

explore

LUNA<sup>®</sup>

One of The **World's Leading** HPLC Columns



phenomenex<sup>®</sup>  
...breaking with tradition<sup>SM</sup>





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## One of the world's leading HPLC columns

The Luna® brand of columns and media is more than just a product line from Phenomenex. It is a pledge to provide you with the highest level of satisfaction for your chromatographic goals. Every aspect of Luna products has been engineered to meet the exacting demands placed on today's chromatographers.

Luna products continue to uphold the quality our customers depend on. If you have never tried Luna columns or media, this brochure will guide you through the various solutions to fit your needs.

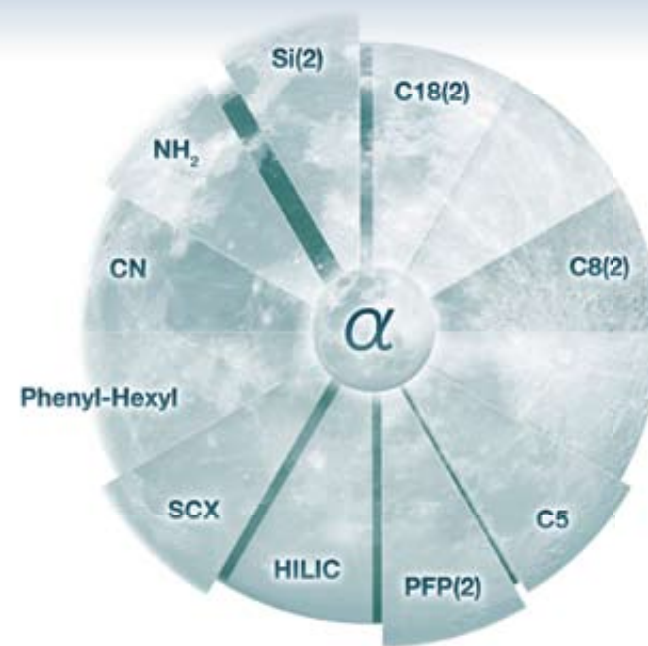
For those who use Luna products daily, thank you for making Luna columns one of the world's leading HPLC columns.

# 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 Phases	Description	Particle Size (µm)	Pore Size (Å)	Surface Area (m <sup>2</sup> /g)	Carbon Load (%)	Bonded Phase Coverage (µmole/m <sup>2</sup> )	pH Stability	Application	Reversed Phase	Normal Phase	HILIC	IEX
<b>Silica(2)</b>	Unbonded silica	3, 5, 10, 10- <i>PREP</i> , 15	100	400	—	—	2.0 - 7.5	Non-polar compounds		○		
<b>C5</b>	5 Carbon ligand	5, 10	100	440	12.5	7.85	1.5 - 9.0*	Good alternative to C8 when less retention is desired	○			
<b>C8(2)</b>	C8 ligand optimized for improved peak shape	3, 5, 10, 10- <i>PREP</i> , 15	100	400	13.5	5.50	1.5 - 9.0*	Great starting phase for method development	○			
<b>C18(2)</b>	C18 ligand optimized for improved peak shape	2.5, 3, 5, 10, 10- <i>PREP</i> , 15	100	400	17.5	3.00	1.5 - 9.0*	From capillary LC/MS to process scale <b>OUR MOST POPULAR PHASE</b>	○			
<b>CN</b>	Versatile CN phase	3, 5, 10	100	400	7.0	3.80	1.5 - 7.0	For improving the retention of polar compounds	○	○		
<b>NH<sub>2</sub></b>	Rugged and reproducible NH <sub>2</sub>	3, 5, 10	100	400	9.5	5.80	1.5 - 11	Sugar alcohols, anionic or hydrogen bonding compounds	○	○		○
<b>Phenyl-Hexyl</b>	Phenyl phase attached to C6 (hexyl) ligand	3, 5, 10, 10- <i>PREP</i> , 15	100	400	17.5	4.00	1.5 - 9.0*	Unique selectivity for very polar and aromatic compounds	○			
<b>SCX</b>	Benzene sulfonic acid	5, 10	100	400	Binding Capacity: 0.15 meq/g		2.0 - 7.0	Amine and polyamine containing compounds				○
<b>HILIC</b>	Reproducible, cross-linked diol	3, 5	200	200	5.7	4.30	1.5 - 8.0	Increased retention and MS sensitivity of polar compounds			○	
<b>PFP(2)</b>	Pentafluorophenyl with a C3 (propyl) linkage	3, 5	100	400	11.5	2.2	1.5 - 8.0	Highly polar compounds, halogenated compounds and isomers	○			

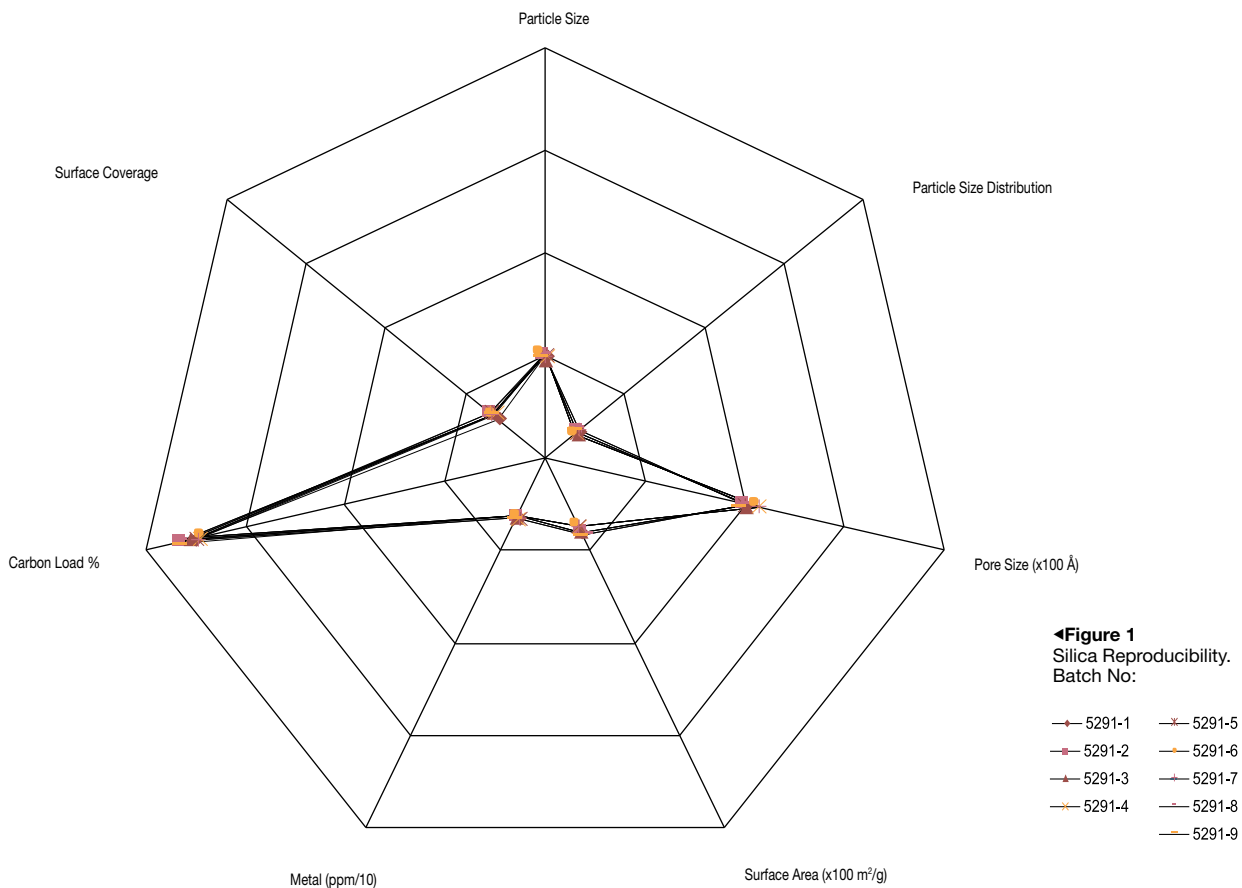
\* pH range is 1.5 - 10 under isocratic conditions. pH range is 1.5 - 9 under gradient conditions.

# Explore Robust Methods

Successful methods depend on results that can tolerate minor variations in chromatographic parameters. The base silica of Luna is 99.999 % pure and meticulous care is given to quality control over all aspects of silica structure and chemistry. This ensures that Luna columns will always perform consistently, resulting in method reproducibility you can trust.

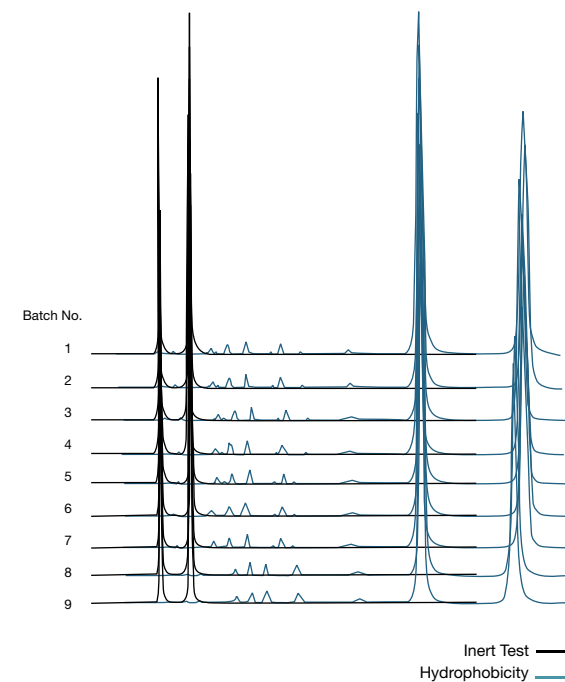
## Reliable Performance

Almost no variation is observed among the batches of Luna. Figure 1 shows quality control test data designed to monitor the slightest differences that may affect reproducibility - particle shape and smoothness, porosimetry, bonding consistency and pH stability.



## Column to Column Reproducibility

The chromatograms in **Figure 2** show consistency of inertness (black) and hydrophobicity (blue) for Luna 5 μm C18(2) columns from 9 different batches. Almost no variation is observed.



**Figure 2**  
Column-to-column reproducibility for 9 batches of Luna 5 μm C18(2)



# Explore Options for Every Development Route

Luna® media is available in a wide variety of particle sizes and formats, each with different attributes that can be optimized for nearly any stage of development.



Direct Connect  
Cartridge Holder

Standard  
Cartridge Holder

20 x 2.0 mm  
Cartridge

## Fast LC-MS Methods

Luna media is available in MercuryMS™ Cartridges and online columns for quick, cost-effective screening methods.



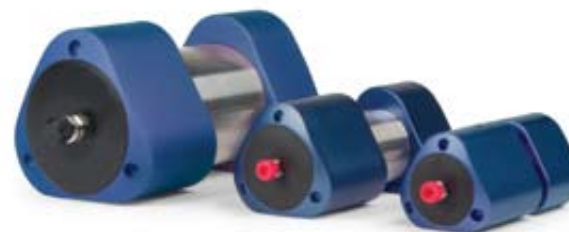
## High-Speed-Technology

Luna 2.5 µm C18(2)-HST columns deliver highly efficient separations without the need for expensive high-pressure instruments.



## Develop Robust Analytical Methods

Analytical HPLC columns are the most widely used format and are available in a wide variety of dimensions and particle sizes.



## Lab-Scale Purification Redefined

Axia™-packed Luna preparative columns provide industry-leading lifetimes and efficiencies.



Beyond our largest preparative column dimensions, Luna phases are available in bulk quantities for HPLC purification at the process, pilot, and commercial scale. The highly reproducible manufacturing process makes scaling to large scale purification extremely straight-forward.

The wide range of Luna phases provides you with the selectivity choices to optimize parameters such as retention time and resolution. Additionally, the high surface area (400 m<sup>2</sup>/g) of Luna materials gives you greater loadability than most other media. For those challenging purifications where chromatography is the best option, the Luna family offers an excellent platform for all purification challenges.



Contact your Phenomenex technical consultant for bulk media sales.

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

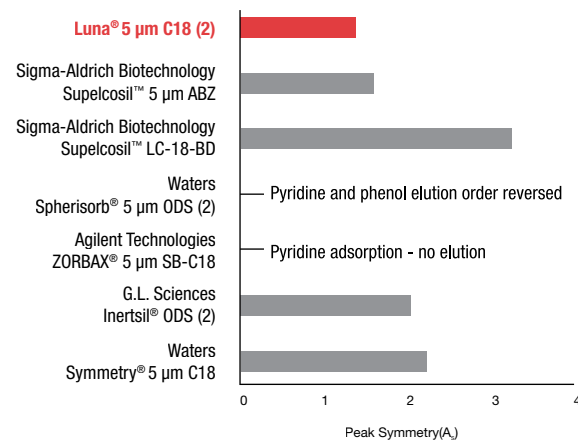
## Your Starting-Point for All Reversed Phase Methods

Luna has found a place as one of the world's top reversed phase columns because it can help optimize two important chromatographic properties: resolution and peak shape. The high efficiencies and bonded phase surface coverage provide for sharp peaks. Whether you need a column for USP methods or just general method development, Luna C18(2) and C8(2) should be your first choice every time.

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 10,000 hours

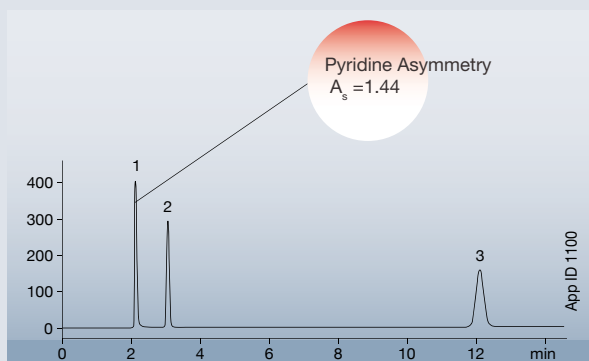
## Pyridine Peak Asymmetry Comparison



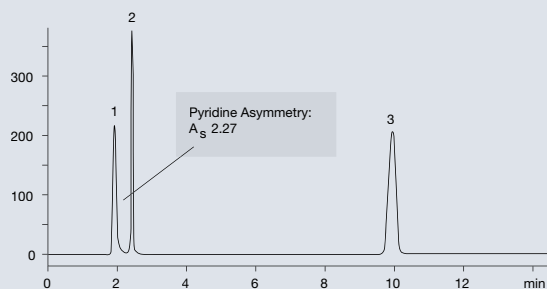
Comparison of 7 different 5 µm reversed phase columns. This survey measures the degree of silanol activity on the surface of each silica. In this survey, Luna 5 µm C18(2) material demonstrates the lowest silanol activity.

