

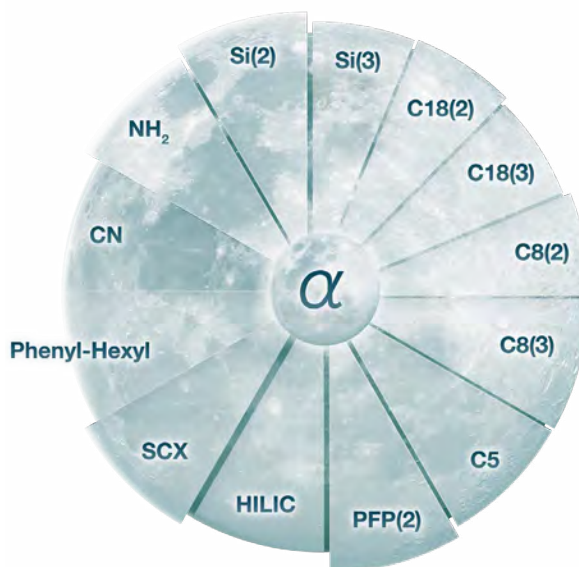


## Explore Successful Separations

Your success begins with our commitment to provide the essential solutions to HPLC separations in the Luna brand. Some of the highest quality and performance standards are incorporated into Luna products, making them an indispensable platform for all areas of HPLC.

## Explore Resolution with Luna Selectivities

Phase selectivity has the strongest impact on overall chromatographic resolution. Choosing the optimal selectivity can drive your separation to success. Luna phases span through 10 different chemistries, each offering its own unique selectivity.



Luna Bonded Phase Selectivity Chart

| Luna Phases           | Description                                  | Particle Sizes (μm)        | Pore Size (Å) | Surface Area (m <sup>2</sup> /g) | Carbon Load (%)              | pH Stability | Reversed Phase | Normal Phase | HILIC | IEX | USP Column Classification |
|-----------------------|----------------------------------------------|----------------------------|---------------|----------------------------------|------------------------------|--------------|----------------|--------------|-------|-----|---------------------------|
| <b>Silica(2)</b>      | Unbonded silica                              | 3, 5, 10, 10-PREP, 15      | 100           | 400                              | —                            | 2.0 - 7.5    |                | ☾            | ☾     |     | L3                        |
| <b>Silica(3)</b>      | Unbonded silica                              | 10-PREP                    | 100           | 400                              | —                            | 2.0 - 7.5    |                | ☾            | ☾     |     | L3                        |
| <b>C5</b>             | 5 Carbon ligand                              | 5, 10                      | 100           | 440                              | 12.5                         | 1.5 - 9.0*   | ☾              |              |       |     | —                         |
| <b>C8(2)</b>          | C8 ligand optimized for improved peak shape  | 3, 5, 10, 10-PREP, 15      | 100           | 400                              | 13.5                         | 1.5 - 9.0*   | ☾              |              |       |     | L7                        |
| <b>C8(3)</b>          | C8 ligand optimized for improved peak shape  | 10-PREP                    | 100           | 400                              | 13                           | 1.5 - 9.0*   | ☾              |              |       |     | L7                        |
| <b>C18(2)</b>         | C18 ligand optimized for improved peak shape | 2.5, 3, 5, 10, 10-PREP, 15 | 100           | 400                              | 17.5                         | 1.5 - 9.0*   | ☾              |              |       |     | L1                        |
| <b>C18(3)</b>         | C18 ligand optimized for improved peak shape | 10-PREP                    | 100           | 400                              | 17                           | 1.5 - 9.0*   | ☾              |              |       |     | L1                        |
| <b>CN</b>             | Versatile CN phase                           | 3, 5, 10                   | 100           | 400                              | 7.0                          | 1.5 - 7.0    | ☾              | ☾            |       |     | L10                       |
| <b>NH<sub>2</sub></b> | Rugged and reproducible NH <sub>2</sub>      | 3, 5, 10                   | 100           | 400                              | 9.5                          | 1.5 - 11     | ☾              | ☾            | ☾     | ☾   | L8                        |
| <b>Phenyl-Hexyl</b>   | Phenyl phase attached to C6 (hexyl) ligand   | 3, 5, 10, 10-PREP, 15      | 100           | 400                              | 17.5                         | 1.5 - 9.0*   | ☾              |              |       |     | L11                       |
| <b>SCX</b>            | Benzene sulfonic acid                        | 5, 10                      | 100           | 400                              | Binding Capacity: 0.15 meq/g | 2.0 - 7.0    |                |              |       | ☾   | L9                        |
| <b>HILIC</b>          | Reproducible, cross-linked diol              | 3, 5                       | 200           | 200                              | 5.7                          | 1.5 - 8.0    |                |              | ☾     |     | L20                       |
| <b>PFP(2)</b>         | Pentafluorophenyl with a C3 (propyl) linkage | 3, 5                       | 100           | 400                              | 11.5                         | 1.5 - 8.0    | ☾              |              | ☾     |     | L43                       |

\* pH range is 1.5 - 9 under gradient conditions. pH range is 1.5 - 10 under isocratic conditions.



### UHPLC

Try out Luna Omega 1.6 μm fully porous UHPLC columns to boost your UHPLC instrumentation performance (see page 290)



Try Gemini for 1.0 - 12.0 pH stability. (see page 234).



Increase lab safety with HPLC / UHPLC solvent protection, see SecurityCAP™ products on pp. 417-418



## Luna Silica

### A Backbone and Phase Designed for Long Column Lifetimes

Luna columns' excellent performance is not simply the result of ultra-pure metal-free silica (99.99 % purity). Meticulous care is given to the quality control of surface smoothness, pore structure and pore consistency to ensure particles of uniform structure and enhanced mechanical strength. Either bonded or unbonded, Luna silica produces highly advanced HPLC columns:

- Low percentage of "fines" from damaged silica leading to lower backpressures and enhanced column performance and lifetimes
- High column bed stability enhanced by particle shape uniformity

### Incredible Silica Smoothness

Luna silica is extremely smooth and spherical. For bonded phases, this provides a uniform bonding surface for consistent and even bonded phase coverage. The likelihood of silica particle shearing and breakage during bonding and packing is very low; thus, Luna columns have high efficiencies and long column lifetimes.

- Recommended for preparative and bulk packing into DAC systems, see page 395 for more information

#### Luna Silica(2)

USP: L3

**pH Stability:** 2.0 – 7.5

Particle Size: 3 µm, 5 µm, 10 µm, 10 µm-PREP, and 15 µm

Phase: Unbonded silica

Application: Polar compounds

#### Luna Silica(3)

USP: L3

**pH Stability:** 2.0 – 7.5

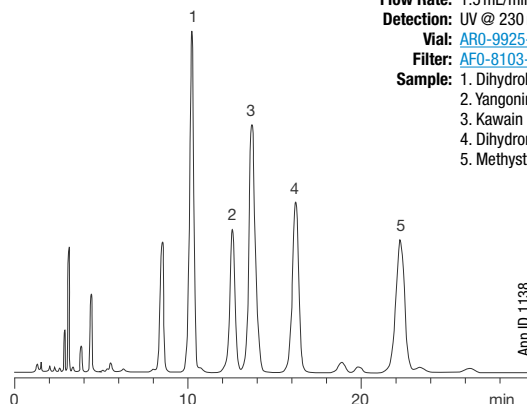
Particle Size: 10 µm-PREP

Phase: Unbonded silica

Application: Small Organic Molecules, Steroids, Nutraceuticals, Fat Soluble Vitamins, Tocopherols

#### Natural Products (Kava Kava)

Column: Luna 5 µm Silica(2)  
Dimensions: 150 x 4.6 mm  
Part No.: [00F-4274-E0](#)  
Guard Cartridge: [AJ0-4348](#)  
Guard Holder: [KJ0-4282](#)  
Mobile Phase: Hexane/Dioxane (85:15)  
Flow Rate: 1.5 mL/min  
Detection: UV @ 230 nm  
Vial: [AR0-9925-13](#)  
Filter: [AF0-8103-52](#)  
Sample: 1. Dihydrokavain  
2. Yangonin  
3. Kawain  
4. Dihydromethysticin  
5. Methysticin



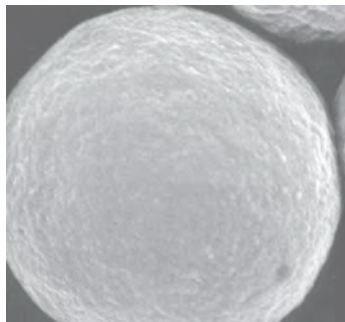
App ID 1138



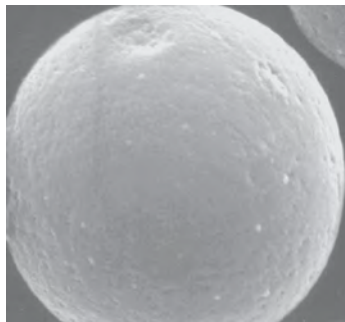
### Long Column Lifetimes and Excellent Performance

Ultra-pure, metal-free silica (99.99 % purity) is the backbone of all Luna material. The resulting high quality particles have a surface smoothness, pore structure, and pore consistency to ensure a more uniform particle shape and greater reproducibility.

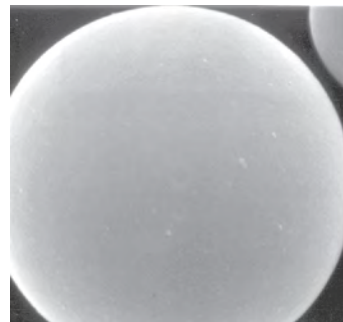
#### Superior Particle Smoothness



Agilent Technologies®  
ZORBAX® 5 µm SB-C18



Waters®  
Symmetry® 5 µm C18



Phenomenex  
Luna 5 µm C18

## Luna C18(2), C18(3), C8(2), C8(3), C5

### Your Starting Point for Reversed Phase Methods

The Luna column has found a place as one of the world's top reversed phase columns because it provides a measurable improvement over many HPLC columns for two important chromatographic properties: resolution and peak shape. The high efficiencies and bonded phase surface coverage provide for sharp peaks. The result:

- Free exposed silanols virtually eliminated by complete bonding and endcapping
- Sharp peak shape for good method sensitivity
- pH stable from 1.5 to 10.0 for over 10000 hours

#### Luna C18(2)

USP: L1

LC-MS Certified

**pH Stability:** 1.5-9.0\*

Particle Size: 2.5 µm, 3 µm, 5 µm, 10 µm, 10 µm-PREP, and 15 µm

Phase: C18, endcapped

Application: Small molecules

Strength: Wide pH stability provides longer column lifetime and greater method flexibility

#### Luna C18(3)

USP: L1

LC-MS Certified

**pH Stability:** 1.5-9.0\*

Particle Size: 10 µm-PREP

Phase: C18, endcapped

Application: Pharmaceuticals, Peptides, Nutraceuticals, Agrochemical, Vitamins, Basic Compounds, General Reversed Phase Applications

