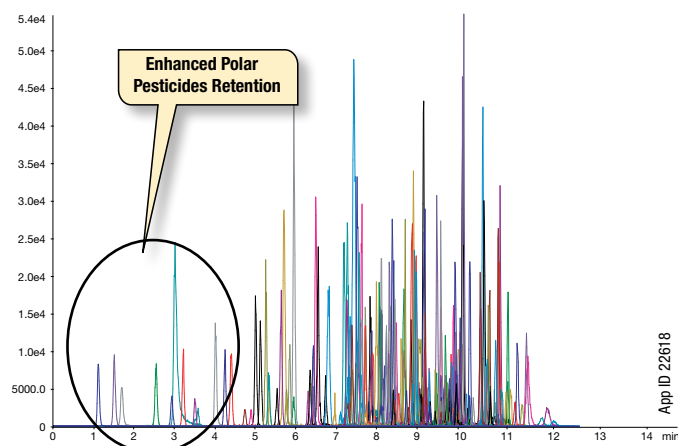
Gradient: Time (min)	% B
0	10
0.5	10
2	25
4.5	80
4.51	85
5.5	85
5.51	10
7	10

Flow Rate: 0.6 mL/min
Temperature: 40 °C
Detection: MS/MS (SCIEX® API 4000™)
Sample: 1. Morphine
 2. Hydromorphone
 3. Norhydrocodone

Comparative separations may not be representative of all applications.

Excel With Your Multi-Compound, Multi-Class Screening

Increase the separation and analytical power of your HPLC/UHPLC compound screens with the multi-functional Kinetex Biphenyl stationary phase.



Column: Kinetex 5 μm Biphenyl
Dimensions: 100 x 2.1 mm
Part No.: [00D-4627-AN](#)
Mobile Phase: A: 5 mM Ammonium formate in Water
 B: 5 mM Ammonium formate in Methanol
Gradient:

Time (min)	% B
0.01	10
1	10
10	90
15	90
15.1	10
20	10

Flow Rate: 0.5 mL/min
Temperature: 35 °C
Detection: Tandem Mass Spectrometer (MS/MS)
Detector: SCIEX® 4500 QTRAP®
Sample: 175+ Pesticide Mix

Luna Omega Ordering Information

Luna Omega columns build upon the Luna legacy to provide enhanced and incredible HPLC and UHPLC performance and selectivity. With the unique Luna Omega fully porous, with thermally modified silica particles, you gain outstanding performance and efficiencies with better peak shapes through an inert foundation.



1.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
Polar C18	00B-4748-A0	00D-4748-A0	00F-4748-A0
PS C18	—	00D-4752-A0	—
C18	00B-4742-A0	00D-4742-A0	00F-4742-A0

1.6 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges†
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4748-AN	00B-4748-AN	00D-4748-AN	00F-4748-AN	AJ0-9505
PS C18	00A-4752-AN	00B-4752-AN	00D-4752-AN	00F-4752-AN	AJ0-9508
C18	00A-4742-AN	00B-4742-AN	00D-4742-AN	00F-4742-AN	AJ0-9502

for 2.1 mm ID

3 µm Micro LC Columns (mm)						Trap Column	
Phases	50 x 0.30	100 x 0.30	150 x 0.30	50 x 0.50	100 x 0.50	150 x 0.50	20 x 0.30
Polar C18	00B-4760-AC	00D-4760-AC	00F-4760-AC	00B-4760-AF	00D-4760-AF	00F-4760-AF	—
PS C18	00B-4758-AC	00D-4758-AC	00F-4758-AC	00B-4758-AF	00D-4758-AF	00F-4758-AF	05M-4758-AC

3 µm Minibore Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0* /10 pk
Polar C18	00A-4760-AN	00B-4760-AN	00D-4760-AN	00F-4760-AN	AJ0-7600
PS C18	00A-4758-AN	00B-4758-AN	00D-4758-AN	00F-4758-AN	AJ0-7605
C18	—	00B-4784-AN	00D-4784-AN	00F-4784-AN	AJ0-7611
SUGAR	—	00B-4775-AN	00D-4775-AN	00F-4775-AN	AJ0-4496

for ID: 2.0-3.0 mm

3 µm MidBore™ Columns (mm) (cont'd)			SecurityGuard Cartridges (mm)	
Phases	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4760-Y0	00D-4760-Y0	00F-4760-Y0	AJ0-7600
PS C18	00B-4758-Y0	00D-4758-Y0	00F-4758-Y0	AJ0-7605
C18	00B-4784-Y0	00D-4784-Y0	00F-4784-Y0	AJ0-7611
SUGAR	—	—	00F-4775-Y0	AJ0-4496