### PEAK ASYMMETRY COMPARISON OF COMPETING COLUMNS

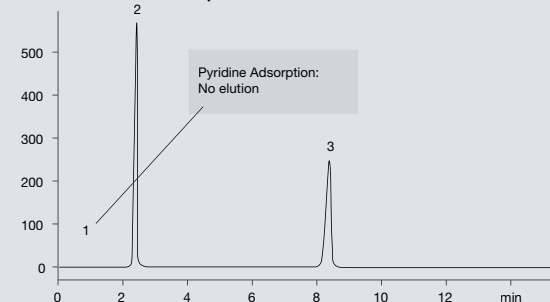
#### Phenomenex Luna® 5 µm C18(2)



#### Waters Symmetry 5 µm C18



#### Agilent Technologies ZORBAX 5 µm SB-C18



#### Conditions for all columns

- Dimension:** 150 x 4.6 mm
- Mobile Phase:** Acetonitrile/Water (50:50)
- Flow Rate:** 1.0 mL/min
- Detection:** UV @ 254 nm
- Sample:** 1. Pyridine  
2. Phenol  
3. Toluene

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# Applications

## Polar, Acidic Drugs

- Phenomenex Luna® 3 µm C18(2)
- Waters® Symmetry® 3.5 µm C18

Conditions same for both columns

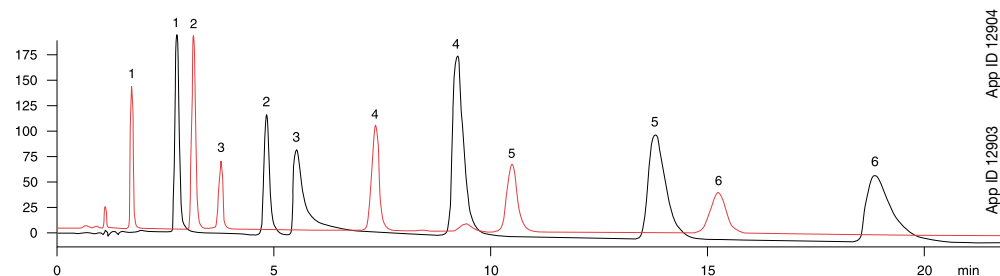
**Dimension:** 75 x 4.6 mm

**Mobile Phase:** 20 mM KH<sub>2</sub>PO<sub>4</sub>/ 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



App ID 12903 App ID 12904

## Hydrophobic, Acidic Compounds

- Phenomenex Luna 5 µm C18(2)
- Thermo Hypersil-Keystone® HyPURITY™ Elite 5 µm C18

Conditions same for both columns

**Dimension:** 150 x 4.6 mm

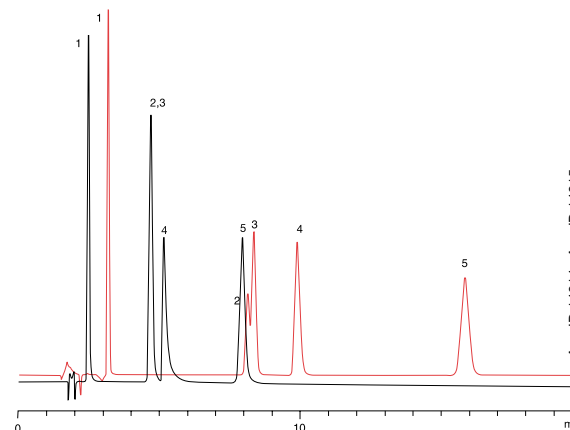
**Mobile Phase:** 20 mM Potassium phosphate, pH 2.5 / Acetonitrile (75:25)

**Flow Rate:** 1.5 mL/min

**Temperature:** 30 °C

**Detection:** UV @ 254 nm

- Sample:**
1. p-Hydroxybenzoic acid
  2. Sorbic acid\*
  3. Benzoic acid\*
  4. Salicylic acid
  5. p-Toluic acid
- \* Sorbic acid and Benzoic acid co-elute on HyPURITY Elite



App ID 14314 App ID 14315

## Basic Compounds

- Phenomenex Luna 5 µm C18(2)
- Macherey-Nagel® Nucleosil® 5 µm C18

Conditions same for both columns

**Dimension:** 150 x 4.6 mm

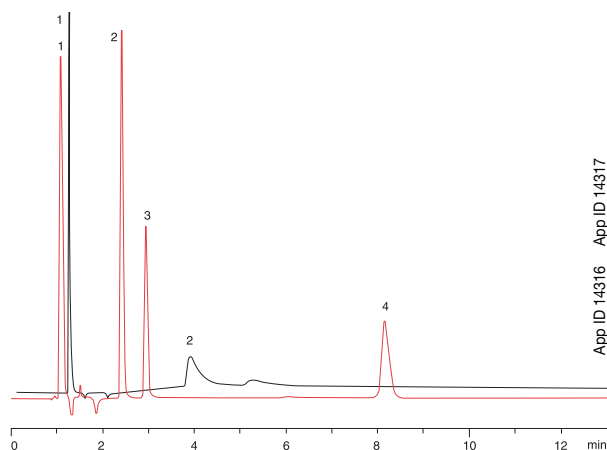
**Mobile Phase:** 20 mM Potassium phosphate, pH 2.5 / Acetonitrile (75:25)

**Flow Rate:** 1.5 mL/min

**Temperature:** 30 °C

**Detection:** UV @ 210 nm

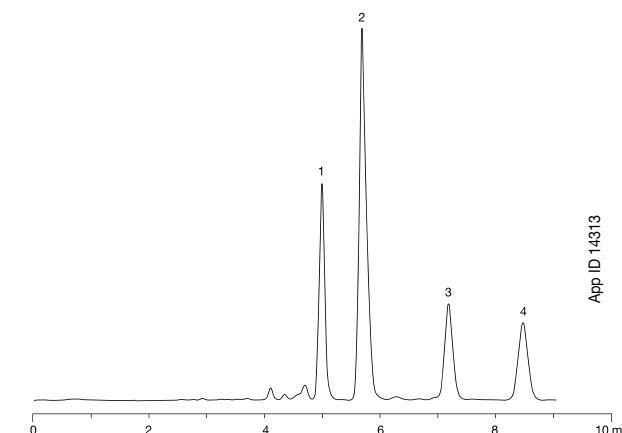
- Sample:**
1. Maleic acid
  2. Triprolidine\*
  3. Chlorpheniramine\*
  4. Diphenhydramine\*
- \*Peaks 2-4 adsorb on Nucleosil C18



App ID 14316 App ID 14317

## α- and β-acids in Hop Extract

- Column:** Luna 5 µm C18(2)
- Dimension:** 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-+humulone
  3. Colupulone
  4. Ad-+lupulone

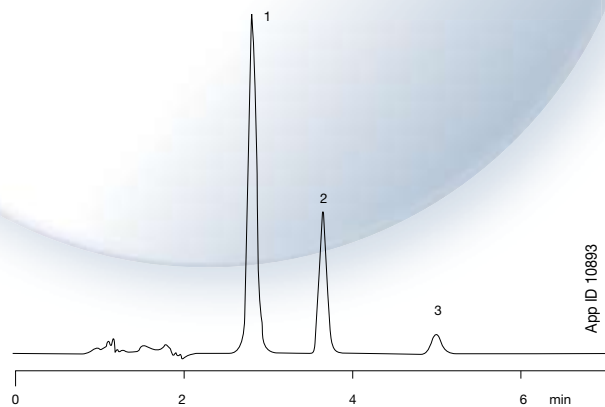


App ID 14313

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# Applications

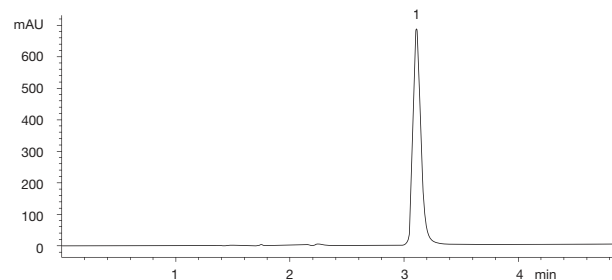
## USP METHOD: ESTRADIOL



App ID 10893

**Column:** Luna® 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Acetonitrile/Water (55:45)  
**Flow Rate:** 1 mL/min  
**Temperature:** 30 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Ethylparaben  
2. Estrone  
3. Estradiol

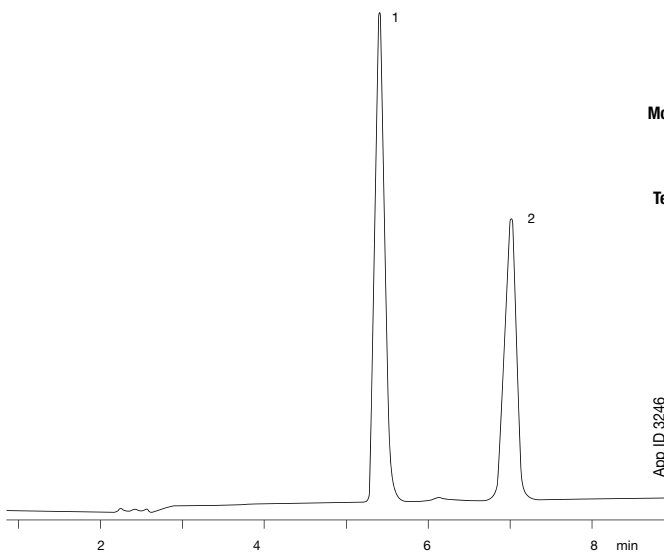
## COCAINE-NARCOTIC DRUG



App ID 1313

**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Phosphate Buffer, pH 2.5/  
Acetonitrile (75:25)  
**Flow Rate:** 1 mL/min  
**Temperature:** 30 °C  
**Detection:** UV @ 233 nm  
**Sample:** 1. Cocaine hydrochloride

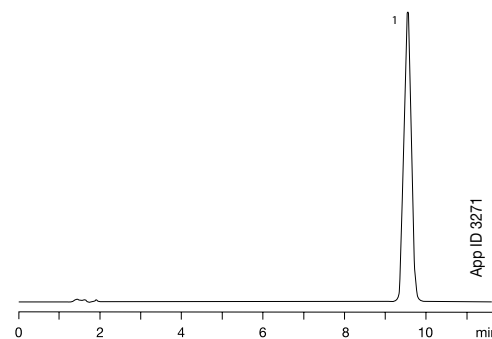
## USP METHOD: PHENYLEPHRINE HYDROCHLORIDE INJECTION



App ID 3246

**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Water/Methanol with 1.1 %  
1-Octanesulfonic  
acid pH 3.0 (50:50)  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 280 nm  
**Sample:** 1. Phenylephrine  
hydrochloride  
2. Epinephrine bitartrate

## USP METHOD: HYDROCORTISONE CREAM

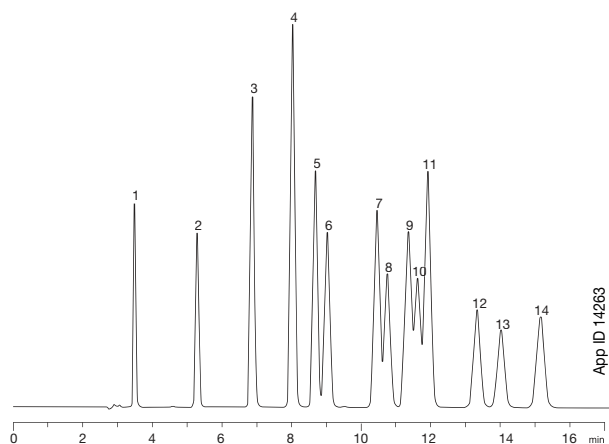


App ID 3271

**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Water/Acetonitrile (75:25)  
**Flow Rate:** 2 mL/min  
**Temperature:** 30 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Hydrocortisone

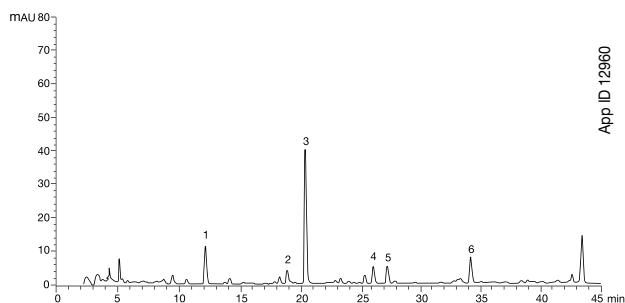
# Applications

## EPA METHOD 8330 - EXPLOSIVES



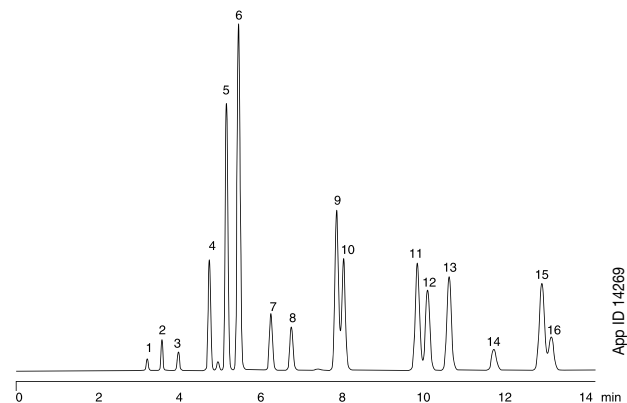
**Column:** Luna® 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Methanol/Water (55:45)  
**Flow Rate:** 1 mL/min  
**Temperature:** 35 °C  
**Detection:** UV @ 254 nm  
**Sample:**  
1. HMX  
2. RDX  
3. 1,3,5-Trinitrobenzene  
4. 1,3-Dinitrobenzene  
5. Tetryl  
6. Nitrobenzene  
7. 2,4,6-Trinitrotoluene  
8. 4-Amino-2,6-Dinitrotoluene  
9. 2-Amino-4,6-Dinitrotoluene  
10. 2,6-Dinitrotoluene  
11. 2,4-Dinitrotoluene  
12. 2-Nitrotoluene  
13. 4-Nitrotoluene  
14. 3-Nitrotoluene