Strength: Media made for process and purification methods

#### Luna C8(2)

USP: L7

LC-MS Certified

**pH Stability:** 1.5-9.0\*

Particle Size: 3 µm, 5 µm, 10 µm, 10 µm-PREP, and 15 µm

Phase: C8, endcapped

Application: Small molecules when less retention and greater speed is desired

Strength: Lower silanol activity than C18(2) phase plus wide pH stability for longer column life and greater method flexibility

#### Luna C8(3)

USP: L7

LC-MS Certified

**pH Stability:** 1.5-9.0\*

Particle Size: 10 µm-PREP

Phase: C8, endcapped

Application: Pharmaceuticals, Peptides, Estrogens, Basic Compounds, General Reversed Phase Applications

Strength: Media made for process and purification methods

#### Luna C5

LC-MS Certified

**pH Stability:** 1.5-9.0\*

Particle Size: 5 µm, 10 µm

Phase: C5, endcapped

Application: Small molecules when less retention and greater speed is desired

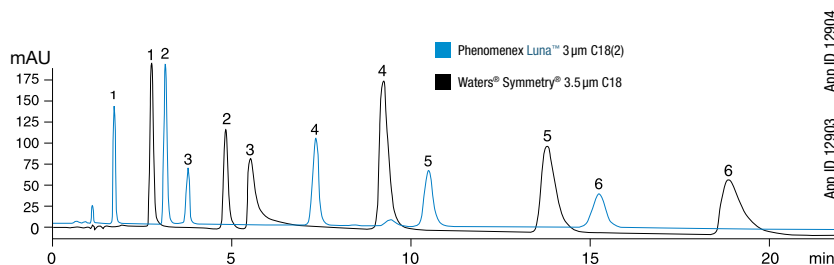
Strength: Greater hydrolytic and pH stability compared to most C4 phases

\* pH range is 1.5-10 under isocratic conditions. pH range is 1.5-9 under gradient conditions.



## Applications

### Polar, Acidic Drugs



Conditions same for both columns:

**Dimensions:** 75 x 4.6 mm

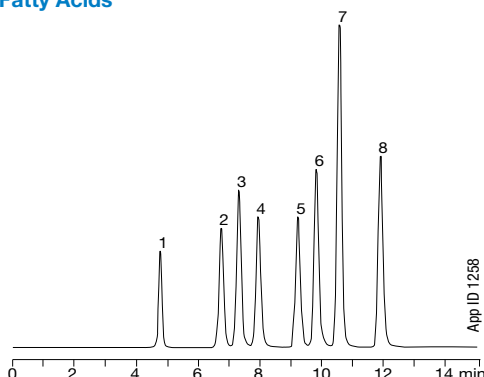
**Mobile Phase:** 20 mM  $\text{KH}_2\text{PO}_4$  / Acetonitrile(70:30)

**Flow Rate:** 0.75 mL/min

**Detection:** UV @ 202 nm

**Sample:** 1. Tolmetin  
2. Naproxen  
3. Diflunisal  
4. Fenoprofen  
5. Indomethacin  
6. Ibuprofen

### Fatty Acids



**Columns:** Luna 5 µm C8(2)  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4249-E0  
**Mobile Phase:** A: Acetonitrile  
B: Water (18 Mohms DI)  
**Gradient:** A/B (70:30) to A/B (90:10) in 10 min,  
A/B (90:10) to A/B (70:30) in 2 min,  
hold for 4 min  
**Flow Rate:** 0.3 mL/min  
**Detection:** Evaporative Light Scattering (ELSD)  
**Temperature:** 22 °C

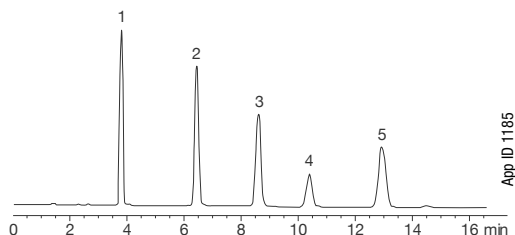
**Sample:** 1. Lauric acid  
2. Myristic acid  
3. Palmitoleic acid  
4. Linoleic acid  
5. Palmitic acid  
6. Oleic acid  
7. Heptadecanoic acid  
8. Stearic acid

The comparative data presented here may not be representative for all applications.

## Luna C18(2), C18(3), C8(2), C8(3), C5 (cont'd)

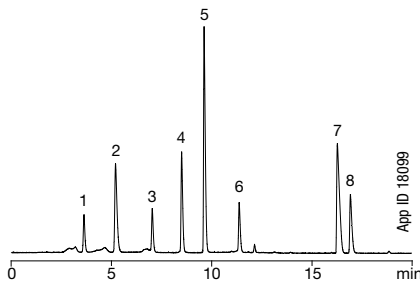
### Steroids

**Column:** Luna 5 µm C18(2)  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** 0.1 % H<sub>3</sub>PO<sub>4</sub> / Acetonitrile / Methanol (54:35:11)  
**Flow Rate:** 0.75 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Hydrocortisone 3. 11- $\alpha$ -Hydroxyprogesterone  
 2. Corticosterone 4. Cortisone Acetate  
 5. 11-Ketoprogesterone



### Narcotics

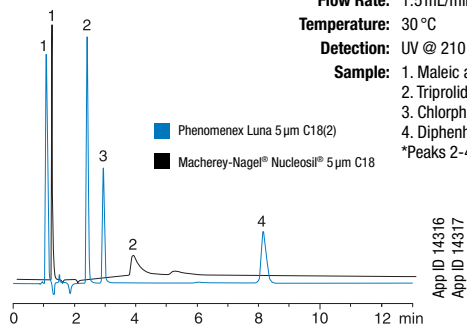
**Columns:** Luna 5 µm C18(2)  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** A: 10 mM NH<sub>4</sub>OAc, pH 5.5  
 B: Acetonitrile  
**Gradient:** A/B (95:5) for 3 minutes, then A/B (95:5) to A/B (60:40) in 23 minutes  
**Flow Rate:** 1.0 mL/min  
**Temperature:** 45 °C  
**Detection:** UV @ 254 nm (ambient)  
**Sample:** 1. Normorphine 5. Codeine  
 2. Morphine 6. Hydrocodone  
 3. Hydromorphone 7. Cocaine  
 4. Norcodeine 8. Norcocaine



### Basic Compounds

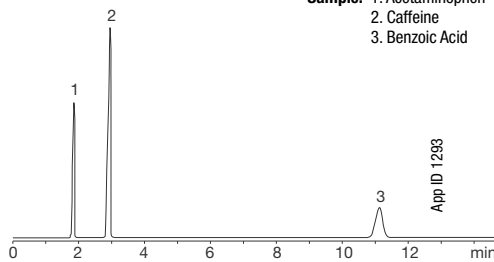
Conditions same for both columns:

**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** 20 mM Potassium phosphate, pH 2.5 / Acetonitrile (75:25)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 30 °C  
**Detection:** UV @ 210 nm  
**Sample:** 1. Maleic acid  
 2. Triprolidine\*  
 3. Chlorpheniramine\*  
 4. Diphenhydramine\*  
 \*Peaks 2-4 adsorb on Nucleosil C18



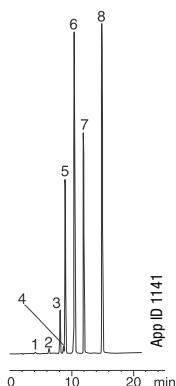
### Acetaminophen, USP Method

**Column:** Luna 5 µm C18(2)  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Water/Methanol/Acetic Acid (69:28:3)  
**Flow Rate:** 1.5 mL/min  
**Detection:** UV @ 275 nm  
**Sample:** 1. Acetaminophen  
 2. Caffeine  
 3. Benzoic Acid



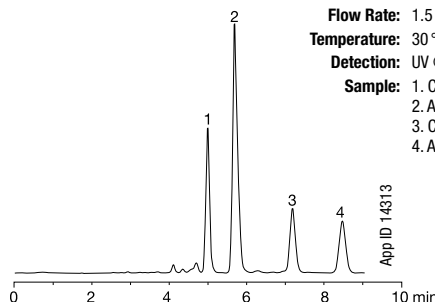
### Pharmaceutical Preservatives

**Column:** Luna 5 µm C5  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4043-E0  
**Mobile Phase:** A: 0.5 % Acetic acid in water/acetonitrile (80:20)  
 B: 0.5 % Acetic acid in water/acetonitrile (20:80)  
**Gradient:** A/B (100:0) to A/B (0:100) in 30 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 25 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Propylparaben impurity  
 2. Benzyl alcohol  
 3. Phenol  
 4. Benzoic acid  
 5. Methylparaben  
 6. Benzaldehyde  
 7. Ethylparaben  
 8. Propylparaben



### $\alpha$ - and $\beta$ -acids in Hop Extract

**Column:** Luna 5 µm C18(2)  
**Dimensions:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Methanol with 0.1 % H<sub>3</sub>PO<sub>4</sub> / Water with 0.1 % H<sub>3</sub>PO<sub>4</sub> (90:10)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 30 °C  
**Detection:** UV @ 314 nm  
**Sample:** 1. Cohumulone  
 2. Ad- $\alpha$ -humulone  
 3. Colupulone  
 4. Ad- $\beta$ -lupulone



## Luna Phenyl-Hexyl

### Engineered for Stability

Luna Phenyl-Hexyl columns provide separations not achievable on C18 or C8 columns; such as increased retention for polar, aromatic compounds as well as reversals in analyte elution order. Luna Phenyl-Hexyl columns are a reproducible, extremely stable phenyl phase. Most phenyl phases use a short propyl (3 carbon) linker, which limits phase stability. The Phenyl-Hexyl bonded phase employs a phenyl ring with a hexyl (6 carbon) linker and is densely bonded to Luna silica surface, reducing bonded phase hydrolysis and increasing chemical stability. The result:

- **Highly reproducible and stable phenyl phase**
- **Dual selectivity of both phenyl phase and a short alkyl phase (C5 or C8)**
- **Excellent retention of aromatic and polar, amine compounds**
- **Recommended for US EPA Method 8330B for explosives analysis**
- **1.5 to 10 pH stability for over 10000 hours**

### Luna Phenyl-Hexyl

USP: L11

LC-MS Certified

**pH Stability: 1.5-9.0\***

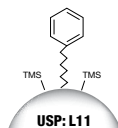
Particle Size: 3 µm, 5 µm, 10 µm, 10 µm-PREP, and 15 µm

Phase: Phenyl with Hexyl (C6) linker, endcapped

Application: Non-polar compounds

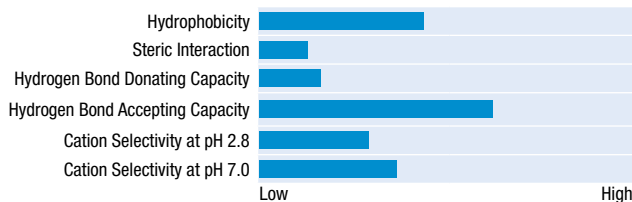
Strength: Aromatic selectivity enhanced by higher hydrophobicity due to hexyl linker

\* pH range is 1.5 - 10 under isocratic conditions.  
pH range is 1.5 - 9 under gradient conditions.