for ID: 2.0-3.0 mm

3 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk
Polar C18	00B-4760-E0	00D-4760-E0	00F-4760-E0	00G-4760-E0	AJ0-7601
PS C18	00B-4758-E0	00D-4758-E0	00F-4758-E0	00G-4758-E0	AJ0-7606
C18	00B-4784-E0	00D-4784-E0	00F-4784-E0	00G-4784-E0	AJ0-7612
SUGAR	—	00D-4775-E0	00F-4775-E0	00G-4775-E0	AJ0-4495

for ID: 3.2-8.0 mm

5 µm Minibore and MidBore™ Columns (mm)						SecurityGuard Cartridges (mm)	
Phases	50 x 2.1	100 x 2.1	150 x 2.1	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4754-AN	00D-4754-AN	00F-4754-AN	00B-4754-Y0	00D-4754-Y0	00F-4754-Y0	AJ0-7600
PS C18	00B-4753-AN	00D-4753-AN	00F-4753-AN	00B-4753-Y0	00D-4753-Y0	00F-4753-Y0	AJ0-7605

for ID: 2.0 - 3.0 mm

5 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk
Polar C18	00B-4754-E0	00D-4754-E0	00F-4754-E0	00G-4754-E0	AJ0-7601
PS C18	00B-4753-E0	00D-4753-E0	00F-4753-E0	00G-4753-E0	AJ0-7606
C18	00B-4785-E0	00D-4785-E0	00F-4785-E0	00G-4785-E0	AJ0-7612

for ID: 3.2-8.0 mm

5 µm Semi-Preparative Columns (mm)		SecurityGuard Cartridges (mm)
Phases	250 x 10	10 x 10** /3 pk
Polar C18	00G-4754-N0	AJ0-9519
PS C18	00G-4753-N0	AJ0-9520

for ID: 9-16 mm

5 µm Axia™ Packed Preparative Columns (mm)					SecurityGuard Cartridges (mm)
Phases	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	15 x 21.2** /ea
Polar C18	00B-4754-PO-AX	00D-4754-PO-AX	00F-4754-PO-AX	00G-4754-PO-AX	AJ0-7603
PS C18	00B-4753-PO-AX	00D-4753-PO-AX	00F-4753-PO-AX	00G-4753-PO-AX	AJ0-7608
C18	—	—	—	00G-4785-PO-AX	—

for ID: 18-29 mm

5 µm Axia Packed Preparative Columns (mm) (cont'd)					SecurityGuard Cartridges (mm)
Phases	100 x 30	150 x 30	250 x 30	250 x 50	15 x 30.0* /ea
Polar C18	00D-4754-U0-AX	00F-4754-U0-AX	00G-4754-U0-AX	00G-4754-V0-AX	AJ0-7604
PS C18	00D-4753-U0-AX	00F-4753-U0-AX	00G-4753-U0-AX	00G-4753-V0-AX	AJ0-7609

for ID: 30-49 mm



† SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

* SecurityGuard Analytical Cartridges require holder, Part No.: [KJ0-4282](#)

***SemiPREP SecurityGuard Cartridges require holder, Part No.: [AJ0-9281](#)

**PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8223](#)

◆PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8277](#)

Kinetex core-shell particles were engineered to make improved results, increased productivity, easy transferrability, and cost savings accessible to everyone. You can leverage the power of Kinetex 5µm to improve 5 and 3µm methods. Use Kinetex 2.6µm as a versatile upgrade for both HPLC and UHPLC methods and get the most performance out of your UHPLC with Kinetex 1.3µm and 1.7µm.