## GINGER PUNGENTS



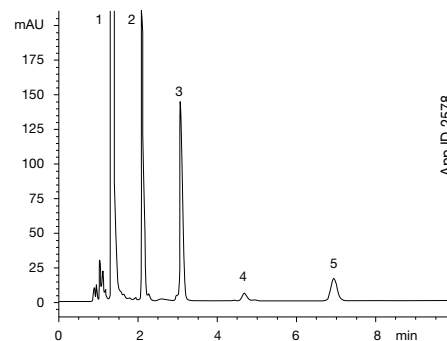
**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** A: Water B: Acetonitrile  
**Gradient:** A/B (55:45) to A/B (50:50) in 8 min, A/B (35:65) in 15 min, A/B (10:90) in 40 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 50 °C  
**Detection:** UV @ 282 nm  
**Sample:**  
1. 6-Gingerol  
2. 8-Gingerol + isomer  
3. 6-Shogaol  
4. 10-Gingerol  
5. 8-Shogaol  
6. 10-Shogaol

## EPA METHOD 8310 - POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)



**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** A: Water B: Acetonitrile  
**Gradient:** A/B (25:75) to 100 % B in 25 min  
**Flow Rate:** 2 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:**  
1. Naphthalene  
2. Acenaphthalene  
3. Fluorene  
4. Phenanthrene  
5. Anthracene  
6. Fluoranthracene  
7. Pyrene  
8. Benz[a]anthracene  
9. Chrysene  
10. Benzo[e]pyrene  
11. Benzo[b]fluoranthene  
12. Benzo[k]fluoranthene  
13. Benzo[a]pyrene  
14. Dibenzo[a,h]anthracene  
15. Benzo[g,h,i]perylene  
16. Indeno[1,2,3-c,d]pyrene

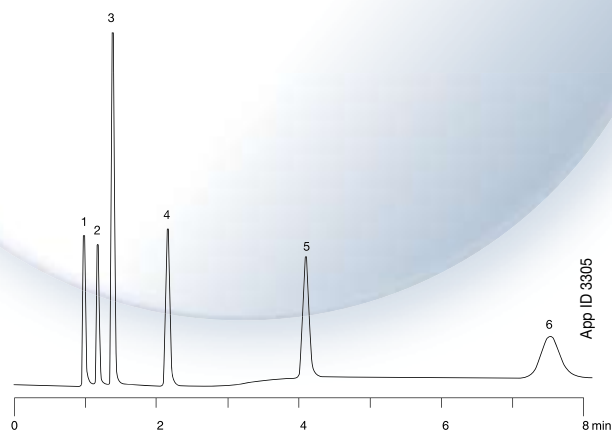
## COLD MEDICINE



**Column:** Luna 5 µm C8(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4249-E0  
**Mobile Phase:** Methanol/Acetonitrile with 0.1 % H<sub>3</sub>PO<sub>4</sub> / Water with 0.1 % H<sub>3</sub>PO<sub>4</sub> and 0.1% Heptane  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 214 nm  
**Sample:**  
1. Acetaminophen  
2. Pseudoephedrine  
3. Benzoic acid  
4. Chlorpheniramine  
5. Dextromethorphan

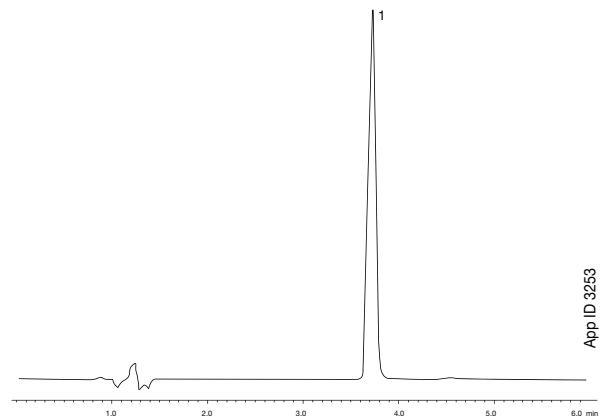
# Applications

## WATER SOLUBLE VITAMINS



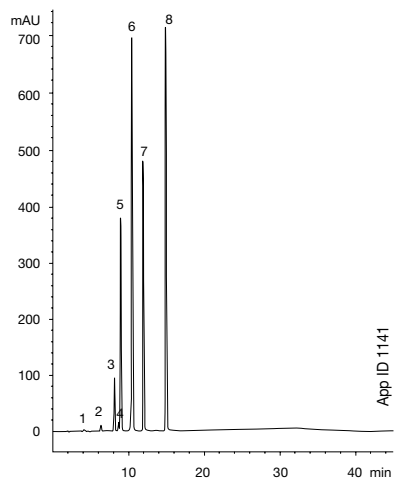
**Column:** Luna® 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** 20 mM Potassium Phosphate, pH 3.0/Acetonitrile (95:5)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 214 nm  
**Sample:** 1. Thiamine  
2. Cyanocobalamin (Vitamin B12)  
3. Ascorbic acid  
4. Pantothenic acid  
5. Niacinamide  
6. p-Aminobenzoic acid

## USP METHOD: LORAZEPAM TABLETS



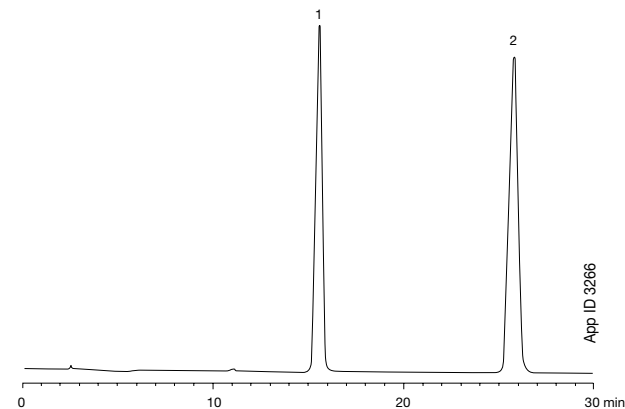
**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Water/Methanol/Acetic acid (54:44:2)  
**Flow Rate:** 2 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Lorazepam

## PHARMACEUTICAL PRESERVATIVES



**Column:** Luna 5 µm C5  
**Dimension:** 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

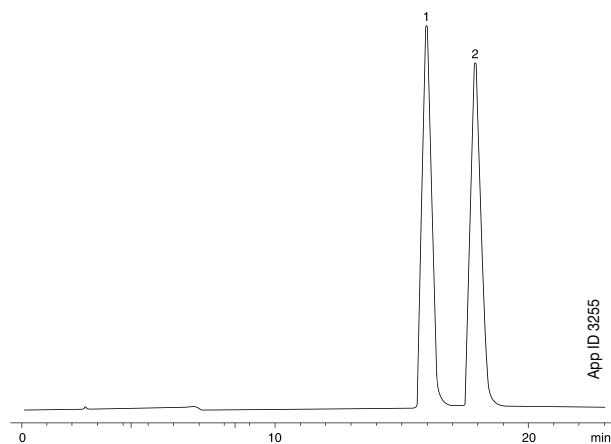
## USP METHOD: MINOXIDIL



**Column:** Luna 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** Methanol/Water/Acetic acid with 7 mM Docusate sodium pH 3.0 (69.3:29.7:1)  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Medroxyprogesterone acetate  
2. Minoxidil

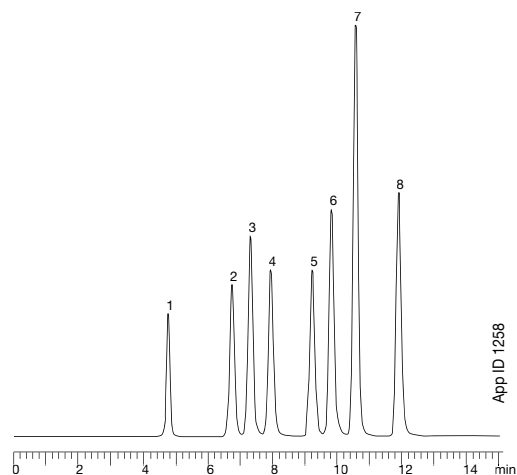
# Applications

## USP METHOD: IMIPRAMINE



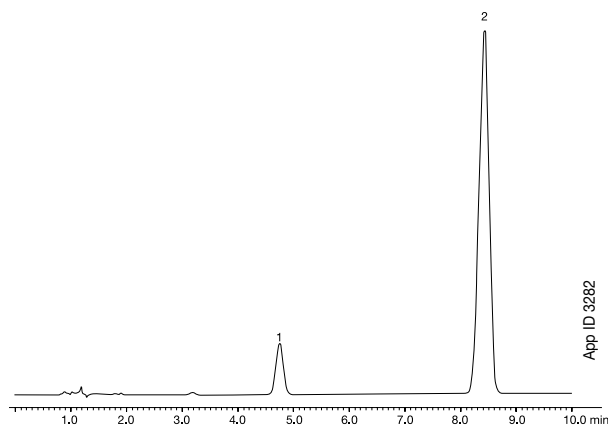
**Column:** Luna® 5 µm C18(2)  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4252-E0  
**Mobile Phase:** 0.06 M Sodium perchlorate, pH 2.0/Acetonitrile/Triethylamine (62.5:37.5:0.1)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 269 nm  
**Sample:** 1. Imipramine  
2. Desipramine

## FATTY ACIDS



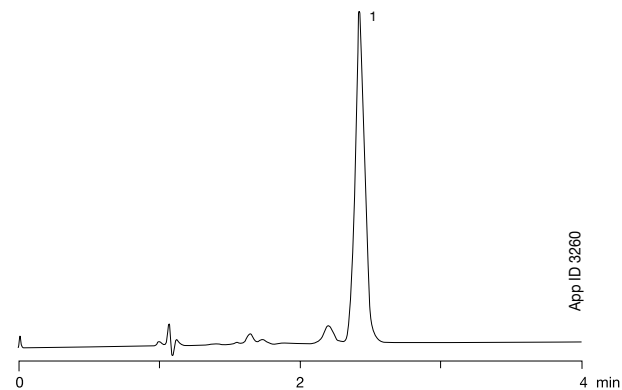
**Column:** Luna 5 µm C8(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4249-E0  
**Mobile Phase:** A: Acetonitrile  
B: Water (18 Mohms DI)  
**Gradient:** A/B (70:30) to A/B (90:10) in 10 min, A/B (90:10) to A/B (70:30) in 2 min, hold for 4 min  
**Flow Rate:** 0.3 mL/min  
**Detection:** Evaporative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

## USP METHOD: NAPROXEN TABLETS



**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Acetonitrile/Water/Glacial acid, pH 3.0 (50:49:1)  
**Flow Rate:** 1.2 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Naproxen  
2. Butyrophenone

## USP METHOD: ALBUTEROL TABLETS

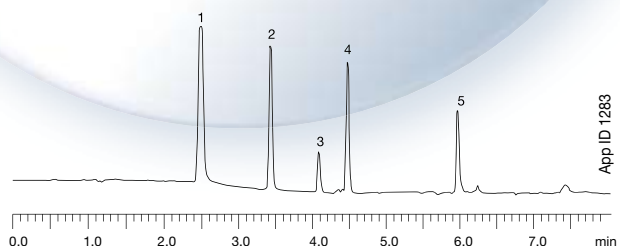


**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Methanol/Water with 5 mM Hexane sulfonic acid and 1 % Glacial acetic acid (40:60)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 276 nm  
**Sample:** 1. Albuterol



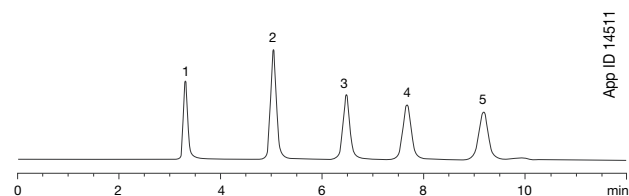
# Applications

## ANTIOXIDANTS



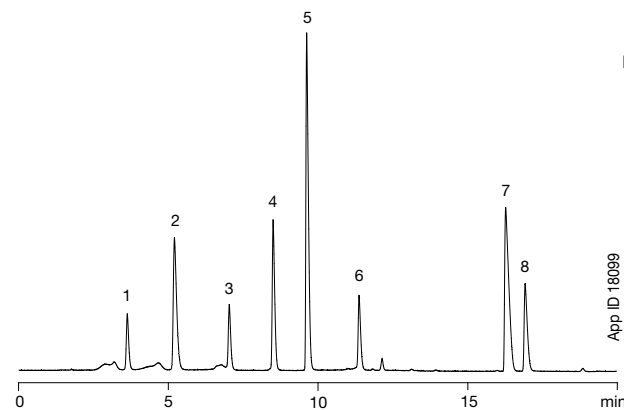
**Column:** Luna® 5 µm C18(2)  
**Dimension:** 100 x 4.6 mm  
**Part No.:** 00D-4252-E0  
**Mobile Phase:** A: Acetonitrile  
B: Phosphate Buffer  
**Gradient:** A/B (30:70) to A/B (70:30) in 5 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:**  
1. PG  
2. TBHQ  
3. DMT  
4. BHA  
5. BHT