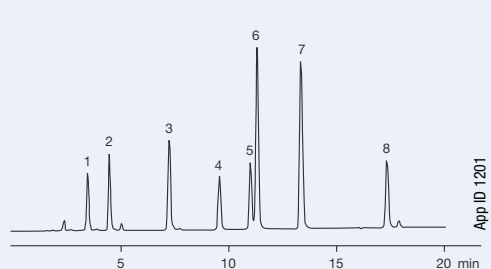
### Luna Phenyl-Hexyl

Our most hydrophobic phenyl column and it will also provide good hydrogen accepting functionality for acidic retention.

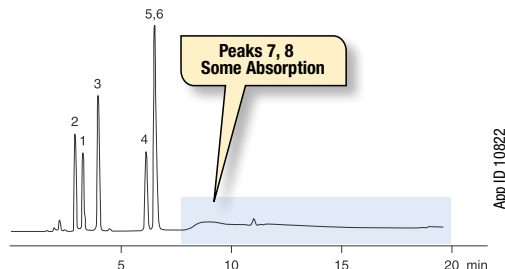


### Chromatographic Comparisons of Phenyl Columns\*\*

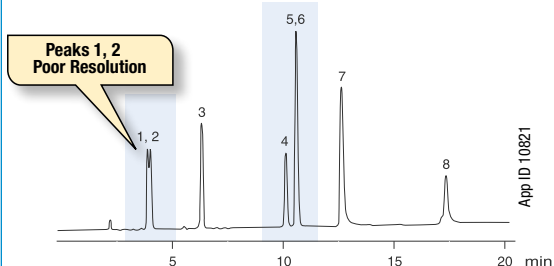
#### Luna 5 µm Phenyl-Hexyl



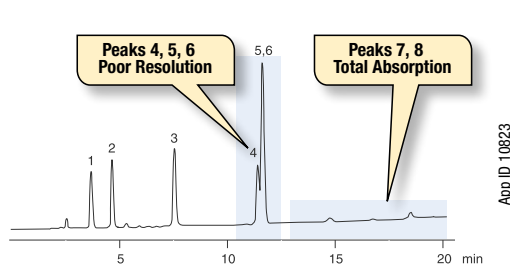
#### Waters® Spherisorb® 5 µm Phenyl



#### Agilent Technologies® ZORBAX® 5 µm SB-Phenyl



#### Agilent Technologies ZORBAX 5 µm Phenyl



### Antibacterials

Conditions for all columns:

**Dimensions:** 150 x 4.6 mm

**Mobile Phase:** A: 20 mM  $\text{KH}_2\text{PO}_4$ , pH 2.5

B: Acetonitrile

**Gradient:** A/B (80:20) to A/B (75:25) in 5 min to A/B (55:45) in 15 min

**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

**Sample:**

|                  |                     |                   |
|------------------|---------------------|-------------------|
| 1. Carbadox      | 4. Oxolinic Acid    | 7. Nalidixic Acid |
| 2. Thiamphenicol | 5. Sulfadimethoxine | 8. Piromidic Acid |
| 3. Furazolidone  | 6. Sulfadoxine      |                   |

\*\*The comparative data presented here may not be representative for all applications.

## Luna CN (cyano)

### Proven Reproducibility

For carboxyl, carbonyl, and amine containing compounds, Luna CN columns offer a unique polar selectivity in reversed phase and normal phase modes. Luna CN columns provide sharp peaks and great reproducibility run-to-run, column-to-column and batch-to-batch. State of the art modification of the silica surface ensures improved resistance to bonded phase hydrolysis providing one of the most stable CN phases on the market. The result:

- Excellent polar selectivity
- Improved peak shapes
- One of the most stable CN columns under reversed phase or normal phase conditions
- pH stable from 1.5 to 7.0

## Luna CN

USP: L10

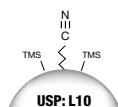
**pH Stability:** 1.5-7.0

Particle Size: 3 µm, 5 µm, and 10 µm

Phase: Cyano, endcapped

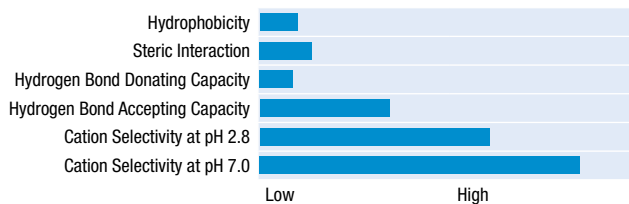
Application: Compounds with COOH, CO, NH<sub>2</sub>, NHR<sub>2</sub>, or NR<sub>2</sub>

Strength: Improved reproducibility for more consistent results run-to-run, column-to-column, batch-to-batch



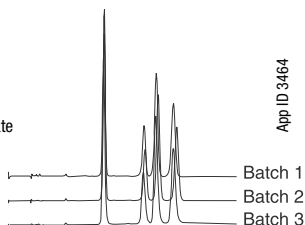
### Luna CN

Nitrile groups bound to the silica surface offer a unique polar selectivity under reversed phase or normal phase conditions.



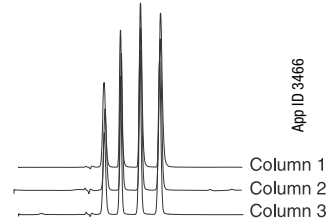
### Batch-to-Batch Reproducibility

**Column:** Luna 5 µm CN  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** A: Hexane, B: Methylene chloride/Methanol(80:20), A/B (80:20)  
**Flow Rate:** 2.0 mL/min  
**Detection:** UV @ 254 nm  
**Injection:** 1.0 µL  
**Temperature:** Ambient  
**Sample:** 1. Hydrocortisone  
 2. Prednisone  
 3. Cortisone  
 4. Hydrocortisone Acetate



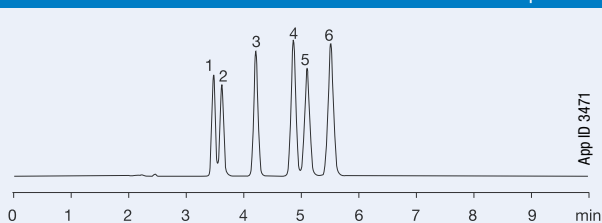
### Column-to-Column Reproducibility

**Column:** Luna 5 µm CN  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** A: Hexane, B: Methylene chloride/Methanol(80:20), A/B (95:5)  
**Flow Rate:** 1.0 mL/min  
**Injection:** 5 µL  
**Detection:** UV @ 254 nm  
**Temperature:** Ambient  
**Sample:** 1. Dimethyl phthalate  
 2. Diethyl phthalate  
 3. Dibutyl phthalate  
 4. Dioctyl phthalate



### Chromatographic Comparisons of CN Columns\*\*

#### Luna 5 µm CN



#### Phthalate Esters

Normal Phase Conditions for all columns:

**Dimensions:** 150 x 4.6 mm

**Mobile Phase:** A: Hexane, B: Methylene chloride/Methanol (80:20), A/B (99:1)

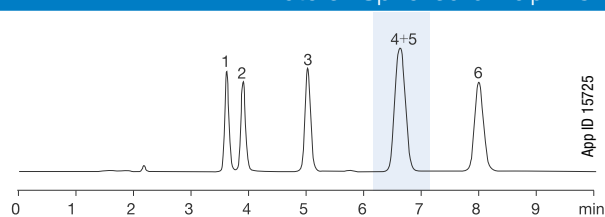
**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

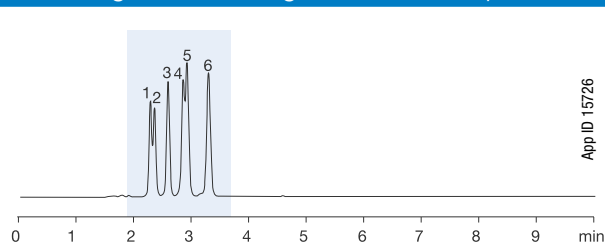
**Temperature:** Ambient

**Sample:** 1. Di-n-octyl phthalate  
 2. Bis (2-Ethylhexyl) phthalate  
 3. Butylbenzyl phthalate  
 4. Di-n-butyl phthalate  
 5. Diethyl phthalate  
 6. Dimethyl phthalate

#### Waters® Spherisorb® 5 µm CN



#### Agilent Technologies® ZORBAX® 5 µm SB-CN



\*\*The comparative data presented here may not be representative for all applications.

## Luna NH<sub>2</sub> (amino)

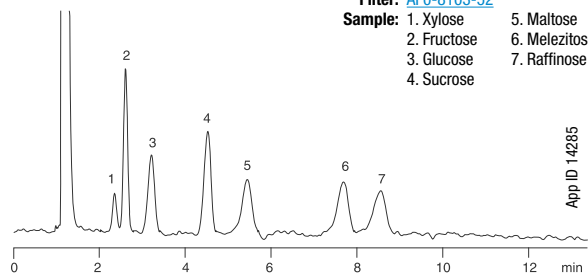
### Developed for Ruggedness

Luna NH<sub>2</sub> columns were developed to provide improved amino column lifetime. Column life for most amino columns can be problematic as the amino bonding easily strips off the silica. Luna NH<sub>2</sub> columns, however, show good bonded phase stability under both normal and reversed phase modes and across a pH range of 1.5 to 11.0. Such a broad pH range indicates the bonded phase ruggedness and the density of the bonded phase coverage. The result:

- Long lifetimes and low phase bleed for more reproducible methods
- Excellent retention of simple sugars, complex sugars, sugar alcohols by reversed phase conditions, and hydrogen bonding compounds under normal phase conditions
- pH stable from 1.5 to 11.0
- Stable in 100 % aqueous mobile phases

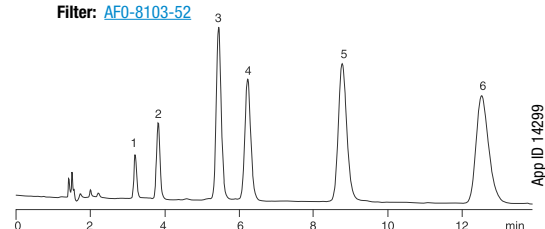
#### Simple Sugars

Column: Luna 5 µm NH<sub>2</sub>  
 Dimensions: 250 x 4.6 mm  
 Part No.: [00G-4378-E0](#)  
 Guard Cartridge: [AJ0-4302](#)  
 Guard Holder: [KJ0-4282](#)  
 Mobile Phase: Acetonitrile/Water (80:20)  
 Flow Rate: 3 mL/min  
 Temperature: 40 °C  
 Detection: RI  
 Vial: [AR0-9925-13](#)  
 Filter: [AF0-8103-52](#)  
 Sample: 1. Xylose 5. Maltose  
 2. Fructose 6. Melezitose  
 3. Glucose 7. Raffinose  
 4. Sucrose