Phases	Ligand	Description	Selectivity Profile
		Kinetex XB-C18 Di-isobutyl side chains differentiate this C18 column. Low ligand density and an inactive surface make this column a great hydrogen acceptor. This phase will demonstrate improved peak shape for basic compounds and increased retention of acids.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex C18 Very well balanced column providing some selectivity through steric, hydrogen, and cationic pathways. This is a great starting point for ultra-high efficiency separations.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex Polar C18 Combined C18 and polar modified surface that provide polar and non-polar retention alongside 100% aqueous stability.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex C8 Brings the benefits of core-shell technology to USP L7 methods. The phase will provide moderate hydrophobicity and good steric and hydrogen donating selectivity.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex EVO C18 Novel pH 1-12 stable C18 that delivers robust methods and improved peak shape for bases.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex Biphenyl 100% aqueous stable reversed phase chemistry with hydrophobic, aromatic, and enhanced polar selectivity.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex Phenyl-Hexyl Aromatic and moderate hydrophobic selectivity result in the great retention and separation of aromatic hydrocarbons.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex F5 This pentafluorophenyl propyl column provides a very high degree of steric selectivity to separate structural isomers. The electronegative fluorine groups offer high selectivity for cationic compounds.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex PS C18 A multi-modal C18 column with a unique positive surface modification that displays improved peak shape for basic compounds.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0
		Kinetex Polar C18 Combined C18 and polar modified surface that provide polar and non-polar retention alongside 100% aqueous stability.	<ul style="list-style-type: none"> Hydrophobicity Steric Interaction Hydrogen Bond Donating Capacity Hydrogen Bond Accepting Capacity Cation Selectivity at pH 2.8 Cation Selectivity at pH 7.0

5 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges [†]
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4633-AN	00B-4633-AN	00D-4633-AN	00F-4633-AN	AJ0-9298
F5	—	00B-4724-AN	00D-4724-AN	00F-4724-AN	AJ0-9322
Biphenyl	00A-4627-AN	00B-4627-AN	00D-4627-AN	—	AJ0-9209
XB-C18	00A-4605-AN	00B-4605-AN	00D-4605-AN	—	AJ0-8782
C18	00A-4601-AN	00B-4601-AN	00D-4601-AN	00F-4601-AN	AJ0-8782
C8	—	00B-4608-AN	00D-4608-AN	—	AJ0-8784
Phenyl-Hexyl	—	00B-4603-AN	—	—	AJ0-8788
HILIC	—	00B-4606-AN	—	—	AJ0-8786

for 2.1 mm ID

5 µm MidBore™ Columns (mm)					SecurityGuard ULTRA Cartridges [†]
Phases	30 x 3.0	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	00A-463-Y0	00B-4633-Y0	00D-4633-Y0	00F-4633-Y0	AJ0-9297
F5	—	—	00D-4724-Y0	00F-4724-Y0	AJ0-9321
Biphenyl	—	00B-4627-Y0	00D-4627-Y0	00F-4627-Y0	AJ0-9208
XB-C18	—	00B-4605-Y0	00D-4605-Y0	00F-4605-Y0	AJ0-8775
C18	00A-4601-Y0	00B-4601-Y0	00D-4601-Y0	00F-4601-Y0	AJ0-8775
C8	—	00B-4608-Y0	00D-4608-Y0	—	AJ0-8777
Phenyl-Hexyl	—	00B-4603-Y0	00D-4603-Y0	—	AJ0-8781

for 3.0 mm ID

5 µm Analytical Columns (mm)					SecurityGuard ULTRA Cartridges [†]
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
EVO C18	00B-4633-E0	00D-4633-E0	00F-4633-E0	00G-4633-E0	AJ0-9296
F5	00B-4724-E0	00D-4724-E0	00F-4724-E0	00G-4724-E0	AJ0-9320
Biphenyl	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJ0-9207
XB-C18	00B-4605-E0	00D-4605-E0	00F-4605-E0	00G-4605-E0	AJ0-8768
C18	00B-4601-E0	00D-4601-E0	00F-4601-E0	00G-4601-E0	AJ0-8768
C8	00B-4608-E0	00D-4608-E0	00F-4608-E0	00G-4608-E0	AJ0-8770
Phenyl-Hexyl	00B-4603-E0	00D-4603-E0	00F-4603-E0	00G-4603-E0	AJ0-8774
HILIC	—	—	00F-4606-E0	00G-4606-E0	AJ0-8772

for 4.6 mm ID

5 µm Semi-Preparative Columns (mm)					SecurityGuard SemiPrep Cartridges™
Phases	100 x 10	150 x 10	250 x 10	10 x 10	
EVO C18	—	00F-4633-N0	00G-4633-N0	—	AJ0-9306
F5	—	—	00G-4724-N0	—	AJ0-9323
C18	00D-4601-N0	00F-4601-N0	00G-4601-N0	—	AJ0-9278
Biphenyl	—	00F-4627-N0	00G-4627-N0	—	AJ0-9280
XB-C18	—	00F-4605-N0	00G-4605-N0	—	AJ0-9278