## STEROIDS



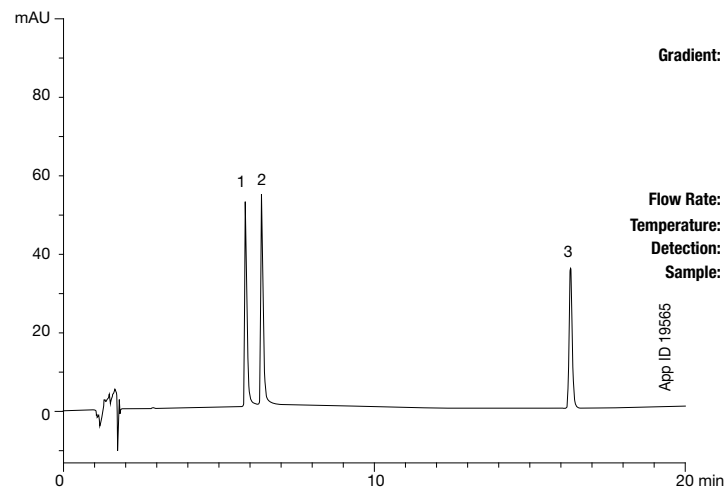
**Column:** Luna 5 µm C8(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4249-E0  
**Mobile Phase:** 0.1 % H<sub>3</sub>PO<sub>4</sub> in Water/Acetonitrile/  
Methanol (54:35:11)  
**Flow Rate:** 1.0 mL/min  
**Temperature:** Ambient  
**Detection:** UV @ 254 nm  
**Sample:**  
1. Hydrocortisone  
2. Corticosterone  
3. 11- $\alpha$ -Hydroxyprogesterone  
4. Cortisone acetate  
5. 11-Ketoprogesterone

## NARCOTICS



**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** A: 10mM 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  
2. Morphine  
3. Hydromorphone  
4. Norcodeine  
5. Codeine  
6. Hydrocodone  
7. Cocaine  
8. Norcocaine

## USP METHOD: LORATADINE



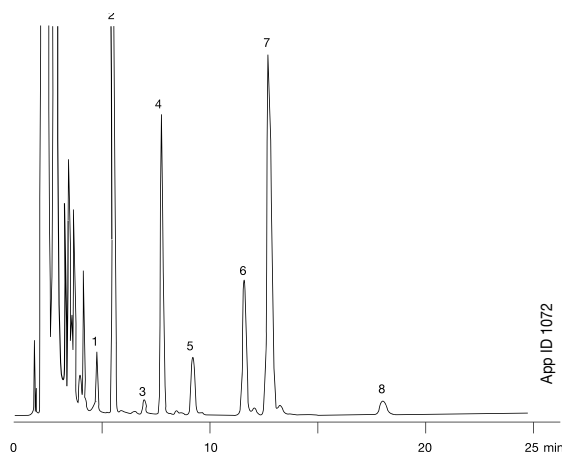
**Column:** Luna 3 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4251-E0  
**Mobile Phase:** A: 0.96 g 1-pentaesulfonic acid  
sodium salt in 1 L buffered to 3.00  
with Phosphoric Acid  
B: Acetonitrile  

Gradient:	Time (min)	Pct B
	0	25
	20	50
	30	60
	35	70
	45	70
	50	25

**Flow Rate:** 1.2 mL/min  
**Temperature:** Ambient  
**Detection:** UV @ 254 nm  
**Sample:**  
1. Loratadine Related Compound A  
2. Loratadine Related Compound B  
3. Loratadine

# Applications

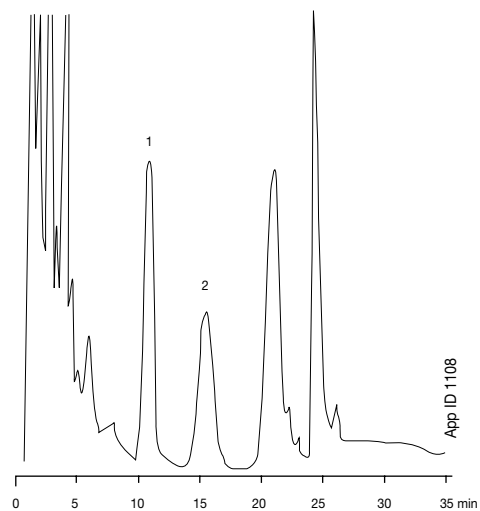
## SAW PALMETO BERRY, p-BROMOPHENACYL ESTERS



App ID 1072

**Column:** Luna® 3 µm C8(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4248-E0  
**Mobile Phase:** Acetonitrile/Water (87:13)  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 25 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. Capric acid  
2. Lauric acid  
3. Linolenic acid  
4. Myristic acid  
5. Linoleic acid  
6. Palmitic acid  
7. Oleic acid  
8. Stearic acid

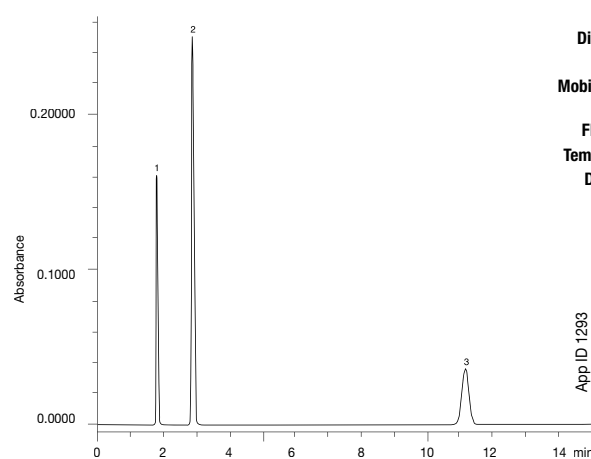
## CYCLOSPORIN - IMMUNOSUPPRESSANTS



App ID 1108

**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** Acetonitrile/Water,  
pH 3.1 w/1 mM H<sub>3</sub>PO<sub>4</sub> (70:30)  
**Flow Rate:** 1.3 mL/min  
**Temperature:** 75 °C  
**Detection:** UV @ 210 nm  
**Sample:** 1. Cyclosporin A  
2. Cyclosporin D

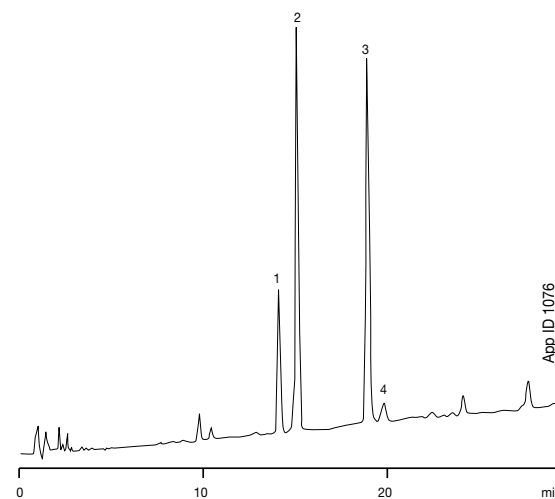
## USP METHOD: ACETAMINOPHEN



App ID 1283

**Column:** Luna 5 µm C18(2)  
**Dimension:** 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  
**Temperature:** 45 °C  
**Detection:** UV @ 275 nm  
**Sample:** 1. Acetaminophen  
2. Caffeine  
3. Benzoic Acid

## CAPSAICIN



App ID 1076

**Column:** Luna 5 µm C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4252-E0  
**Mobile Phase:** A: Acetonitrile/Water (35:65)  
B: Acetonitrile/Water (60:40)  
**Gradient:** 100 % A in 1 min to  
100 % B in 29 min  
**Flow Rate:** 1.5 mL/min  
**Temperature:** 75 °C  
**Detection:** UV @ 227 nm  
**Sample:** 1. Nordihydrocapsaicin  
2. Capsaicin  
3. Dihydrocapsaicin  
4. Homocapsaicin

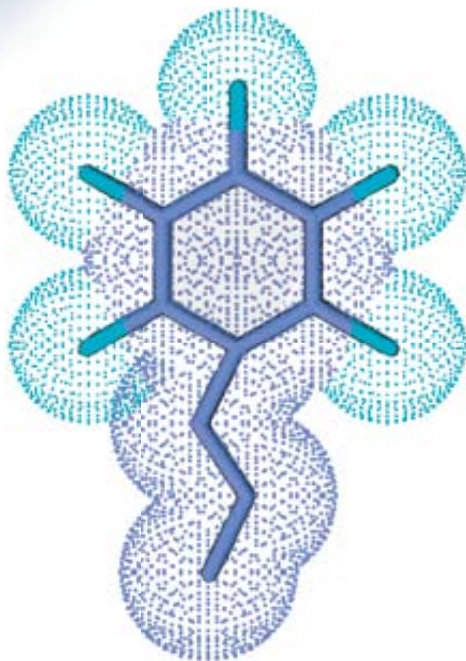
# Luna® PFP(2)

## Powerful Selectivity for Reversed Phase Methods

Luna PFP(2) columns provide unique selectivity for highly polar compounds, complex natural products, isomers and other closely related compounds. This is achieved by using a propyl-linked pentafluorophenyl, which provides multiple retention mechanisms unique to typical reversed phase medias.

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

- 1 Hydrogen Bonding
- 2 Dipole-Dipole Interactions
- 3 Aromatic and  $\pi$ - $\pi$  Interactions
- 4 Hydrophobic

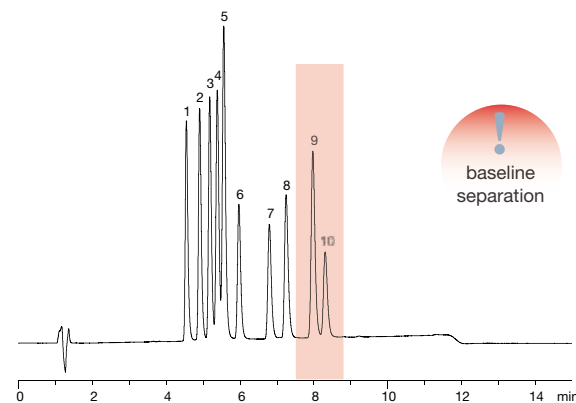


- » Achieve unique selectivity using four mechanisms of solute/stationary phase interactions
- » Extremely discerning for halogenated, aromatic, and conjugated compounds
- » Provides orthogonal selectivity, even using traditional reversed phase solutions

Halogens can radically increase the polarity of compounds, thus decreasing typical retention characteristics. Luna PFP(2) columns retain, discriminate, and separate halogens easily.

### POSITIONAL ISOMERS OF HALOGENATED PHENOLS

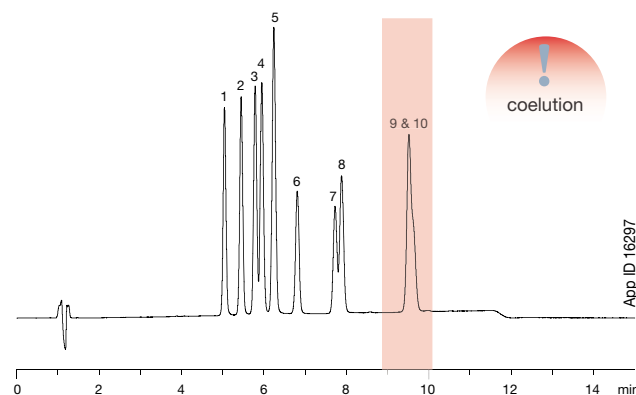
#### Luna 3 $\mu$ m PFP(2)



App ID 16296

**Column:** Luna 3  $\mu$ m PFP(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4447-E0  
**Mobile Phase:** A: 0.1 % Formic acid in Water  
B: 0.1 % Formic acid in Acetonitrile  
**Gradient:** A/B (60:40) to (50:50) in 10 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. 2,3-Dimethylphenol  
2. 2,5-Dimethylphenol  
3. 2,6-Dimethylphenol  
4. 3,4-Dimethylphenol  
5. 3,5-Dimethylphenol  
6. 2,5-Dichlorophenol  
7. 2,6-Dichlorophenol  
8. 3,4-Dichlorophenol  
9. 3,5-Dichlorophenol  
10. 2,4-Dibromophenol

#### Luna 3 $\mu$ m C18(2)



App ID 16297

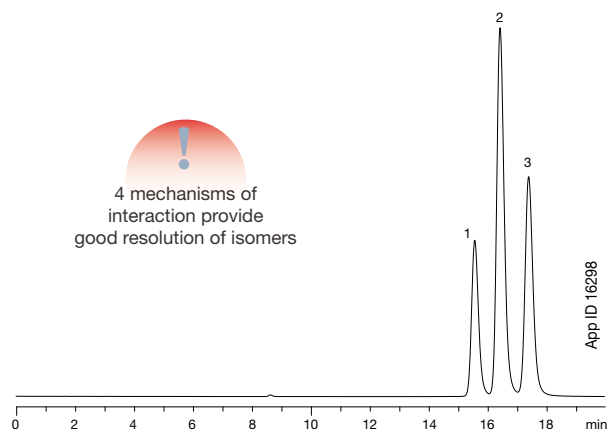
**Column:** Luna 3  $\mu$ m C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4251-E0  
**Mobile Phase:** A: 0.1% Formic acid in Water  
B: 0.1% Formic acid in Acetonitrile  
**Gradient:** A/B (60:40) to (50:50) in 10 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. 2,3-Dimethylphenol  
2. 2,5-Dimethylphenol  
3. 2,6-Dimethylphenol  
4. 3,4-Dimethylphenol  
5. 3,5-Dimethylphenol  
6. 2,5-Dichlorophenol  
7. 2,6-Dichlorophenol  
8. 3,4-Dichlorophenol  
9. 3,5-Dichlorophenol  
10. 2,4-Dibromophenol

## Isomeric Compounds

Positional changes on an analyte of interest may effect the compound's dipole moment. This change can be readily seen by the way the highly electronegative fluorine (F) atoms and other retention mechanisms of the Luna PFP(2) are able to separate positional isomers.