#### Steroids

Column: Luna 5 µm NH<sub>2</sub>  
 Dimensions: 250 x 4.6 mm  
 Part No.: [00G-4378-E0](#)  
 Guard Cartridge: [AJ0-4302](#)  
 Guard Holder: [KJ0-4282](#)  
 Mobile Phase: Hexane/Ethanol (85:15)  
 Flow Rate: 2 mL/min  
 Temperature: 22 °C  
 Detection: UV @ 240 nm  
 Vial: [AR0-9925-13](#)  
 Filter: [AF0-8103-52](#)  
 Sample: 1. 11-Ketoprogesterone  
 2. 11-Hydroxyprogesterone  
 3. Cortisone Acetate  
 4. Prednisolone 21-Acetate  
 5. Cortisone  
 6. Prednisolone



## Luna NH<sub>2</sub>

USP: L8

pH Stability: 1.5-11.0

Particle Size: 3 µm, 5 µm, and 10 µm

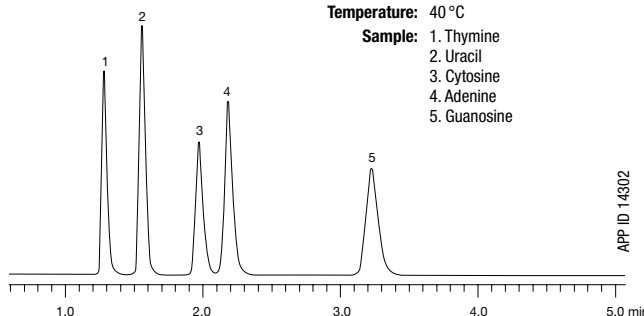
Phase: Amino

Application: Compounds with COOH, CO, NH<sub>2</sub>, NHR<sub>2</sub>, or NR<sub>2</sub>

Strength: Sugars by reversed phase, steroids by normal phase, oligonucleotides by ion exchange

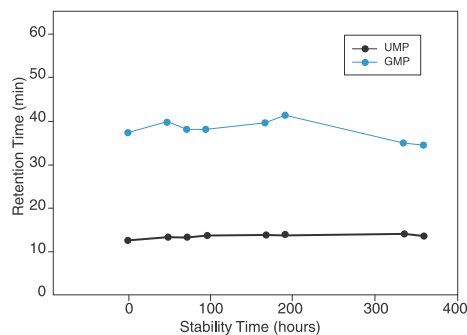
#### Nucleic Acid Bases

Column: Luna 5 µm NH<sub>2</sub>  
 Dimension: 150 x 4.6 mm  
 Part No.: [00F-4378-E0](#)  
 Mobile Phase: Acetonitrile/Water (80:20)  
 Flow Rate: 1.0 mL/min  
 Detection: UV @ 254 nm  
 Temperature: 40 °C  
 Sample: 1. Thymine  
 2. Uracil  
 3. Cytosine  
 4. Adenine  
 5. Guanosine



#### Stability in 100 % Aqueous Mobile Phase

Column: Luna 5 µm NH<sub>2</sub>  
 Dimensions: 250 x 4.6 mm  
 Part No.: [00G-4378-E0](#)  
 Guard Cartridge: [AJ0-4302](#)  
 Guard Holder: [KJ0-4282](#)  
 Mobile Phase: 20 mM Potassium Phosphate Buffer pH 2.7  
 Flow Rate: 1.5 mL/min  
 Detector: UV @ 254 nm  
 Vial: [AR0-9925-13](#)  
 Filter: [AF0-8103-52](#)  
 Temperature: Ambient  
 Injection: 2.5 µL  
 Conditions: Continuously flushed at 1.0 mL/min using 100 % 20 mM Potassium Phosphate Buffer pH 2.7 between injections



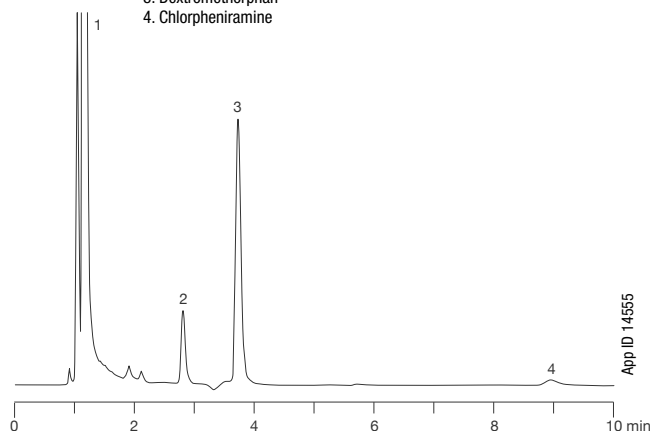
## Luna SCX (strong cation exchange) Develop Robust Methods

Luna SCX columns provide excellent resolution and peak shape of basic, cationic compounds. However, most SCX columns show poor peak shape and bad resolution causing many chromatographers to ignore this important phase for small molecule method development, until now. Luna SCX columns contain a benzene sulfonic acid ligand providing ion-exchange, reversed phase, and aromatic interactions. Such interactions make Luna SCX columns great as a first dimension for 2D LC applications as well as improved resolution for small molecules. The result:

- Resolving power and sharp peak shape to separate complex cationic/basic and nitrogen containing compounds
- 5 and 10  $\mu\text{m}$  columns and bulk media for analytical through preparative separations
- Benzene sulfonic acid ligand provides mixed-mode interaction improving separation for 2D peptide applications

### Childrens Tylenol Cold Syrup

**Column:** Luna 5  $\mu\text{m}$  SCX  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4398-E0  
**Guard Cartridge:** AJ0-4308  
**Guard Holder:** KJ0-4282  
**Mobile Phase:** 50 mM  $\text{KH}_2\text{PO}_4$ , pH 2.5/Acetonitrile (35:65)  
**Injection Volume:** 1  $\mu\text{L}$   
**Flow Rate:** 1.5 mL/min  
**Detection:** UV @ 210 nm  
**Vial:** AR0-9925-13  
**Filter:** AF0-8103-52  
**Sample Prep:** Dissolve 1 part Childrens Tylenol Cold in 10 parts Methanol  
**Sample:** 1. Acetaminophen  
 2. Pseudoephedrine  
 3. Dextromethorphan  
 4. Chlorpheniramine



**SCX Method Development and pH:** The standard operating pH range for Luna SCX columns is 2.0 to 7.0. Most SCX methods are typically run between pH 2.0 and 5.0 for optimal performance. This ensures that nitrogen-containing analytes, especially those with adjacent conjugated system are protonated. Running in highly acidic (pH < 2.0) or basic (pH > 7.0) mobile phases may cause this phase to undergo degradation, as is common for all silica-based SCX phases.

### Luna SCX

USP: L9

**pH Stability:** 2.0-7.0

**Particle Size:** 5  $\mu\text{m}$  and 10  $\mu\text{m}$

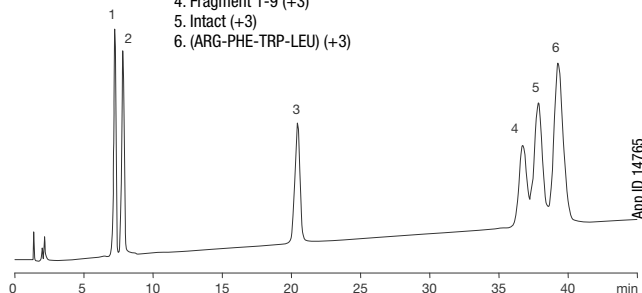
**Phase:** Benzene Sulfonic Acid, Strong Cation Exchange

**Application:** Amine and polyamine containing compounds

**Strength:** Guaranteed to provide sharper peak shape and better resolution compared to traditional SCX columns

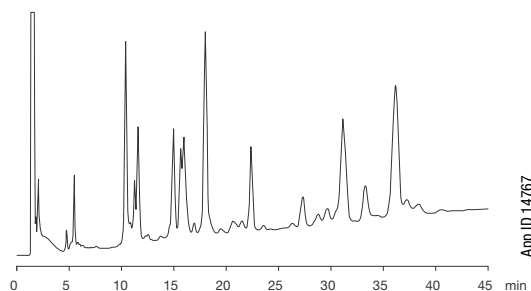
### Peptides

**Column:** Luna 5  $\mu\text{m}$  SCX  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4398-E0  
**Guard Cartridge:** AJ0-4308  
**Guard Holder:** KJ0-4282  
**Mobile Phase:** A: 20 mM Potassium Phosphate, 25% Acetonitrile, pH 2.5  
 B: 20 mM Potassium Phosphate, 25% Acetonitrile, 400 mM Potassium Chloride, pH 2.5  
**Gradient:** A/B (95:5) to A/B (10:90) in 45 minutes  
**Flow Rate:** 1 mL/min  
**Temperature:** 35  $^{\circ}\text{C}$   
**Detection:** UV @ 215 nm  
**Vial:** AR0-9925-13  
**Filter:** AF0-8103-52  
**Injection Volume:** 2  $\mu\text{L}$  (5  $\mu\text{g}$  on column)  
**Sample:** Peptide Mixture - Substance P  
 1. Fragment 5-11 (+1)  
 2. Fragment 4-11 (+1)  
 3. Fragment 2-11 (+2)  
 4. Fragment 1-9 (+3)  
 5. Intact (+3)  
 6. (ARG-PHE-TRP-LEU) (+3)



### Tryptic Digest of Bovine Cytochrome c

**Column:** Luna 5  $\mu\text{m}$  SCX  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4398-E0  
**Guard Cartridge:** AJ0-4308  
**Guard Holder:** KJ0-4282  
**Mobile Phase:** A: 20 mM Potassium Phosphate, pH 2.5 / 25% Acetonitrile  
 B: 20 mM Potassium Phosphate, pH 2.5 / 25% Acetonitrile / 350 mM Potassium Chloride  
**Gradient:** 100% A to 100% B in 50 minutes  
**Flow Rate:** 1 mL/min  
**Temperature:** 35  $^{\circ}\text{C}$   
**Detection:** UV @ 215 nm  
**Vial:** AR0-9925-13  
**Filter:** AF0-8103-52  
**Injection Volume:** 50  $\mu\text{L}$  (20  $\mu\text{g}$  on column)  
**Sample:** Bovine Cytochrome c trypsin digest



## Luna HILIC

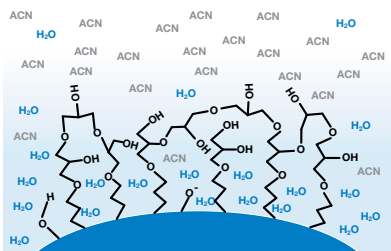
### Increase MS Sensitivity and Retention for Polar Compounds

Luna HILIC columns retain a water-enriched layer on the surface of the silica. This water layer facilitates the transfer of polar compounds onto the stationary phase for increased retention.