for 9-16 mm ID

5 µm Axia™ Packed Preparative Columns (mm)						SecurityGuard PREP Cartridges [†]
Phases	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	15 x 21.2	
EVO C18	00B-4633-P0-AX	00D-4633-P0-AX	00F-4633-P0-AX	00G-4633-P0-AX	—	AJ0-9304
F5	—	—	00F-4724-P0-AX	00G-4724-P0-AX	—	AJ0-9324
Biphenyl	00B-4627-P0-AX	00D-4627-P0-AX	00F-4627-P0-AX	00G-4627-P0-AX	—	AJ0-9272
XB-C18	00B-4605-P0-AX	00D-4605-P0-AX	00F-4605-P0-AX	00G-4605-P0-AX	—	AJ0-9145
C18	00B-4601-P0-AX	00D-4601-P0-AX	00F-4601-P0-AX	00G-4601-P0-AX	—	AJ0-9145
C8	00B-4608-P0-AX	00D-4608-P0-AX	00F-4608-P0-AX	00G-4608-P0-AX	—	AJ0-9205
Phenyl-Hexyl	00B-4603-P0-AX	00D-4603-P0-AX	00F-4603-P0-AX	00G-4603-P0-AX	—	AJ0-9147
HILIC	—	00D-4606-P0-AX	00F-4606-P0-AX	00G-4606-P0-AX	—	AJ0-9277

for 18-29 mm ID

5 µm Axia Packed Preparative Columns (mm)						SecurityGuard PREP Cartridges [†]
Phases	50 x 30	100 x 30	150 x 30	250 x 30	15 x 30	
EVO C18	00B-4633-U0-AX	00D-4633-U0-AX	00F-4633-U0-AX	00G-4633-U0-AX	—	AJ0-9305
F5	00B-4724-U0-AX	00D-4724-U0-AX	00F-4724-U0-AX	—	—	AJ0-9325
Biphenyl	—	—	00F-4627-U0-AX	00G-4627-U0-AX	—	AJ0-9273
XB-C18	00B-4605-U0-AX	00D-4605-U0-AX	00F-4605-U0-AX	00G-4605-U0-AX	—	AJ0-9204
C18	00B-4601-U0-AX	00D-4601-U0-AX	00F-4601-U0-AX	00G-4601-U0-AX	—	AJ0-9204
C8	00B-4608-U0-AX	00D-4608-U0-AX	00F-4608-U0-AX	00G-4608-U0-AX	—	AJ0-9217
Phenyl-Hexyl	—	—	00F-4603-U0-AX	00G-4603-U0-AX	—	AJ0-9216
HILIC	—	—	00D-4606-U0-AX	—	—	—

for 30-49 mm ID

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[†] SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)
^{***} SemiPrep SecurityGuard Cartridges require holder, Part No.: [AJ0-9281](#)
^{**} PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8277](#)
^{*} PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8223](#)

3.5 µm Minibore, MidBore™, and Analytical Columns (mm)							SecurityGuard™ ULTRA Cartridges†		
Phases	50 x 2.1	150 x 2.1	100 x 3.0	100 x 4.6	150 x 4.6	250 x 4.6	3/pk	3/pk	3/pk
XB-C18	—	—	—	00D-4744-E0	00F-4744-E0	—	—	—	AJ0-8768
PAH	00B-4764-AN	00F-4764-AN	00D-4764-Y0	00D-4764-E0	00F-4764-E0	00G-4764-E0	AJ0-9535	AJ0-9534	AJ0-9533

for 2.1 mm ID for 3.0 mm ID for 4.6 mm ID

2.6 µm Micro LC Columns (mm)						
Phases	30 x 0.3	50 x 0.3	100 x 0.3	150 x 0.3	50 x 0.5	150 x 0.5
Biphenyl	—	00B-4622-AC	—	00F-4622-AC	00B-4622-AF	—
C18	00A-4462-AC	00B-4462-AC	—	00F-4462-AC	00B-4462-AF	—
EVO C18	—	00B-4725-AC	—	00F-4725-AC	00B-4725-AF	—
F5	—	00B-4723-AC	00D-4723-AC	00F-4723-AC	00B-4723-AF	—
XB-C18	00A-4496-AC	00B-4496-AC	00D-4496-AC	00F-4496-AC	00B-4496-AF	00F-4496-AF

2.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
C18	00B-4462-A0	—	—
XB-C18	00B-4496-A0	00D-4496-A0	00F-4496-A0