### POSITIONAL ISOMERS OF METHYLACETOPHENONE

#### Luna 3 $\mu$ m PFP(2)



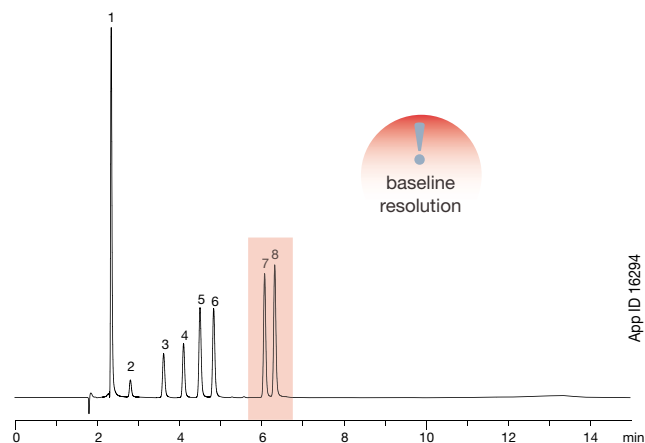
**Column:** Luna 3  $\mu$ m PFP(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4447-E0  
**Mobile Phase:** Water/ Methanol (50:50)  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. o-Methylacetophenone  
2. m-Methylacetophenone  
3. p-Methylacetophenone

## Aromatic Compounds

Aromatic compounds show unique 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.

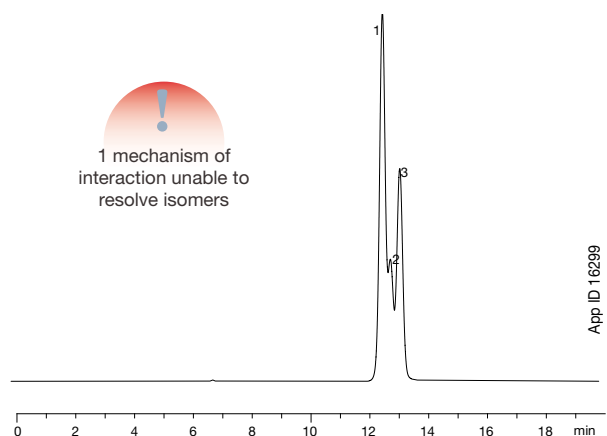
### CATECHINS

#### Luna 3 $\mu$ m PFP(2)



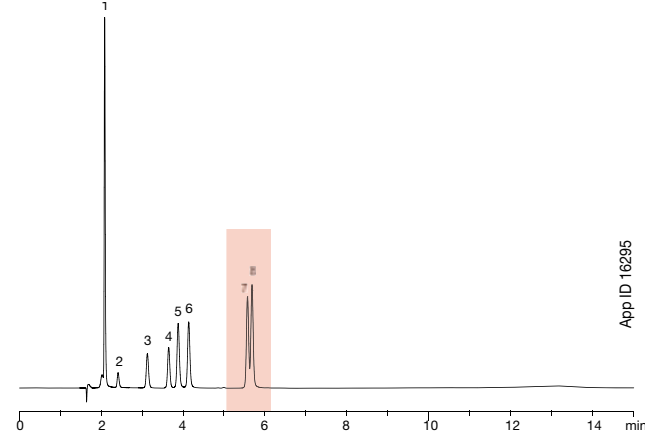
**Column:** Luna 3  $\mu$ m PFP(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4447-E0  
**Mobile Phase:** A: 0.1 % Formic acid in Water  
B: 0.1 % Formic acid in Acetonitrile  
**Gradient:** A/B (80:20) to (55:45) in 10 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 280 nm  
**Sample:** 1. Gallic acid  
2. Epigallo catechin  
3. Catechin  
4. Epicatechin  
5. Epigallocatechin gallate  
6. Gallocatechin gallate  
7. Epicatechin gallate  
8. Catechin gallate

#### Luna 3 $\mu$ m C18(2)



**Column:** Luna 3  $\mu$ m C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4251-E0  
**Mobile Phase:** Water/ Methanol (50:50)  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV @ 254 nm  
**Sample:** 1. o-Methylacetophenone  
2. m-Methylacetophenone  
3. p-Methylacetophenone

#### Luna 3 $\mu$ m C18(2)



**Column:** Luna 3  $\mu$ m C18(2)  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4251-E0  
**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. Gallocatechin gallate  
7. Epicatechin gallate  
8. Catechin gallate

# Luna Phenyl-Hexyl

## Engineered for Stability

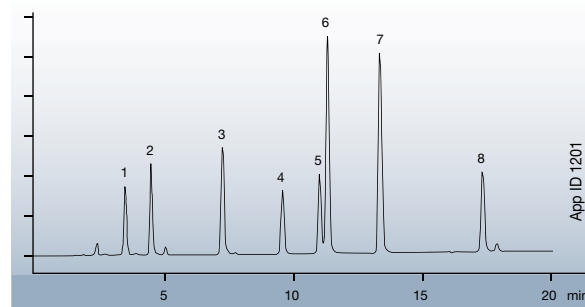
Luna Phenyl-Hexyl is a reproducible, extremely stable phenyl phase. Most other phenyl phases use a short propyl (3 carbon) linker, which limits the phase stability. This Luna phase uses a hexyl (6 carbon) linker to attach the phenyl group to the silica surface.

The result:

- Highly reproducible phenyl phase
- Dual selectivity of both phenyl phase and a short alkyl phase (such as a C8)
- Excellent retention of amine and polar aromatic compounds
- 1.5 to 10 pH stability for 10,000 hours

## ANTIBACTERIALS: COMPARISON OF PHENYL COLUMNS

### Phenomenex Luna® 5 µm Phenyl-Hexyl



#### Conditions same for all columns

**Dimension:** 150 x 4.6 mm

**Mobile Phase:** A: 20 mM KH<sub>2</sub>PO<sub>4</sub>, pH 2.5  
B: Acetonitrile

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

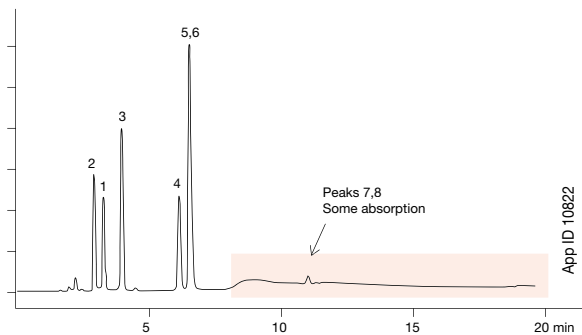
**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

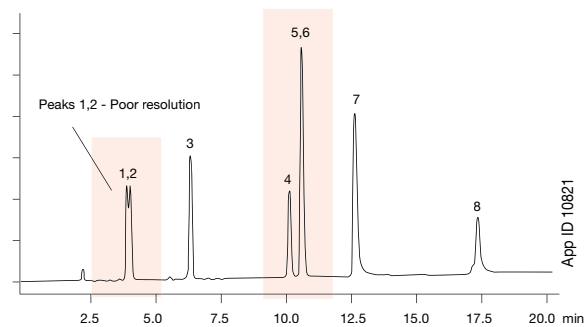
**Temperature:** 22 °C

**Sample:** 1. Carbadox  
2. Thiamphenicol  
3. Furazolidone  
4. Oxolinic acid  
5. Sulfadimethoxine  
6. Sulfaquinoxaline  
7. Nalidixic acid  
8. Piromidic acid

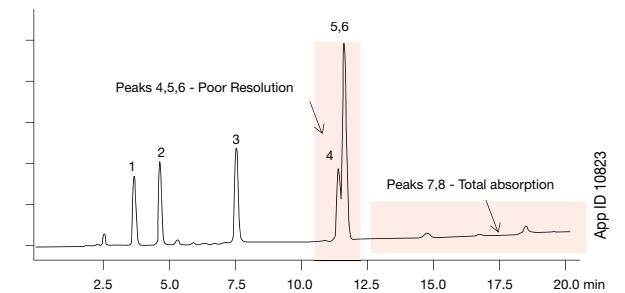
#### Waters® Spherisorb® 5 µm Phenyl



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



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

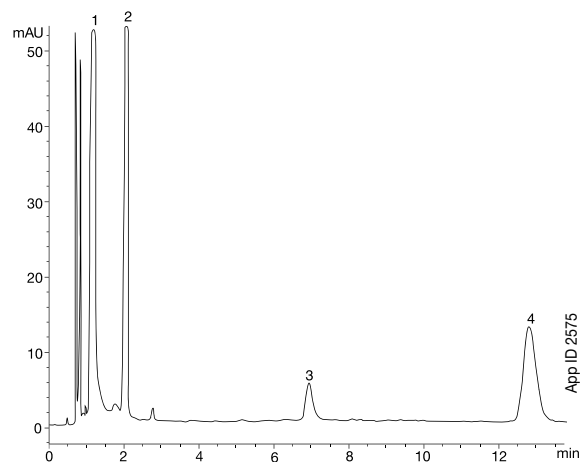


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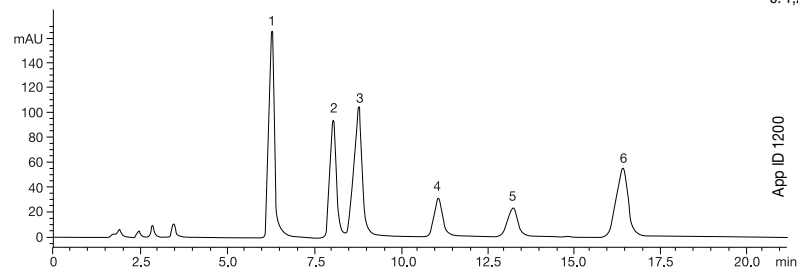
# Applications

## COUGH AND COLD-USP METHOD



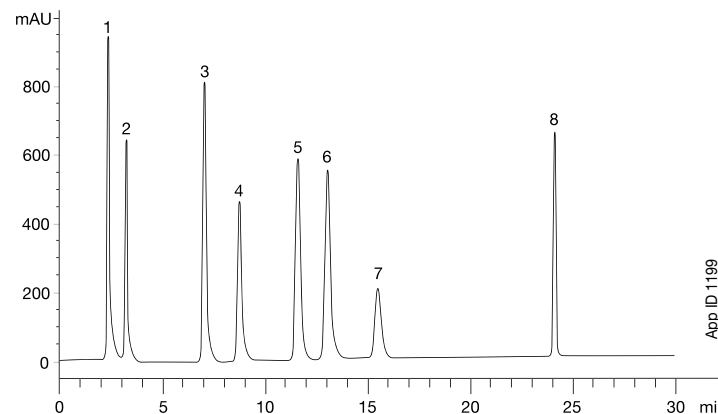
**Column:** Luna® 5 µm Phenyl-Hexyl  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4257-E0  
**Mobile Phase:** Methanol/Water with 0.1 % H<sub>3</sub>PO<sub>4</sub> and 0.1 % Heptane Sulfonate/ Acetonitrile with 0.1 % H<sub>3</sub>PO<sub>4</sub> (35:55:10)  
**Flow Rate:** 2.05 mL/min  
**Detection:** UV @ 214 nm  
**Temperature:** 22 °C  
**Sample:** 1. Acetaminophen  
 2. Pseudoephedrine  
 3. Chlorphenaramine  
 4. Dextromethorphan

## CHLOROBENZENES



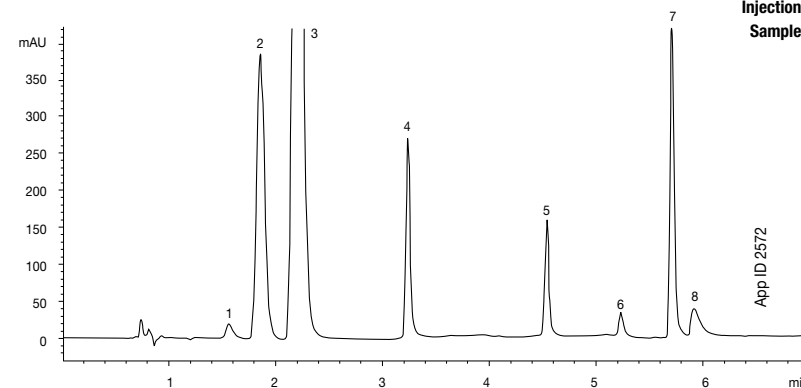
**Column:** Luna 5 µm Phenyl-Hexyl  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4257-E0  
**Mobile Phase:** A: Water  
 B: Acetonitrile  
**Gradient:** A/B (60:40) to A/B (45:55) in 10 min  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Temperature:** 22 °C  
**Sample:** 1. Chlorobenzene  
 2. 1,2-Dichlorobenzene  
 3. 1,4-Dichlorobenzene  
 4. 1,2,3-Trichlorobenzene  
 5. 1,3,5-Trichlorobenzene  
 6. 1,2,3,4-Tetrachlorobenzene

## FOOD ADDITIVES



**Column:** Luna 5 µm Phenyl-Hexyl  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4257-E0  
**Mobile Phase:** A: 50 mM KH<sub>2</sub>PO<sub>4</sub> + 0.1% H<sub>3</sub>PO<sub>4</sub>  
 B: Acetonitrile  
**Gradient:** A/B (75:25) to A/B (25:75) in 18 min, hold at A/B (25:75) for 12 min  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 230 nm  
**Temperature:** 22 °C  
**Injection:** 20 µL  
**Sample:** 1. Saccharin  
 2. p-Hydroxybenzoic acid  
 3. Sorbic acid  
 4. p-Hydroxybenzoic acid methyl ester  
 5. Dehydroacetic acid  
 6. p-Toluic acid  
 7. p-Hydroxybenzoic acid ethyl ester  
 8. n-Propyl p-hydroxybenzoate

## COUGH AND COLD MEDICINE



**Column:** Luna 3 µm Phenyl-Hexyl  
**Dimension:** 75 x 4.6 mm  
**Part No.:** 00C-4256-E0  
**Mobile Phase:** A: Acetonitrile  
 B: 20 mM KH<sub>2</sub>PO<sub>4</sub> / Methanol(80:20) pH 9.0  
**Gradient:** A/B (0:100) to A/B (80:20) in 5 min  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 214 nm  
**Temperature:** 22 °C  
**Injection:** 20 µL  
**Sample:** 1. p-Aminophenol  
 2. Benzoic acid  
 3. Acetaminophen  
 4. Pseudoephedrine  
 5. Butyl paraben  
 6. Chlorphenaramine  
 7. Diphenhydramine  
 8. Dextromethorphan

# Luna (CN) Cyano

## Proven Reproducibility

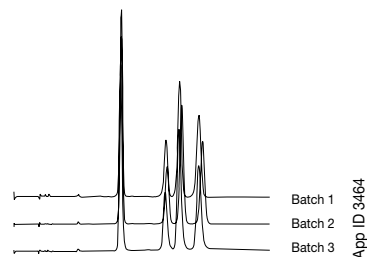
Luna CN columns were developed to provide reproducible chromatography from run-to-run, column-to-column and batch-to-batch. Luna® high-purity silica provides a ridged and dense column bed that allows for improved CN bonding techniques to make a stable CN phase.