Hydrophilic Interaction Liquid Chromatography (HILIC) is a separation mode where the partitioning of polar solutes from the high concentration, water-miscible, organic mobile phase into the hydrophilic surface environment creates separations. Polar solutes exhibit increased retention and elute in the order of increasing hydrophilicity.

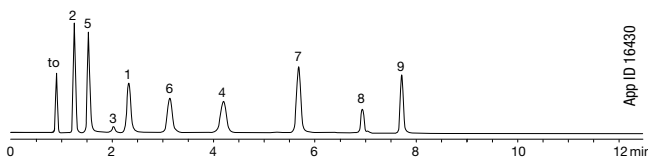
Finally, reproducible, robust HILIC separations!

- Made for retention of polar compounds
- Increase mass spectrometry sensitivity
- Increase laboratory throughput and productivity



### Vitamin Mix on Luna HILIC

Vitamins provide an excellent platform to demonstrate the benefits of HILIC. The effect of increased polar compound retention can be easily seen in this application.

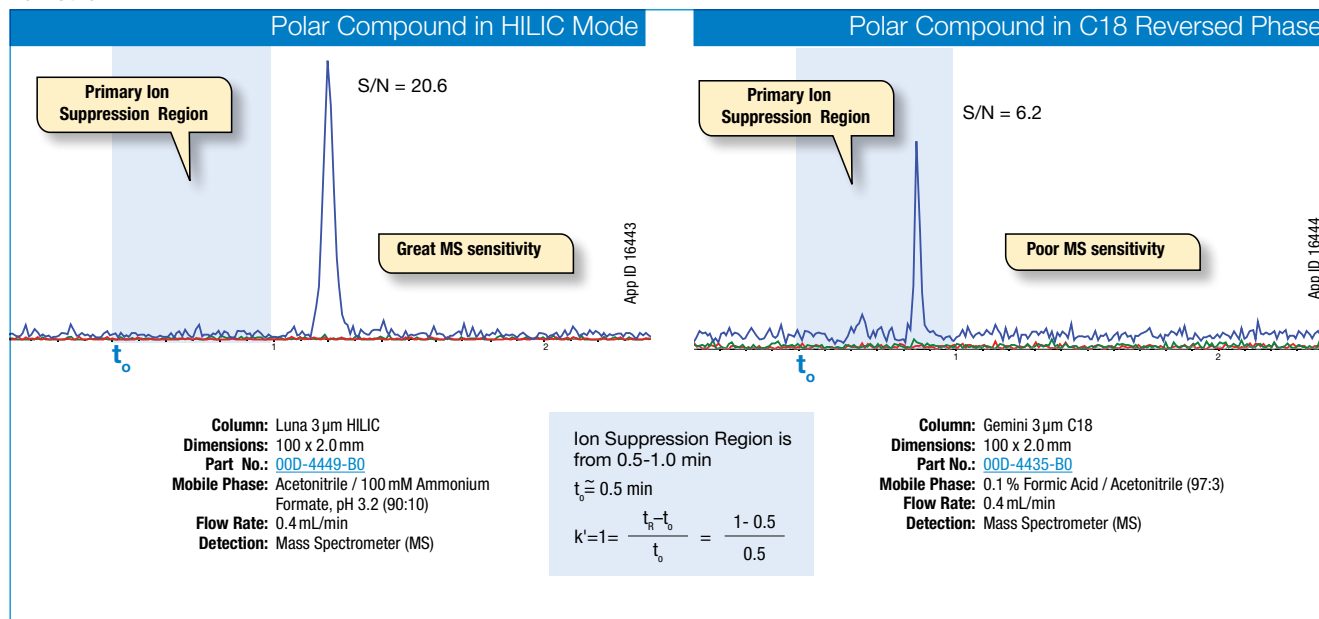


**Column:** Luna 5  $\mu$ m HILIC  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4450-E0  
**Guard Cartridge:** AJO-8329  
**Guard Holder:** KJO-4282  
**Mobile Phase:** A: Acetonitrile  
 B: Water  
 C: 100 mM Ammonium Acetate, pH 5.8  
**Gradient:** A/B/C (90:5:5) for 2.5 min to A/B/C (50:45:5) in 7.5 min, hold for 2.5 min. Re-equilibrate @ A/B/C (90:5:5) for 7.5 min  
**Flow Rate:** 2.0 mL/min  
**Detection:** UV @ 260 nm  
**Vial:** AR0-9925-13  
**Filter:** AF0-8103-52  
**Sample:** 1. p-Aminobenzoic Acid  $pK_a$  4.7,  $H^+ pK_a$  2.7 logP 0.83  
 2. Nicotinamide  $H^+ pK_a$  3.35 logP -0.37  
 3. Riboflavin  $pK_a$  10.2 logP -1.46  
 4. Nicotinic Acid  $pK_a$  4.7,  $H^+ pK_a$  3.0 logP 0.36  
 5. Pyridoxine  $H^+ pK_a$  5.6,  $pK_a$  8.6 logP -0.77  
 6. Thiamine  $H^+ pK_a$  5.5 logP -4.6  
 7. Ascorbic Acid  $pK_a$  4.1, 11.2 logP -1.85  
 8. Cyanocobalamin  $pK_a$  1.59 logP -0.90  
 9. Folic Acid  $pK_a$  2.7, 4.1, 8.9 logP -0.02

### Improved Mass Spec Sensitivity

Luna HILIC columns allow low level polar metabolites to be retained on column past the critical ion suppression zone, allowing: Increased MS sensitivity and Higher signal-to-noise ratio (S/N).

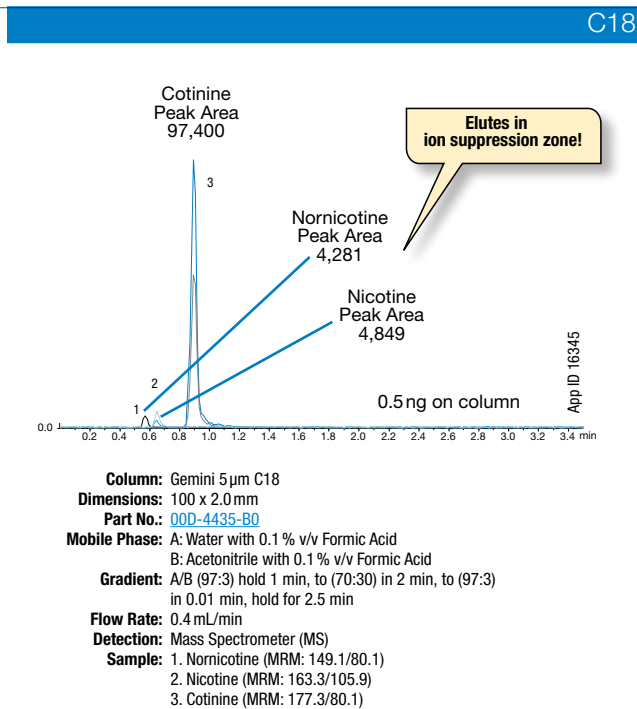
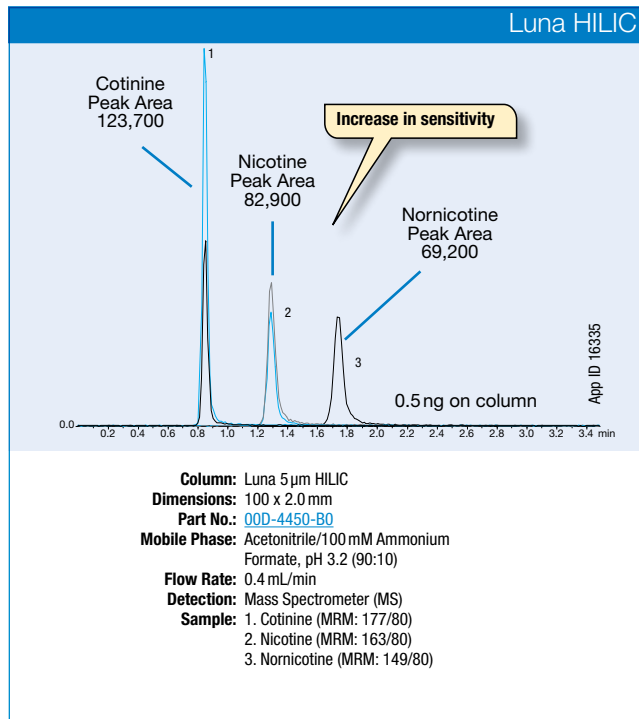
#### Bamethan



## Luna HILIC (cont'd) Improved Mass Spec Sensitivity (cont'd)

The increased retention in HILIC allows elution of the analytes outside the suppression region and thus increases detector sensitivity. In addition, the Luna HILIC column also resolves the compounds with the reverse order of that seen in reversed phase LC.

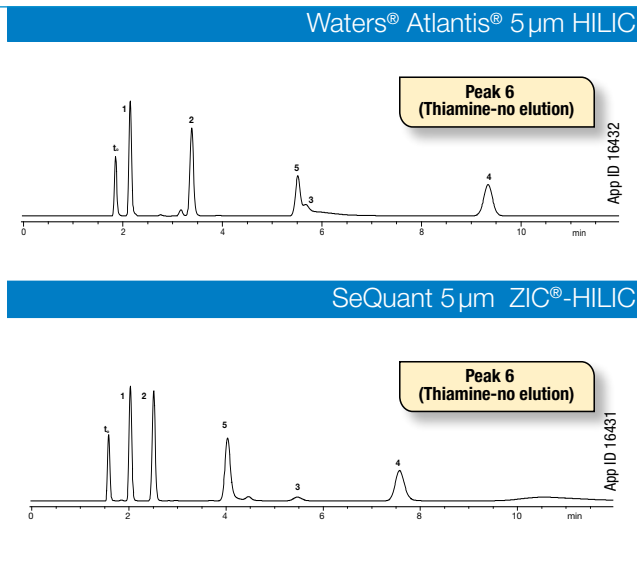
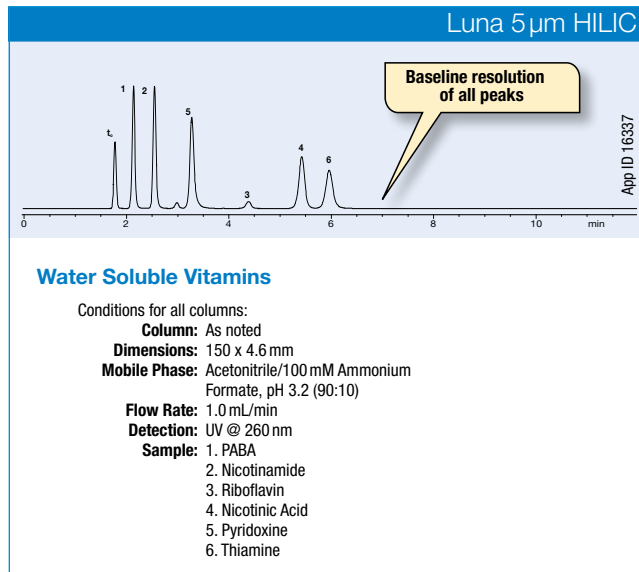
### Nicotine and Metabolites



## Unique HILIC Selectivity

Not all HILIC columns are alike, Luna HILIC columns deliver on the exacting standards you have come to trust from the Luna product line.