2.6 µm Minibore Columns (mm)						SecurityGuard ULTRA Cartridges†
Phases	30 x 2.1	50 x 2.1	75 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4725-AN	00B-4725-AN	—	00D-4725-AN	00F-4725-AN	AJ0-9298
PS C18	00A-4780-AN	00B-4780-AN	—	00D-4780-AN	00F-4780-AN	AJ0-8951
Polar C18	00A-4759-AN	00B-4759-AN	—	00D-4759-AN	00F-4759-AN	AJ0-9532
F5	00A-4723-AN	00B-4723-AN	—	00D-4723-AN	00F-4723-AN	AJ0-9322
Biphenyl	00A-4622-AN	00B-4622-AN	—	00D-4622-AN	00F-4622-AN	AJ0-9209
XB-C18	00A-4496-AN	00B-4496-AN	00C-4496-AN	00D-4496-AN	00F-4496-AN	AJ0-8782
C18	00A-4462-AN	00B-4462-AN	00C-4462-AN	00D-4462-AN	00F-4462-AN	AJ0-8782
C8	00A-4497-AN	00B-4497-AN	00C-4497-AN	00D-4497-AN	00F-4497-AN	AJ0-8784
HILIC	00A-4461-AN	00B-4461-AN	00C-4461-AN	00D-4461-AN	00F-4461-AN	AJ0-8786
Phenyl-Hexyl	00A-4495-AN	00B-4495-AN	00C-4495-AN	00D-4495-AN	00F-4495-AN	AJ0-8788

for 2.1 mm ID

2.6 µm MidBore™ Columns (mm)						SecurityGuard ULTRA Cartridges†
Phases	30 x 3.0	50 x 3.0	75 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	00A-4725-Y0	00B-4725-Y0	—	00D-4725-Y0	00F-4725-Y0	AJ0-9297
PS C18	00B-4780-Y0	00D-4780-Y0	—	00D-4780-Y0	00F-4780-Y0	AJ0-8950
Polar C18	—	00B-4759-Y0	—	00D-4759-Y0	00F-4759-Y0	AJ0-9531
F5	—	00B-4723-Y0	—	00D-4723-Y0	00F-4723-Y0	AJ0-9321
Biphenyl	—	00B-4622-Y0	—	00D-4622-Y0	00F-4622-Y0	AJ0-9208
XB-C18	00A-4496-Y0	00B-4496-Y0	00C-4496-Y0	00D-4496-Y0	00F-4496-Y0	AJ0-8775
C18	00A-4462-Y0	00B-4462-Y0	00C-4462-Y0	00D-4462-Y0	00F-4462-Y0	AJ0-8775
C8	00A-4497-Y0	00B-4497-Y0	00C-4497-Y0	00D-4497-Y0	00F-4497-Y0	AJ0-8777
HILIC	00A-4461-Y0	—	—	00D-4461-Y0	00F-4461-Y0	AJ0-8779
Phenyl-Hexyl	—	00B-4495-Y0	—	00D-4495-Y0	00F-4495-Y0	AJ0-8781

for 3.0 mm ID

† SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

2.6 µm Analytical Columns (mm)						SecurityGuard ULTRA Cartridges [†]	
Phases	30 x 4.6	50 x 4.6	75 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
EVO C18	00A-4725-E0	00B-4725-E0	—	00D-4725-E0	00F-4725-E0	00G-4725-E0	AJ0-9296
PS C18	—	00B-4780-E0	—	00D-4780-E0	00F-4780-E0	00G-4780-E0	AJ0-8949
Polar C18	00A-4759-E0	00B-4759-E0	—	00D-4759-E0	00F-4759-E0	—	AJ0-9532
F5	00A-4723-E0	00B-4723-E0	—	00D-4723-E0	00F-4723-E0	—	AJ0-9320
Biphenyl	—	00B-4622-E0	—	00D-4622-E0	00F-4622-E0	—	AJ0-9207
XB-C18	—	00B-4496-E0	00C-4496-E0	00D-4496-E0	00F-4496-E0	—	AJ0-8768
C18	00A-4462-E0	00B-4462-E0	00C-4462-E0	00D-4462-E0	00F-4462-E0	—	AJ0-8768
C8	—	00B-4497-E0	00C-4497-E0	00D-4497-E0	00F-4497-E0	—	AJ0-8770
HILIC	—	00B-4461-E0	00C-4461-E0	00D-4461-E0	00F-4461-E0	—	AJ0-8772
Phenyl-Hexyl	—	00B-4495-E0	00C-4495-E0	00D-4495-E0	00F-4495-E0	—	AJ0-8774

for 4.6 mm ID

1.7 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
EVO C18	00B-4726-A0	00D-4726-A0	00F-4726-A0
Biphenyl	00B-4628-A0	00D-4628-A0	—