The result:

- One of the most stable CN columns under both reversed phase or normal phase conditions.
- Reproducible from run-to-run, column-to-column, batch-to-batch.
- pH stable from 1.5 to 7.0

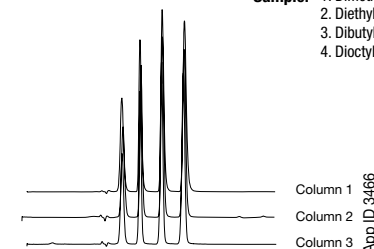
## Batch-to-Batch Reproducibility

**Column:** Luna 5 µm CN  
**Dimension:** 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



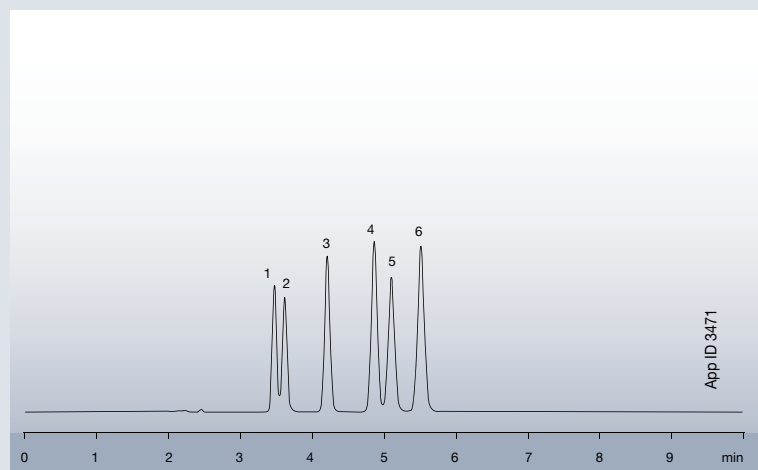
## Column-to-Column Reproducibility

**Column:** Luna 5 µm CN  
**Dimension:** 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  
**Detection:** UV @ 254 nm  
**Injection:** 5.0 µL  
**Temperature:** Ambient  
**Sample:** 1. Dimethyl phthalate  
 2. Diethyl phthalate  
 3. Dibutyl phthalate  
 4. Dioctyl phthalate

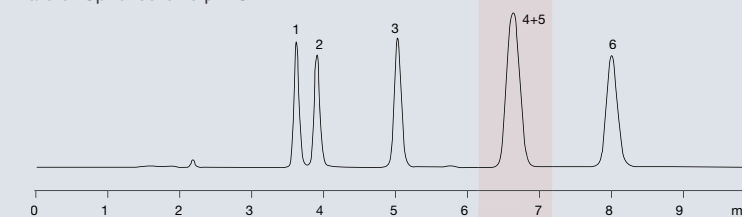


## PHthalate ESTERS: A COMPARISON OF CN COLUMNS

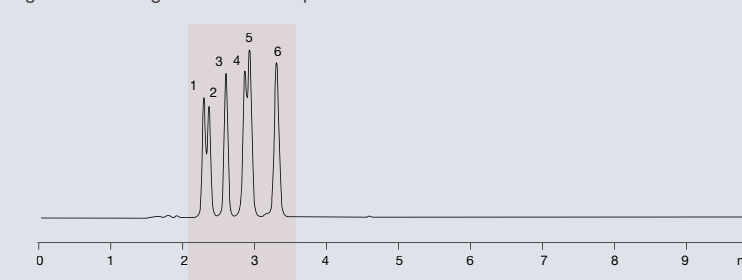
### Phenomenex Luna 5 µm CN



### Waters® Spherisorb® 5 µm CN



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



Conditions same for all columns

**Dimension:** 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

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

## Developed for Ruggedness

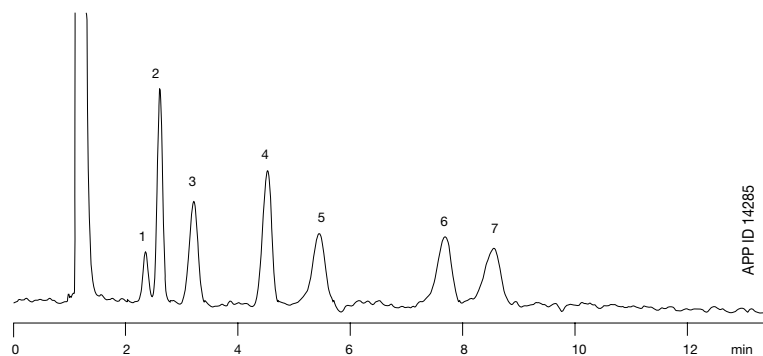
Luna® NH<sub>2</sub> columns were developed to provide improved amino column lifetime. Column life for most amino columns can be problematic as the amino bonding easily strips off the silica. Luna NH<sub>2</sub> columns, however, show good bonded phase stability under both normal and reversed phase modes 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 reverse phase conditions and hydrogen bonding compounds under normal phase conditions
- pH stable from 1.5 to 11.0
- Stable in 100 % aqueous mobile phases

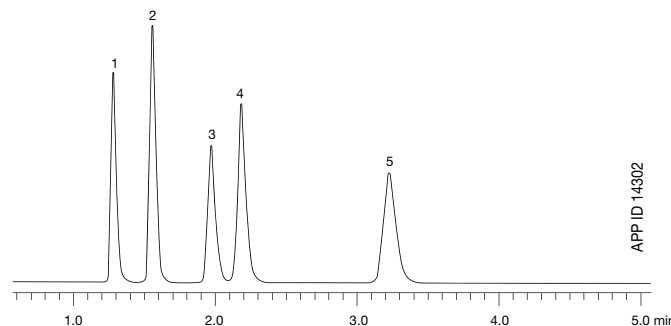
## SIMPLE SUGARS

**Column:** Luna 5 µm NH<sub>2</sub>  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4378-E0  
**Mobile Phase:** Acetonitrile/Water (80:20)  
**Flow Rate:** 3.0 mL/min  
**Detection:** RI  
**Temperature:** 40 °C  
**Sample:** 1. Xylose  
2. Fructose  
3. Glucose  
4. Sucrose  
5. Maltose  
6. Melezitose  
7. Raffinose



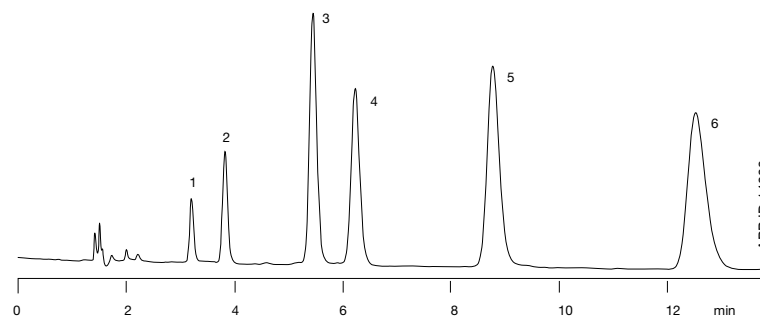
## NUCLEIC ACID BASES

**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



## STERIODS

**Column:** Luna 5 µm NH<sub>2</sub>  
**Dimension:** 250 x 4.6 mm  
**Part No.:** 00G-4378-E0  
**Mobile Phase:** Hexane/Ethanol (85:15)  
**Flow Rate:** 2.0 mL/min  
**Detection:** UV @ 240 nm  
**Temperature:** 22 °C  
**Sample:** 1. 11-Ketoprogesterone  
2. 11-Hydroxyprogesterone  
3. Cortisone acetate  
4. Prednisolone 21-acetate  
5. Cortisone  
6. Prednisolone



# 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 into the stationary phase for increased retention.

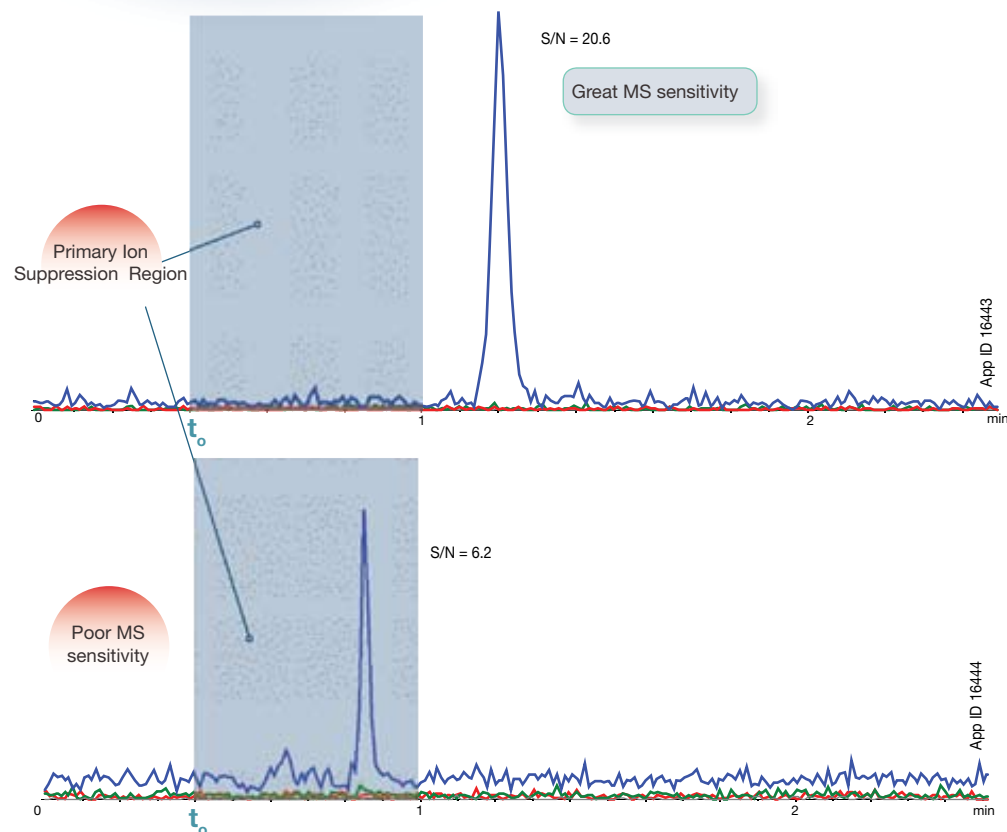
The result:

- Superior retention of polar compounds
- Improve mass spec sensitivity
- Increased laboratory throughput and productivity

## Improve 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).

Separation is achieved through the partitioning of polar solutes from the high concentration, water-miscible, organic mobile phase into the hydrophilic surface environment. Polar solutes exhibit increased retention, and elute in the order of increasing hydrophilicity.



### POLAR COMPOUND IN HILIC MODE

**Column:** Luna 3 µm HILIC  
**Dimension:** 100 x 2.0 mm  
**Part No.:** 00D-4449-B0  
**Mobile Phase:** Acetonitrile / 100 mM Ammonium Formate, pH 3.2 (90:10)  
**Flow Rate:** 0.4 mL/min  
**Detection:** Mass Spectrometer (MS)  
**Temperature:** Ambient  
**Sample:** Bamethan

### POLAR COMPOUND IN C18 REVERSED PHASE

**Column:** Gemini 3 µm C18  
**Dimension:** 100 x 2.0 mm  
**Part No.:** 00D-4435-B0  
**Mobile Phase:** 0.1 % Formic Acid / Acetonitrile (97:3)  
**Flow Rate:** 0.4 mL/min  
**Detection:** Mass Spectrometer (MS)  
**Temperature:** Ambient  
**Sample:** Bamethan

Ion Suppression Region is from 0.5-1.0 min

$$t_o \approx 0.5 \text{ min}$$

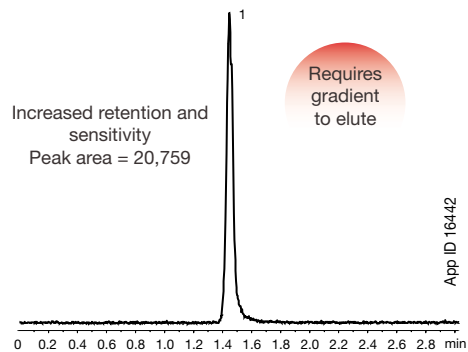
$$k' = 1 = \frac{t_R - t_o}{t_o} = \frac{1 - 0.5}{0.5}$$

## Retain Polar Compounds

Highly polar compounds such as ribavirin may be poorly retained on reversed phase columns. HILIC techniques will increase polar compound retention and sensitivity.