### Chromatographic Comparisons of HILIC Columns\*\*



\*\* The comparative data presented here may not be representative for all applications.

## Luna PFP(2)

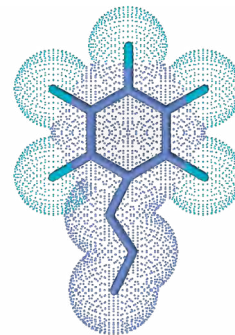
### Powerful Selectivity for Reversed Phase Methods

Luna PFP(2) columns provide remarkable selectivity for highly polar compounds, complex natural products, isomers, and other closely related compounds. This is achieved by using a pentafluorophenyl with a propyl linkage which provides multiple retention mechanisms different to other reversed phase media.

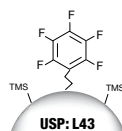
- Achieve excellent selectivity using four mechanisms of solute/stationary phase interactions
- Extremely discerning for halogenated, aromatic and conjugated compounds
- Provides orthogonal selectivity even using traditional reversed phase mobile phase systems

Luna PFP(2) selectivity is achieved through 4 mechanisms of interaction

- Hydrogen Bonding
- Dipole-Dipole Interactions
- Aromatic and  $\pi$ - $\pi$  Interactions
- Hydrophobic

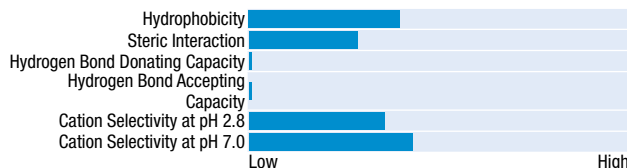


A typical alkyl phase (C18, C8) achieves selectivity through only 1 mechanism of interaction.



### Luna PFP(2)

Pentafluorophenyl groups provide very little hydrogen bonding abilities, but the strongly electronegative fluorine groups will provide good charge based selectivity for cationic compounds, while the rigid bonded phase is a good steric selector.

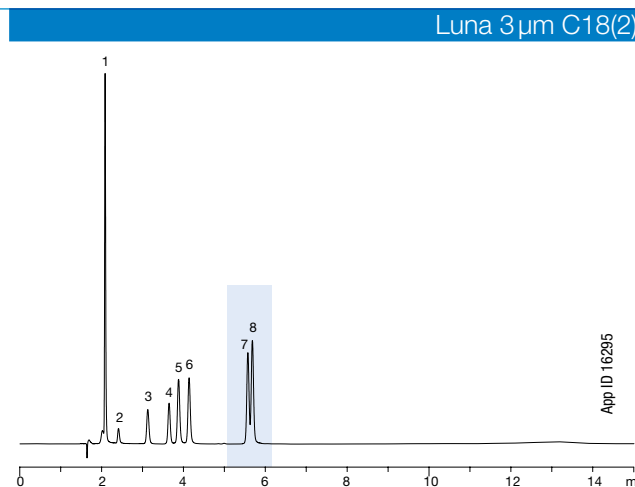
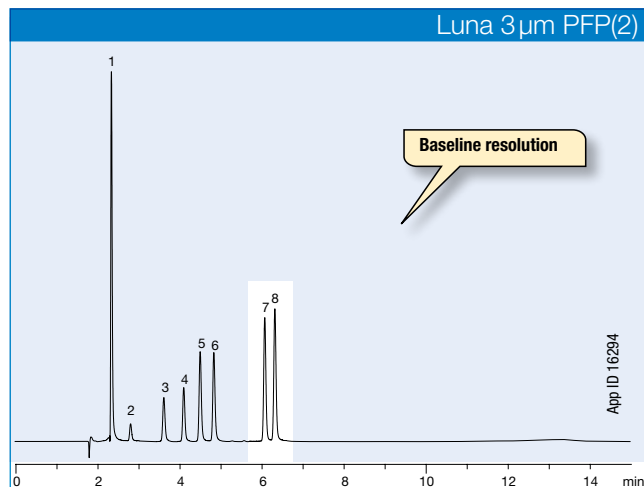


## Aromatic Compounds

Aromatic compounds show different retention characteristics on Luna PFP(2) compared to traditional reversed phase columns. The presence of the aromatic benzene ring in Luna PFP(2) increases the relative attraction between the stationary phase and aromatic analytes, leading to increased retention for these types of compounds. Closely related polyphenolic compounds are readily separated with Luna PFP(2) columns.



### Catechins



Columns: Luna 3  $\mu$ m PFP(2)  
Luna 3  $\mu$ m C18(2)  
Part Nos.: [00F-4447-E0](#)  
[00F-4251-E0](#)

Conditions for all columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: A: 0.1 % Formic acid in Water

B: 0.1 % Formic acid in Acetonitrile

Gradient: A/B (80:20) to (55:45) in 10 min

Flow Rate: 1 mL/min

Temperature: 22 °C

Detection: UV @ 280 nm

Sample: 1. Gallic acid

2. Epigallo catechin

3. Catechin

4. Epicatechin

5. Epigallocatechin gallate

6. Gallo catechin gallate

7. Epicatechin gallate

8. Catechin gallate

## Fast LC Solutions

### Ordering Information

| 2.5 µm High Speed Technology (HST) Columns (mm) |                             |                             |                             |                             |                             |
|-------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Phase                                           | 30 x 2.0                    | 50 x 2.0                    | 100 x 2.0                   | 50 x 3.0                    | 100 x 3.0                   |
| Luna 2.5 µm C18(2)-HST                          | <a href="#">00A-4446-B0</a> | <a href="#">00B-4446-B0</a> | <a href="#">00D-4446-B0</a> | <a href="#">00B-4446-Y0</a> | <a href="#">00D-4446-Y0</a> |



For information about HST Columns, contact your Phenomenex technical consultant or local distributor.

| MercuryMS™ LC-MS Cartridges (mm) |        |                                |                                |                                |                                | Columns (mm)                |                             |
|----------------------------------|--------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------------------|-----------------------------|
| 3 µm                             | Phase  | 10 x 2.0                       | 10 x 4.0                       | 20 x 2.0                       | 20 x 4.0                       | 20 x 2.0                    | 20 x 4.0                    |
| Luna                             | C18(2) | <a href="#">00N-4251-B0-CE</a> | <a href="#">00N-4251-D0-CE</a> | <a href="#">00M-4251-B0-CE</a> | <a href="#">00M-4251-D0-CE</a> | <a href="#">00M-4251-B0</a> | <a href="#">00M-4251-D0</a> |
| Luna                             | C8(2)  | <a href="#">00N-4248-B0-CE</a> | —                              | <a href="#">00M-4248-B0-CE</a> | —                              | <a href="#">00M-4248-B0</a> | —                           |
| 5 µm                             | Phase  | 10 x 2.0                       | 10 x 4.0                       | 20 x 2.0                       | 20 x 4.0                       |                             |                             |
| Luna                             | C18(2) | <a href="#">00N-4252-B0-CE</a> | <a href="#">00N-4252-D0-CE</a> | <a href="#">00M-4252-B0-CE</a> | <a href="#">00M-4252-D0-CE</a> | —                           | —                           |
| Luna                             | C8(2)  | <a href="#">00N-4249-B0-CE</a> | —                              | <a href="#">00M-4249-B0-CE</a> | —                              | —                           | —                           |

## MercuryMS™ Cartridge Holders

### Ordering Information

#### Direct-Connect Cartridge Holders

| Part No.                 | Description                 |
|--------------------------|-----------------------------|
| <a href="#">CHO-7187</a> | 10 mm direct-connect holder |
| <a href="#">CHO-7188</a> | 20 mm direct-connect holder |

#### Standard Cartridge Holders

| Part No.                 | Description           |
|--------------------------|-----------------------|
| <a href="#">CHO-5846</a> | 10 mm standard holder |
| <a href="#">CHO-5845</a> | 20 mm standard holder |



Direct-Connect Holder



Standard Holder

## Micro LC Columns

### Ordering Information

| 3 µm and 5 µm Micro LC Columns (mm) |                             |                             |                             |                             |                             |                             |                             | Trap Column                 | 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                  | 250 x 0.50                  | 20 x 0.30                   | 20 x 0.50                   |
| 3 µm C8(2)                          | <a href="#">00B-4248-AC</a> | —                           | —                           | <a href="#">00B-4248-AF</a> | —                           | —                           | —                           | —                           | —                           |
| 3 µm C18(2)                         | <a href="#">00B-4251-AC</a> | <a href="#">00D-4251-AC</a> | <a href="#">00F-4251-AC</a> | <a href="#">00B-4251-AF</a> | <a href="#">00D-4251-AF</a> | <a href="#">00F-4251-AF</a> | —                           | —                           | —                           |
| 3 µm Phenyl-Hexyl                   | —                           | <a href="#">00D-4256-AC</a> | —                           | —                           | <a href="#">00D-4256-AF</a> | —                           | —                           | —                           | —                           |
| 3 µm NH <sub>2</sub>                | —                           | —                           | <a href="#">00F-4377-AC</a> | —                           | —                           | —                           | —                           | —                           | —                           |
| 3 µm HILIC                          | —                           | —                           | —                           | <a href="#">00B-4449-AF</a> | —                           | —                           | —                           | —                           | —                           |
| 5 µm C8(2)                          | —                           | —                           | <a href="#">00F-4249-AC</a> | —                           | —                           | —                           | —                           | <a href="#">05M-4249-AC</a> | <a href="#">05M-4249-AF</a> |
| 5 µm C18(2)                         | —                           | —                           | <a href="#">00F-4252-AC</a> | —                           | —                           | <a href="#">00F-4252-AF</a> | <a href="#">00G-4252-AF</a> | <a href="#">05M-4252-AC</a> | <a href="#">05M-4252-AF</a> |
| 5 µm Phenyl-Hexyl                   | <a href="#">00B-4257-AC</a> | —                           | —                           | <a href="#">00B-4257-AF</a> | —                           | —                           | —                           | —                           | —                           |