1.7 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges [†]
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	—	00B-4726-AN	00D-4726-AN	00F-4726-AN	AJ0-9298
F5	—	00B-4722-AN	00D-4722-AN	00F-4722-AN	AJ0-9322
Biphenyl	00A-4628-AN	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJ0-9209
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN	AJ0-8782
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN	AJ0-8782
C8	00A-4499-AN	00B-4499-AN	00D-4499-AN	00F-4499-AN	AJ0-8784
HILIC	00A-4474-AN	00B-4474-AN	00D-4474-AN	—	AJ0-8786
Phenyl-Hexyl	—	00B-4500-AN	00D-4500-AN	00F-4500-AN	AJ0-8788

for 2.1 mm ID

1.7 µm MidBore™ Columns (mm)				SecurityGuard ULTRA Cartridges [†]
Phases	30 x 3.0	50 x 3.0	100 x 3.0	3/pk
XB-C18	00A-4498-Y0	00B-4498-Y0	00D-4498-Y0	AJ0-8775
C18	—	00B-4475-Y0	00D-4475-Y0	AJ0-8775
C8	00A-4499-Y0	00B-4499-Y0	00D-4499-Y0	AJ0-8777
Phenyl	—	—	00D-4500-Y0	AJ0-8781
HILIC	—	00B-4474-Y0	—	AJ0-8779

for 3.0 mm ID

1.3 µm Minibore Columns (mm)		
Phases	30 x 2.1	50 x 2.1
C18	00A-4515-AN	00B-4515-AN

[†] SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

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t: +61 (0)2-9428-6444
auinfo@phenomenex.com

Austria

t: +43 (0)1-319-1301
anfrage@phenomenex.com

Belgium

t: +32 (0)2 503 4015 (French)
t: +32 (0)2 511 8666 (Dutch)
beinfo@phenomenex.com

Canada

t: +1 (800) 543-3681
www.phenomenex.com/chat

China

t: +86 400-606-8099
cninfo@phenomenex.com

Czech Republic

t: +420 272 017 077
cz-info@phenomenex.com

Denmark

t: +45 4824 8048
nordicinfo@phenomenex.com

Finland

t: +358 (0)9 4789 0063
nordicinfo@phenomenex.com

France

t: +33 (0)1 30 09 21 10
franceinfo@phenomenex.com

Germany

t: +49 (0)6021-58830-0
anfrage@phenomenex.com

Hong Kong

t: +852 6012 8162
hkinfo@phenomenex.com

India

t: +91 (0)40-3012 2400
indiainfo@phenomenex.com

Indonesia

t: +62 811 8805 396
indoinfo@phenomenex.com

Ireland

t: +353 (0)1 247 5405
eireinfo@phenomenex.com

Italy

t: +39 051 6327511
italiainfo@phenomenex.com

Japan

t: +81 (0) 120-149-262
jpinfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
nlinfo@phenomenex.com

Mexico

t: 01-800-844-5226
tecnicomx@phenomenex.com

The Netherlands

t: +31 (0)30-2418700
nlinfo@phenomenex.com

New Zealand

t: +64 (0)9-4780951
nzinfo@phenomenex.com

Norway

t: +47 810 02 005
nordicinfo@phenomenex.com

Poland

t: +48 22 104 21 72
pl-info@phenomenex.com

Portugal

t: +351 221 450 488
ptinfo@phenomenex.com

Singapore

t: +65 6559 4364
sginfo@phenomenex.com

Slovakia

t: +420 272 017 077
sk-info@phenomenex.com

Spain

t: +34 91-413-8613
espinfo@phenomenex.com

Sweden

t: +46 (0)8 611 6950
nordicinfo@phenomenex.com

Switzerland

t: +41 (0)61 692 20 20
swissinfo@phenomenex.com

Taiwan

t: +886 (0) 0801-49-1246
twinfo@phenomenex.com

Thailand

t: +66 (0) 2 566 0287
thaiinfo@phenomenex.com

United Kingdom

t: +44 (0)1625-501367
ukinfo@phenomenex.com

USA

t: +1 (310) 212-0555
www.phenomenex.com/chat

🌐 All other countries/regions Corporate Office USA

t: +1 (310) 212-0555
www.phenomenex.com/chat



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