### RIBAVIRIN ON LUNA HILIC

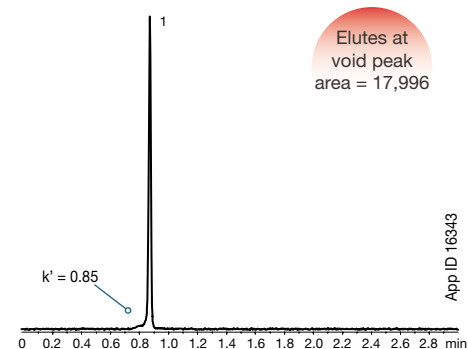
0.5 ng on column



**Column:** Luna 3  $\mu$ m HILIC  
**Dimension:** 100 x 2.0 mm  
**Part No.:** 00D-4449-B0  
**Mobile Phase:** A: Acetonitrile/100 mM Ammonium Formate, pH 3.2 (90:10)  
 B: Acetonitrile/20 mM Ammonium Formate, pH 3.2 (50:50)  
**Gradient:** 100 % A for 3 min, then 100 % B to 4.5 min, switch to 100 % A for 10 min  
**Flow Rate:** 0.4 mL/min  
**Detection:** Mass Spectrometer (MS)  
**Temperature:** Ambient  
**Sample:** 1. Ribavirin (MRM: 245.2/113.2)

### RIBAVIRIN ON C18

0.5 ng on column



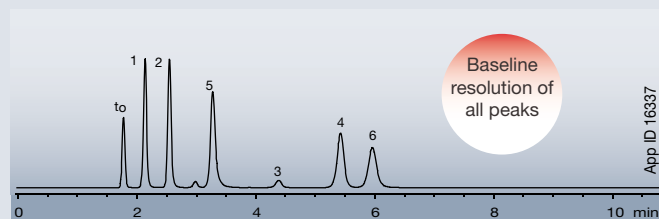
**Column:** Gemini<sup>®</sup> 5  $\mu$ m C18  
**Dimension:** 100 x 2.0 mm  
**Part No.:** 00D-4435-B0  
**Mobile Phase:** Acetonitrile with 0.1 % v/v Formic Acid/Water with 0.1 % v/v Formic Acid (3:97)  
**Flow Rate:** 0.4 mL/min  
**Detection:** Mass Spectrometer (MS) (ambient)  
**Temperature:** Ambient  
**Sample:** 1. Ribavirin (MRM: 245.2/113.2)

## Unique HILIC Selectivity

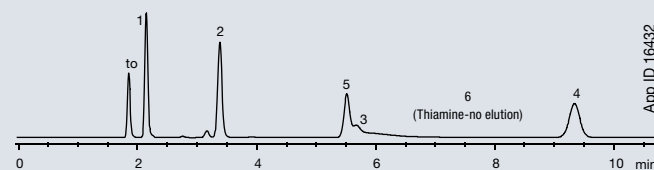
Not all HILIC columns are alike. Luna HILIC columns deliver on the exacting standards you've come to trust from the Luna product line.

### HILIC COLUMN COMPARISON

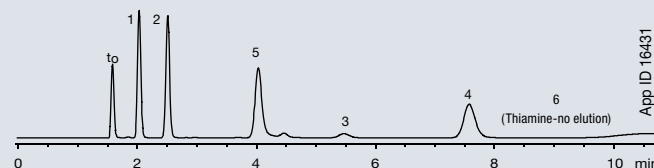
#### Phenomenex Luna<sup>®</sup> 5 $\mu$ m HILIC



#### Waters<sup>®</sup> Atlantis<sup>®</sup> 5 $\mu$ m HILIC



#### SeQuant 5 $\mu$ m ZIC<sup>®</sup>-HILIC



#### Conditions same for all columns:

**Column:** As noted  
**Dimension:** 150 x 4.6 mm  
**Mobile Phase:** Acetonitrile/100 mM Ammonium Formate, pH 3.2 (90:10)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 260 nm  
**Sample:** 1. PABA  
 2. Nicotinamide  
 3. Riboflavin  
 4. Nicotinic Acid  
 5. Pyridoxine  
 6. Thiamine

ZIC is a registered trademark of Merck SeQuant AB. Waters and Atlantis are registered trademarks of Waters Corporation. Phenomenex is not affiliated with Merck SeQuant AB or Waters Corporation. The comparative data presented here may not be representative for all applications.



# Luna SCX

## Develop Robust Strong Cation Exchange Methods

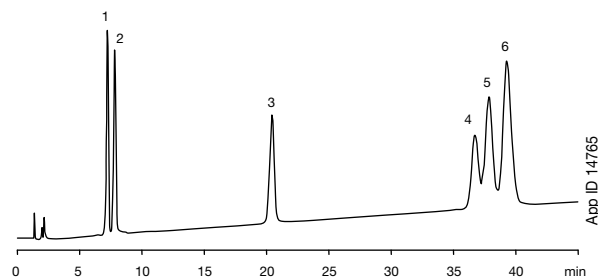
Luna® SCX columns provide excellent resolution and peak shape of basic, cationic compounds. However, most SCX columns show poor peak shape and bad resolution causing many chromatographers to ignore this important phase for small molecule method development, until now.

The result:

- Resolving power and sharp peak shape to separate complex cationic/basic and nitrogen containing compounds
- Benzene sulfonic acid ligand provides mixed-mode interaction improving separation for 2D peptide applications
- Excellent first dimension of 2D LC applications

Luna SCX columns contain a benzene sulfonic acid ligand providing ion exchange reversed phase, and aromatic interactions. In combination with the ultra pure silica, Luna SCX columns are a stable, robust phase for strong cation exchange chromatography.

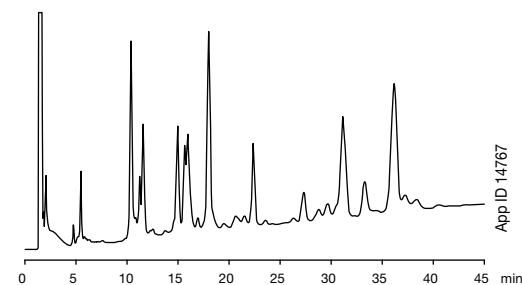
### PEPTIDES



App ID 14765

**Column:** Luna 5 µm SCX  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4398-E0  
**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 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 35 °C  
**Detection:** UV @ 215 nm  
**Injection Volume:** 2 µL (5 µg 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



App ID 14767

**Column:** Luna 5 µm SCX  
**Dimension:** 150 x 4.6 mm  
**Part No.:** 00F-4398-E0  
**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 min  
**Flow Rate:** 1 mL/min  
**Temperature:** 35 °C  
**Detection:** UV @ 215 nm  
**Injection Volume:** 50 µL (20 µg on column)  
**Sample:** Bovine Cytochrome c trypsin digest



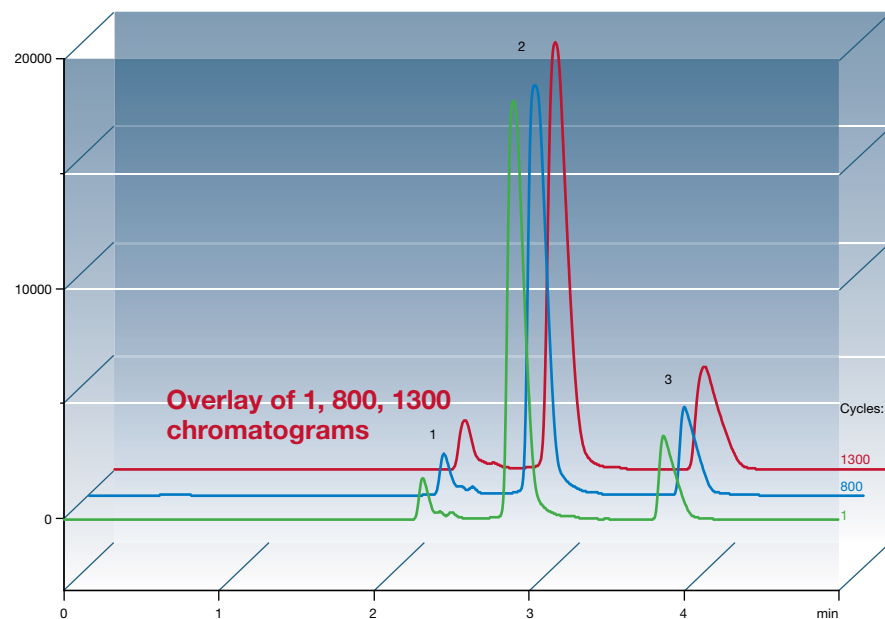
# AXIA™

## Revolutionize Lab-Scale Purification

An advanced column packing and hardware design, Axia columns incorporate patented Hydraulic Piston Compression technology to eliminate bed collapse as a source of failure in preparative columns. Using a single, controlled hydraulic compression, the piston assembly is locked in place without allowing the media to decompress or “relax,” thus maintaining media and column bed integrity.

With Axia technology, the correct slurry amount and packing pressure are automated to give not only higher efficiency and sharper peaks, but also drastically reduced column-to-column variability. This will help improve longer column lifetime, column-to-column reproducibility, and recover higher compound purity with analytical like efficiency.

### Axia Gradient Lifetime Study

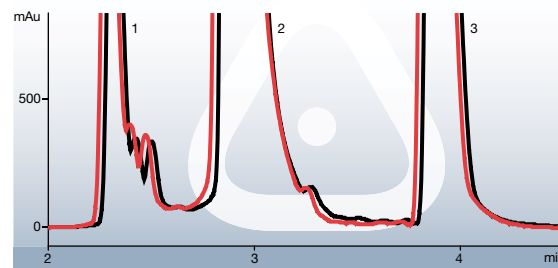


- Columns:** Luna 5 µm C18(2) Axia Packed
- Dimension:** 50 x 21.2 mm
- Part No.:** 00B-4252-PO-AX
- Mobile Phase:** A: 0.5% TFA in Water  
B: 0.5% TFA in Acetonitrile
- Gradient:** Linear 95:5 to 5:95 (A/B) over 7 min, hold 3 min
- Injection Volume:** 500 µL
- Flow Rate:** 30 mL/min
- Temperature:** Ambient
- Detection:** UV @ 254 nm
- Sample:** 1. Triprolidine 1.6 mg  
2. Methacycline 16 mg  
3. Amitriptyline 5.25 mg

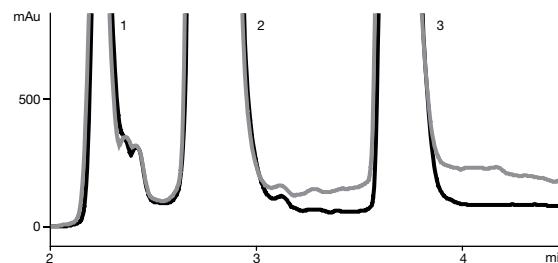


2006 R&D 100 Award Recipient

### Compare Lifetime



VS.



*Waters and XTerra are registered trademarks of Waters Corporation. OBD is a trademark of Waters Corporation. Phenomenex is not affiliated with Waters Corporation. The comparative data presented here may not be representative for all applications.*

#### Axia Packed

Luna® 5 µm C18(2) Axia Packed

■ **First Run** ■ **800th Run**

#### Leading Competitive Preparative Column

Waters® XTerra® 5 µm Prep MS C18 OBD™

■ **First Run** ■ **120th Run\***

\*Six columns tested.  
Best lifetime chosen for comparison.

#### Conditions same for both columns except where noted

**Column:** Luna 5 µm C18(2) Axia Packed  
Waters XTerra 5 µm Prep MS C18 OBD

**Dimension:** 50 x 21.2 mm (Luna)  
50 x 19 mm (XTerra)

**Mobile Phase:** A: 0.5% TFA in Water  
B: 0.5% TFA in Acetonitrile

**Gradient:** Linear 95:5 (A/B) to 5:95 (A/B) over 7 min,  
hold 3 min

**Flow Rate:** 30 mL/min (Luna)  
24 mL/min (XTerra)†

**Temperature:** Ambient

**Detection:** UV @ 254 nm

**Sample:** 1. Triprolidine 1.6 mg  
2. Methacycline 16 mg  
3. Amitriptyline 5.25 mg  
†Same linear velocity

For more detailed information on Axia Preparative columns visit: [www.phenomenex.com/axia](http://www.phenomenex.com/axia)

# Fast LC

## When you want Fast LC, you need BALANCE

The ever-increasing demand for high-throughput analysis of drug candidates during the early stages of drug discovery has generated an acute need for rapid methods of analysis.

3 Balanced Solutions to Balance Your Speed: Pressure, Efficiency and Selectivity

		Speed	Pressure	Efficiency	Selectivity
1	High Speed Technology (HST) Columns	Fast Run Time	< 400 Bar	Highest	Several phases available
2	MercuryMS™ Columns and Cartridges	Fastest Run Time	< 400 Bar	High	Most phases available
3	Monolithic Columns	Fast Run Time	< 200 Bar	Good	Several phases available

Developing ultra-fast and efficient methods for potential drugs has become a constant challenge for analysts. Use the chart above to determine the HPLC column that meets your performance needs.

## Luna: High Speed Technology (HST) columns

- ⌋ High efficiency 2.5 µm particles on ultra-pure silica
- ⌋ Ultra-high performance results on your current HPLC
- ⌋ Easy method transfer
- ⌋ Orthogonal selectivity options

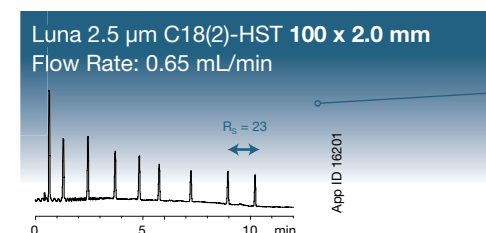
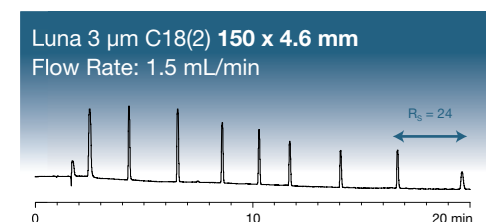
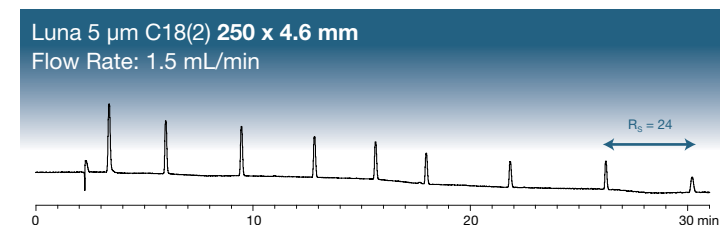


Luna HST columns are manufactured in specific dimensions utilizing new, highly controlled and robust packing technologies. The technology allows for consistent, high performance results on newer and existing HPLC instrumentation. Get the benefit of increased speed and efficiency with standard HPLC system pressure capabilities! Luna HST can be used with your current standard HPLC and newer high performance systems so that there will be no need for time consuming method revalidation.

Luna HST 2.5 µm columns allow the scientist to reduce analysis time by increasing flow rates without a loss in performance.



## HST Columns: 66 % Faster. No Loss in Resolution



Run time reduced by 20 min with virtually no effect on resolution!