For information on Micro LC Columns, Traps, and Fittings, see pp. 359-361

## HPLC Columns

### Ordering Information

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

| 3 µm Microbore and Minibore Columns (mm) |                             |                             |                             |                             |                             |                             | SecurityGuard Cartridges (mm) |
|------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------|
| Phases                                   | 50 x 1.0                    | 150 x 1.0                   | 30 x 2.0                    | 50 x 2.0                    | 100 x 2.0                   | 150 x 2.0                   | 4 x 2.0*                      |
| Silica(2)                                | —                           | <a href="#">00F-4162-A0</a> | —                           | <a href="#">00B-4162-B0</a> | <a href="#">00D-4162-B0</a> | <a href="#">00F-4162-B0</a> | <a href="#">AJ0-4347</a>      |
| C8(2)                                    | —                           | —                           | <a href="#">00A-4248-B0</a> | <a href="#">00B-4248-B0</a> | <a href="#">00D-4248-B0</a> | <a href="#">00F-4248-B0</a> | <a href="#">AJ0-4289</a>      |
| C18(2)                                   | <a href="#">00B-4251-A0</a> | <a href="#">00F-4251-A0</a> | <a href="#">00A-4251-B0</a> | <a href="#">00B-4251-B0</a> | <a href="#">00D-4251-B0</a> | <a href="#">00F-4251-B0</a> | <a href="#">AJ0-4286</a>      |
| CN                                       | —                           | —                           | —                           | <a href="#">00B-4254-B0</a> | <a href="#">00D-4254-B0</a> | <a href="#">00F-4254-B0</a> | <a href="#">AJ0-4304</a>      |
| Phenyl-Hexyl                             | —                           | —                           | —                           | <a href="#">00B-4256-B0</a> | <a href="#">00D-4256-B0</a> | <a href="#">00F-4256-B0</a> | <a href="#">AJ0-4350</a>      |
| NH <sub>2</sub>                          | —                           | <a href="#">00F-4377-A0</a> | <a href="#">00A-4377-B0</a> | <a href="#">00B-4377-B0</a> | <a href="#">00D-4377-B0</a> | <a href="#">00F-4377-B0</a> | <a href="#">AJ0-4301</a>      |
| HILIC                                    | —                           | —                           | —                           | <a href="#">00B-4449-B0</a> | <a href="#">00D-4449-B0</a> | <a href="#">00F-4449-B0</a> | <a href="#">AJ0-8328</a>      |
| PPFP(2)                                  | —                           | <a href="#">00F-4447-A0</a> | <a href="#">00A-4447-B0</a> | <a href="#">00B-4447-B0</a> | <a href="#">00D-4447-B0</a> | <a href="#">00F-4447-B0</a> | <a href="#">AJ0-8326</a>      |

for ID: 2.0-3.0 mm

## HPLC Columns (cont'd)

### Ordering Information (continued)

| 3µm MidBore™ and Analytical Columns (mm) |             |             |             |             |             |             |             |             | SecurityGuard™ Cartridges (mm) |          |
|------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------------------|----------|
| Phases                                   | 30 x 3.0    | 50 x 3.0    | 150 x 3.0   | 30 x 4.6    | 50 x 4.6    | 75 x 4.6    | 100 x 4.6   | 150 x 4.6   | 4 x 2.0*                       | 4 x 3.0* |
|                                          |             |             |             |             |             |             |             |             | /10pk                          | /10pk    |
| Silica(2)                                | —           | 00B-4162-Y0 | 00F-4162-Y0 | 00A-4162-E0 | 00B-4162-E0 | —           | 00D-4162-E0 | 00F-4162-E0 | AJ0-4347                       | AJ0-4348 |
| C8(2)                                    | 00A-4248-Y0 | 00B-4248-Y0 | 00F-4248-Y0 | 00A-4248-E0 | 00B-4248-E0 | 00C-4248-E0 | 00D-4248-E0 | 00F-4248-E0 | AJ0-4289                       | AJ0-4290 |
| C18(2)                                   | 00A-4251-Y0 | 00B-4251-Y0 | 00F-4251-Y0 | 00A-4251-E0 | 00B-4251-E0 | 00C-4251-E0 | 00D-4251-E0 | 00F-4251-E0 | AJ0-4286                       | AJ0-4287 |
| CN                                       | —           | 00B-4254-Y0 | 00F-4254-Y0 | 00A-4254-E0 | 00B-4254-E0 | 00C-4254-E0 | 00D-4254-E0 | 00F-4254-E0 | AJ0-4304                       | AJ0-4305 |
| Phenyl-Hexyl                             | —           | 00B-4256-Y0 | 00F-4256-Y0 | —           | 00B-4256-E0 | 00C-4256-E0 | 00D-4256-E0 | 00F-4256-E0 | AJ0-4350                       | AJ0-4351 |
| NH <sub>2</sub>                          | —           | 00B-4377-Y0 | 00F-4377-Y0 | —           | 00B-4377-E0 | —           | 00D-4377-E0 | 00F-4377-E0 | AJ0-4301                       | AJ0-4302 |
| HILIC                                    | —           | 00B-4449-Y0 | 00F-4449-Y0 | —           | —           | —           | 00D-4449-E0 | 00F-4449-E0 | AJ0-8328                       | AJ0-8329 |
| PFP(2)                                   | —           | 00B-4447-Y0 | 00F-4447-Y0 | —           | 00B-4447-E0 | —           | 00D-4447-E0 | 00F-4447-E0 | AJ0-8326                       | AJ0-8327 |

for ID: 2.0-3.0 mm 3.2-8.0 mm

| 5µm Microbore and Minibore Columns (mm) |             |             |             |             |             | SecurityGuard™ Cartridges (mm) |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|--------------------------------|
| Phases                                  | 150 x 1.0   | 30 x 2.0    | 50 x 2.0    | 150 x 2.0   | 250 x 2.0   | 4 x 2.0*                       |
|                                         |             |             |             |             |             | /10pk                          |
| Silica(2)                               | —           | 00A-4274-B0 | 00B-4274-B0 | 00F-4274-B0 | 00G-4274-B0 | AJ0-4347                       |
| C5                                      | —           | 00A-4043-B0 | 00B-4043-B0 | 00F-4043-B0 | —           | AJ0-4292                       |
| C8(2)                                   | —           | 00A-4249-B0 | 00B-4249-B0 | 00F-4249-B0 | 00G-4249-B0 | AJ0-4289                       |
| C18(2)                                  | 00F-4252-A0 | 00A-4252-B0 | 00B-4252-B0 | 00F-4252-B0 | 00G-4252-B0 | AJ0-4286                       |
| CN                                      | —           | —           | 00B-4255-B0 | 00F-4255-B0 | —           | AJ0-4304                       |
| Phenyl-Hexyl                            | —           | 00A-4257-B0 | 00B-4257-B0 | 00F-4257-B0 | 00G-4257-B0 | AJ0-4350                       |
| NH <sub>2</sub>                         | —           | 00A-4378-B0 | 00B-4378-B0 | 00F-4378-B0 | 00G-4378-B0 | AJ0-4301                       |
| SCX                                     | —           | —           | 00B-4398-B0 | —           | —           | AJ0-4307                       |
| PFP(2)                                  | —           | 00A-4448-B0 | 00B-4448-B0 | 00F-4448-B0 | —           | AJ0-8326                       |

for ID: 2.0-3.0 mm

| 5µm MidBore and Analytical Columns (mm) |             |             |             |             |             |             |             | SecurityGuard™ Cartridges (mm) |          |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------------------|----------|
| Phases                                  | 30 x 3.0    | 50 x 3.0    | 150 x 3.0   | 250 x 3.0   | 30 x 4.6    | 50 x 4.6    | 75 x 4.6    | 4 x 2.0*                       | 4 x 3.0* |
|                                         |             |             |             |             |             |             |             | /10pk                          | /10pk    |
| Silica(2)                               | —           | —           | —           | —           | —           | 00B-4274-E0 | —           | AJ0-4347                       | AJ0-4348 |
| C5                                      | —           | —           | 00F-4043-Y0 | —           | —           | 00B-4043-E0 | —           | AJ0-4292                       | AJ0-4293 |
| C8(2)                                   | —           | 00B-4249-Y0 | 00F-4249-Y0 | 00G-4249-Y0 | 00A-4249-E0 | 00B-4249-E0 | 00C-4249-E0 | AJ0-4289                       | AJ0-4290 |
| C18(2)                                  | 00A-4252-Y0 | 00B-4252-Y0 | 00F-4252-Y0 | 00G-4252-Y0 | 00A-4252-E0 | 00B-4252-E0 | 00C-4252-E0 | AJ0-4286                       | AJ0-4287 |
| CN                                      | —           | 00B-4255-Y0 | 00F-4255-Y0 | 00G-4255-Y0 | 00A-4255-E0 | 00B-4255-E0 | 00C-4255-E0 | AJ0-4304                       | AJ0-4305 |
| Phenyl-Hexyl                            | —           | 00B-4257-Y0 | 00F-4257-Y0 | 00G-4257-Y0 | 00A-4257-E0 | 00B-4257-E0 | —           | AJ0-4350                       | AJ0-4351 |
| NH <sub>2</sub>                         | —           | 00B-4378-Y0 | 00F-4378-Y0 | 00G-4378-Y0 | —           | 00B-4378-E0 | —           | AJ0-4301                       | AJ0-4302 |
| SCX                                     | —           | —           | 00F-4398-Y0 | —           | —           | 00B-4398-E0 | —           | AJ0-4307                       | AJ0-4308 |
| HILIC                                   | —           | —           | 00F-4450-Y0 | —           | —           | —           | —           | AJ0-8328                       | AJ0-8329 |
| PFP(2)                                  | —           | —           | 00F-4448-Y0 | —           | —           | 00B-4448-E0 | —           | AJ0-8326                       | AJ0-8327 |

for ID: 2.0-3.0 mm 3.2-8.0 mm

| 5µm Analytical and Semi-Prep Columns (mm) |             |             |             |             | SecurityGuard™ Cartridges (mm) |          |
|-------------------------------------------|-------------|-------------|-------------|-------------|--------------------------------|----------|
| Phases                                    | 100 x 4.6   | 150 x 4.6   | 250 x 4.6   | 250 x 10    | 4 x 3.0*                       | 10 x 10† |
|                                           |             |             |             |             | /10pk                          | /3pk     |
| Silica(2)                                 | 00D-4274-E0 | 00F-4274-E0 | 00G-4274-E0 | 00G-4274-N0 | AJ0-4348                       | AJ0-7223 |
| C5                                        | 00D-4043-E0 | 00F-4043-E0 | 00G-4043-E0 | 00G-4043-N0 | AJ0-4293                       | AJ0-7372 |
| C8(2)                                     | 00D-4249-E0 | 00F-4249-E0 | 00G-4249-E0 | 00G-4249-N0 | AJ0-4290                       | AJ0-7222 |
| C18(2)                                    | 00D-4252-E0 | 00F-4252-E0 | 00G-4252-E0 | 00G-4252-N0 | AJ0-4287                       | AJ0-7221 |
| CN                                        | 00D-4255-E0 | 00F-4255-E0 | 00G-4255-E0 | 00G-4255-N0 | AJ0-4305                       | AJ0-7313 |
| Phenyl-Hexyl                              | 00D-4257-E0 | 00F-4257-E0 | 00G-4257-E0 | 00G-4257-N0 | AJ0-4351                       | AJ0-7314 |
| NH <sub>2</sub>                           | 00D-4378-E0 | 00F-4378-E0 | 00G-4378-E0 | 00G-4378-N0 | AJ0-4302                       | AJ0-7364 |
| SCX                                       | 00D-4398-E0 | 00F-4398-E0 | 00G-4398-E0 | 00G-4398-N0 | AJ0-4308                       | AJ0-7369 |
| HILIC                                     | 00D-4450-E0 | 00F-4450-E0 | 00G-4450-E0 | 00G-4450-N0 | AJ0-8329                       | AJ0-8902 |
| PFP(2)                                    | 00D-4448-E0 | 00F-4448-E0 | 00G-4448-E0 | 00G-4448-N0 | AJ0-8327                       | AJ0-8376 |

for ID: 3.2-8.0 mm

9-16 mm



For UHPLC system connections, see SecurityLINK™ UHPLC fingertight fitting system on pp. 336-337

\*SecurityGuard™ Analytical Cartridges require holder, Part No.: [KJ0-4282](#)  
†SemiPrep SecurityGuard™ Cartridges require holder, Part No.: [AJ0-9281](#)

## Preparative Columns

### Ordering Information (continued)

| 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                     | 50 x 30                        | 100 x 30                       | 250 x 30                       | 15 x 21.2**                    | 15 x 30 *                |
|                                            |                                |                                |                                |                                |                                |                                |                                | /ea                            | /ea                      |
| Silica(2)                                  | —                              | <a href="#">00D-4274-P0-AX</a> | <a href="#">00F-4274-P0-AX</a> | <a href="#">00G-4274-P0-AX</a> | —                              | —                              | <a href="#">00G-4274-U0-AX</a> | <a href="#">AJ0-7229</a>       | <a href="#">AJ0-8312</a> |
| C5                                         | —                              | —                              | —                              | <a href="#">00G-4043-P0-AX</a> | —                              | —                              | —                              | —                              | —                        |
| C8(2)                                      | <a href="#">00B-4249-P0-AX</a> | —                              | <a href="#">00F-4249-P0-AX</a> | <a href="#">00G-4249-P0-AX</a> | —                              | <a href="#">00D-4249-U0-AX</a> | —                              | <a href="#">AJ0-7840</a>       | <a href="#">AJ0-8302</a> |
| C18(2)                                     | <a href="#">00B-4252-P0-AX</a> | <a href="#">00D-4252-P0-AX</a> | <a href="#">00F-4252-P0-AX</a> | <a href="#">00G-4252-P0-AX</a> | <a href="#">00B-4252-U0-AX</a> | <a href="#">00D-4252-U0-AX</a> | <a href="#">00G-4252-U0-AX</a> | <a href="#">AJ0-7839</a>       | <a href="#">AJ0-8301</a> |
| CN                                         | —                              | —                              | <a href="#">00F-4255-P0-AX</a> | <a href="#">00G-4255-P0-AX</a> | —                              | <a href="#">00D-4255-U0-AX</a> | <a href="#">00G-4255-U0-AX</a> | <a href="#">AJ0-8220</a>       | <a href="#">AJ0-8311</a> |
| Phenyl-Hexyl                               | —                              | —                              | <a href="#">00F-4257-P0-AX</a> | <a href="#">00G-4257-P0-AX</a> | —                              | —                              | <a href="#">00G-4257-U0-AX</a> | <a href="#">AJ0-7841</a>       | <a href="#">AJ0-8303</a> |
| NH <sub>2</sub>                            | —                              | —                              | <a href="#">00F-4378-P0-AX</a> | <a href="#">00G-4378-P0-AX</a> | —                              | —                              | —                              | <a href="#">AJ0-8162</a>       | <a href="#">AJ0-8309</a> |
| PPF(2)                                     | —                              | <a href="#">00D-4448-P0-AX</a> | <a href="#">00F-4448-P0-AX</a> | <a href="#">00G-4448-P0-AX</a> | —                              | <a href="#">00D-4448-U0-AX</a> | —                              | <a href="#">AJ0-8377</a>       | <a href="#">AJ0-8378</a> |
| HILIC                                      | —                              | <a href="#">00D-4450-P0-AX</a> | <a href="#">00F-4450-P0-AX</a> | <a href="#">00G-4450-P0-AX</a> | —                              | —                              | <a href="#">00G-4450-U0-AX</a> | <a href="#">AJ0-8595</a>       | <a href="#">AJ0-8830</a> |

for ID: 18-29 mm 30-49 mm

| 10 µm Axia™ Packed Preparative Columns (mm) (continued) |                                |                                |                                |                                |                                | SecurityGuard Cartridges (mm) |                          |
|---------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------|
| Phases                                                  | 50 x 21.2                      | 100 x 21.2                     | 250 x 21.2                     | 250 x 30                       | 250 x 50                       | 15 x 21.2**                   | 15 x 30 *                |
|                                                         |                                |                                |                                |                                |                                | /ea                           | /ea                      |
| Silica(2)                                               | —                              | —                              | <a href="#">00G-4091-P0-AX</a> | <a href="#">00G-4091-U0-AX</a> | <a href="#">00G-4091-V0-AX</a> | <a href="#">AJ0-7229</a>      | <a href="#">AJ0-8312</a> |
| C5                                                      | —                              | <a href="#">00D-4092-P0-AX</a> | <a href="#">00G-4092-P0-AX</a> | —                              | <a href="#">00G-4092-V0-AX</a> | —                             | —                        |
| C8(2)                                                   | —                              | —                              | <a href="#">00G-4250-P0-AX</a> | <a href="#">00G-4250-U0-AX</a> | <a href="#">00G-4250-V0-AX</a> | <a href="#">AJ0-7840</a>      | <a href="#">AJ0-8302</a> |
| C18(2)                                                  | <a href="#">00B-4253-P0-AX</a> | <a href="#">00D-4253-P0-AX</a> | <a href="#">00G-4253-P0-AX</a> | <a href="#">00G-4253-U0-AX</a> | <a href="#">00G-4253-V0-AX</a> | <a href="#">AJ0-7839</a>      | <a href="#">AJ0-8301</a> |
| CN                                                      | —                              | —                              | <a href="#">00G-4300-P0-AX</a> | —                              | —                              | <a href="#">AJ0-8220</a>      | <a href="#">AJ0-8311</a> |
| Phenyl-Hexyl                                            | —                              | —                              | <a href="#">00G-4285-P0-AX</a> | <a href="#">00G-4285-U0-AX</a> | —                              | <a href="#">AJ0-7841</a>      | <a href="#">AJ0-8303</a> |
| NH <sub>2</sub>                                         | —                              | —                              | <a href="#">00G-4379-P0-AX</a> | —                              | <a href="#">00G-4379-V0-AX</a> | <a href="#">AJ0-8162</a>      | <a href="#">AJ0-8309</a> |
| SCX                                                     | —                              | —                              | <a href="#">00G-4401-P0-AX</a> | —                              | <a href="#">00G-4401-P0-AX</a> | <a href="#">AJ0-8595</a>      | <a href="#">AJ0-8596</a> |

for ID: 18-29 mm 30-49 mm

## Pilot Scale Columns

### Ordering Information

| 10 µm Analytical and Semi-Prep Columns (mm) |                             |                             | SecurityGuard Cartridges (mm) |                          |
|---------------------------------------------|-----------------------------|-----------------------------|-------------------------------|--------------------------|
| Phases                                      | 250 x 4.6                   | 250 x 10                    | 4 x 3.0*                      | 10 x 10†                 |
|                                             |                             |                             | /10 pk                        | /3 pk                    |
| Silica(2)                                   | <a href="#">00G-4091-E0</a> | <a href="#">00G-4091-N0</a> | <a href="#">AJ0-4348</a>      | <a href="#">AJ0-7223</a> |
| C8(2)                                       | <a href="#">00G-4250-E0</a> | <a href="#">00G-4250-N0</a> | <a href="#">AJ0-4290</a>      | <a href="#">AJ0-7222</a> |
| C18(2)                                      | <a href="#">00G-4253-E0</a> | <a href="#">00G-4253-N0</a> | <a href="#">AJ0-4287</a>      | <a href="#">AJ0-7221</a> |
| CN                                          | <a href="#">00G-4300-E0</a> | —                           | <a href="#">AJ0-4305</a>      | <a href="#">AJ0-7313</a> |
| Phenyl-Hexyl                                | <a href="#">00G-4285-E0</a> | <a href="#">00G-4285-N0</a> | <a href="#">AJ0-4351</a>      | <a href="#">AJ0-7314</a> |
| NH <sub>2</sub>                             | <a href="#">00G-4379-E0</a> | <a href="#">00G-4379-N0</a> | <a href="#">AJ0-4302</a>      | <a href="#">AJ0-7364</a> |
| SCX                                         | <a href="#">00G-4401-E0</a> | <a href="#">00G-4401-N0</a> | <a href="#">AJ0-4308</a>      | <a href="#">AJ0-7369</a> |

for ID: 3.2-8.0 mm 9-16 mm

| 10 µm-PREP Columns (mm) |                             |                             |
|-------------------------|-----------------------------|-----------------------------|
| Phases                  | 250 x 4.6                   | 250 x 10                    |
| Silica(3)               | <a href="#">00G-4617-E0</a> | <a href="#">00G-4617-N0</a> |
| C8(3)                   | <a href="#">00G-4623-E0</a> | <a href="#">00G-4623-N0</a> |
| C18(3)                  | <a href="#">00G-4616-E0</a> | <a href="#">00G-4616-N0</a> |

| 15 µm Pilot Scale Columns (mm) |                             |
|--------------------------------|-----------------------------|
| Phases                         | 250 x 4.6                   |
| C18(2)                         | <a href="#">00G-4273-E0</a> |
| Phenyl-Hexyl                   | <a href="#">00G-4286-E0</a> |



\*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](#)



See our latest developments in High-throughput Purifications starting on page 384  
For more dimensions and phases of Axia packed preparative columns, see p. 393  
For SecurityGuard Cartridge Holders and Cartridges, see pp. 330-334  
For additional Luna 10 µm-PREP Scout/Pilot Scale columns, see p. 399  
For Bulk Media, see p. 400



Method development column kits and method validation column kits are available. Contact Phenomenex for details.



Improve analyte sensitivity and reduce baseline noise with Strata SPE tubes and well plates, see p. 70 for more information