### Conditions for all columns:

- Column:** Luna C18(2), particle size as noted
- Dimension:** as noted
- Mobile Phase:** A: Water B: Acetonitrile
- Gradient:** 90:10 (A/B) to 5:95 (A/B)
- Flow Rate:** As noted
- Detection:** UV @ 270 nm
- Sample:** Ketones C<sub>3</sub> to C<sub>16</sub>

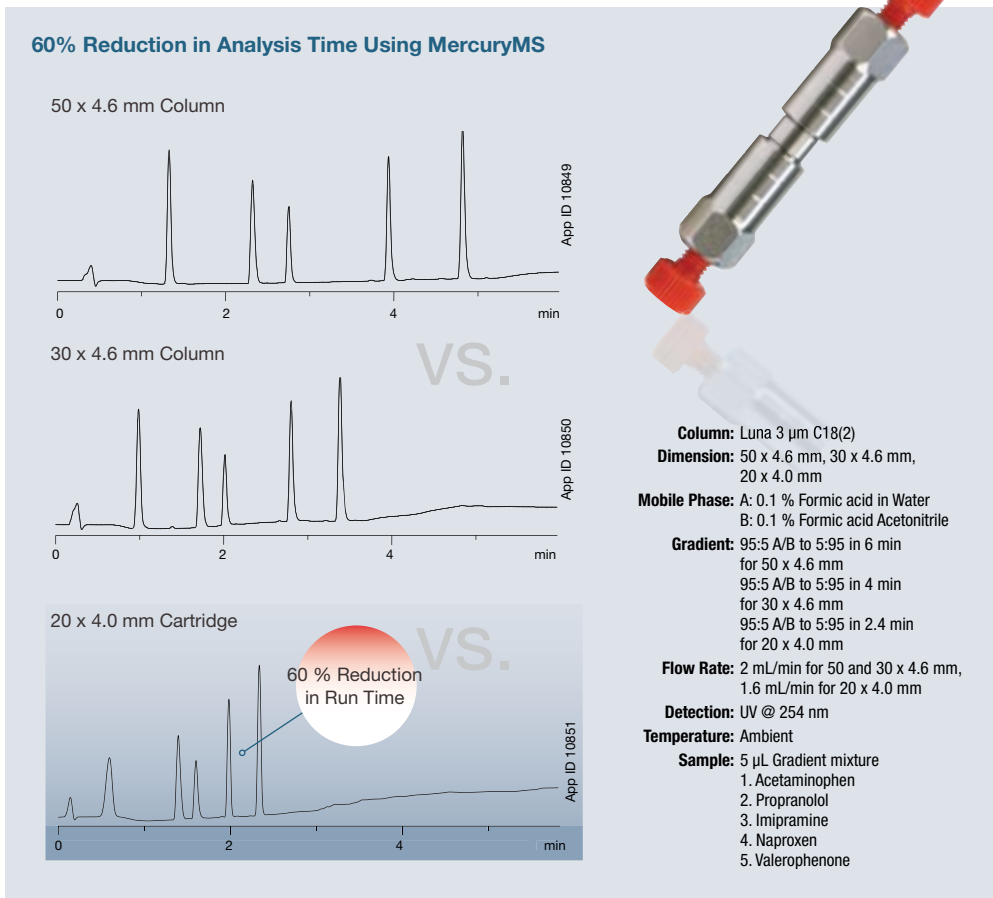
## MercuryMS™: Columns and Cartridges

- Ultra-fast, low-cost analysis for high-throughput laboratories
- Packed with Luna®, Synergi®, and Gemini® material
- Short 10 and 20 mm cartridge formats use a new proprietary slurry packing process



### Reduce Analysis Times by 60 %

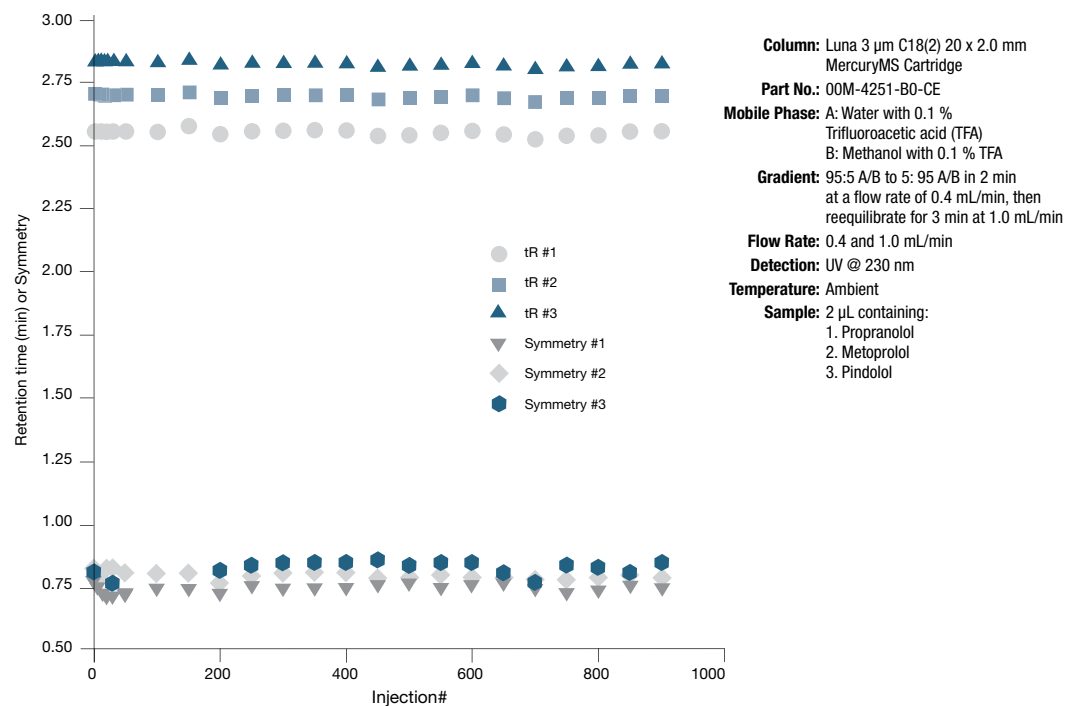
With the increasing emphasis on high sample throughput for screening combinatorial libraries as well as the need for overall faster cycle time, it has become necessary for the chromatographer to reduce analysis time while still maintaining acceptable resolution. As shown, retention times can be significantly reduced with a 20 x 4.0 mm MercuryMS cartridge column.



## Rugged Durability for Over 1,000 Injections

When running long sequences, often involving hundreds of valuable samples, it is imperative that the column does not fail during the middle of the run. As shown, the Luna 3 µm C18(2) 20 x 2.0 mm MercuryMS cartridge was stable for over 1000 injections (over 20,000 column volumes of mobile phase) in this gradient assay, offering exceptional reliability for automated screening systems.

### MercuryMS: Stable Over 1,000 Injections



# Ordering Information

explore

**LUNA**<sup>®</sup>



2.5 µm High Speed Technology (HST) Columns (mm)					
	30 x 2.0	50 x 2.0	100 x 2.0	50 x 3.0	100 x 3.0
Phases					
Luna 2.5 µm C18(2)-HST	00A-4446-B0	00B-4446-B0	00D-4446-B0	00B-4446-Y0	00D-4446-Y0

3 µm and 5 µm Capillary Columns (mm)							Guard Columns (mm)	
	50 x 0.30	150 x 0.30	250 x 0.30	50 x 0.50	150 x 0.50	250 x 0.50	20 x 0.30	20 x 0.50
Phases								
3 µm C8(2)	00B-4248-AC	00F-4248-AC	—	00B-4248-AF	00F-4248-AF	—	03M-4248-AC	03M-4248-AF
3 µm C18(2)	00B-4251-AC	00F-4251-AC	00G-4251-AC	00B-4251-AF	00F-4251-AF	00G-4251-AF	03M-4251-AC	03M-4251-AF
5 µm C8(2)	—	00F-4249-AC	00G-4249-AC	—	00F-4249-AF	—	03M-4249-AC	03M-4249-AF
5 µm C18(2)	00B-4252-AC	00F-4252-AC	00G-4252-AC	00B-4252-AF	00F-4252-AF	00G-4252-AF	03M-4252-AC	03M-4252-AF
5 µm Phenyl-Hexyl	00B-4257-AC	—	—	00B-4257-AF	—	—	—	—

MercuryMS™ LC/MS Cartridges (mm)				
	10 x 2.0	10 x 4.0	20 x 2.0	20 x 4.0
Phases				

3 µm				
C18(2)	00N-4251-B0-CE	00N-4251-D0-CE	00M-4251-B0-CE	00M-4251-D0-CE
C8(2)	00N-4248-B0-CE	00N-4248-D0-CE	00M-4248-B0-CE	00M-4248-D0-CE
5 µm				
C18(2)	00N-4252-B0-CE	—	00M-4252-B0-CE	00M-4252-D0-CE
C8(2)	00N-4249-B0-CE	—	00M-4249-B0-CE	00M-4249-D0-CE

## Cartridge Holders



Standard Cartridge Holders		
Part No.	Description	Price
CHO-5846	10 mm standard holder	
CHO-5845	20 mm standard holder	



Direct-Connect Cartridge Holders		
Part No.	Description	Price
CHO-7187	10 mm direct-connect holder	
CHO-7188	20 mm direct-connect holder	

SecurityGuard™ Analytical Cartridges require universal holder Part No.: KJO-4282

3 µm Microbore and Minibore Columns (mm)							SecurityGuard Cartridges (mm)
	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
Phases							
Silica(2)	—	—	00A-4162-B0	00B-4162-B0	00D-4162-B0	00F-4162-B0	AJO-4347
C8(2)	00B-4248-A0	00F-4248-A0	00A-4248-B0	00B-4248-B0	00D-4248-B0	00F-4248-B0	AJO-4289
C18(2)	00B-4251-A0	00F-4251-A0	00A-4251-B0	00B-4251-B0	00D-4251-B0	00F-4251-B0	AJO-4286
CN	—	—	00A-4254-B0	00B-4254-B0	00D-4254-B0	00F-4254-B0	AJO-4304
Phenyl-Hexyl	00B-4256-A0	—	00A-4256-B0	00B-4256-B0	00D-4256-B0	00F-4256-B0	AJO-4350
NH <sub>2</sub>	—	00F-4377-A0	00A-4377-B0	00B-4377-B0	00D-4377-B0	00F-4377-B0	AJO-4301
HILIC	—	—	—	00B-4449-B0	00D-4449-B0	00F-4449-B0	AJO-8328
PPFP(2)	—	—	00A-4447-B0	00B-4447-B0	00D-4447-B0	00F-4447-B0	AJO-8326

for ID: 2.0-3.0 mm





# Ordering Information

SecurityGuard™ Analytical Cartridges require universal holder Part No.: KJO-4282

3 µm Narrow Bore and Analytical Columns (mm)									SecurityGuard Cartridges (mm)	
	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
Phases									10/pk	10/pk
Silica(2)	—	—	00F-4162-YO	—	00B-4162-EO	—	00D-4162-EO	00F-4162-EO	AJO-4347	AJO-4348
C8(2)	00A-4248-YO	00B-4248-YO	00F-4248-YO	00A-4248-EO	00B-4248-EO	00C-4248-EO	00D-4248-EO	00F-4248-EO	AJO-4289	AJO-4290
C18(2)	00A-4251-YO	00B-4251-YO	00F-4251-YO	00A-4251-EO	00B-4251-EO	00C-4251-EO	00D-4251-EO	00F-4251-EO	AJO-4286	AJO-4287
CN	—	00B-4254-YO	00F-4254-YO	00A-4254-EO	00B-4254-EO	00C-4254-EO	00D-4254-EO	00F-4254-EO	AJO-4304	AJO-4305
Phenyl-Hexyl	—	00B-4256-YO	00F-4256-YO	00A-4256-EO	00B-4256-EO	00C-4256-EO	00D-4256-EO	00F-4256-EO	AJO-4350	AJO-4351
NH <sub>2</sub>	—	00B-4377-YO	00F-4377-YO	—	00B-4377-EO	—	00D-4377-EO	00F-4377-EO	AJO-4301	AJO-4302
HILIC	—	00B-4449-YO	00F-4449-YO	—	—	—	00D-4449-EO	00F-4449-EO	AJO-8328	AJO-8329
PFP(2)	—	00B-4447-YO	00F-4447-YO	—	00B-4447-EO	—	00D-4447-EO	00F-4447-EO	AJO-8326	AJO-8327

for ID: 2.0-3.0 mm 3.2-8.0 mm

SecurityGuard™ Analytical Cartridges require universal holder Part No.: KJO-4282

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

for ID: 2.0-3.0 mm

SecurityGuard™ Analytical Cartridges require universal holder Part No.: KJO-4282

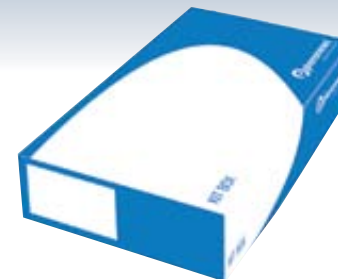
5 µm Narrow Bore and Analytical Columns (mm)								SecurityGuard Cartridges (mm)	
	30 x 3.0	50 x 3.0	150 x 3.0	250 x 3.0	30 x 4.6	50 x 4.6	75 x 4.6	4 x 2.0*	4 x 3.0*
Phases								10/pk	10/pk
Silica(2)	—	—	—	—	—	00B-4274-E0	—	AJO-4347	AJO-4348
C5	—	—	00F-4043-YO	—	—	00B-4043-E0	—	AJO-4292	AJO-4293
C8(2)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

for ID: 2.0-3.0 mm 3.2-8.0 mm



If Luna analytical columns do not provide you with at least equivalent separations to a competing column of the same phase, particle size, and dimensions, return the column with comparative data within 45 days for a FULL REFUND.

# Ordering Information



## Luna Method Development Kits

The Luna Method Development Kits combine the incredible performance of Luna HPLC columns with three different selectivities. Both kits include a Luna Phenyl-Hexyl (moderate polarity), a Luna CN (polar), and your choice of a C8(2) or C18(2) (non-polar). A wide range of selectivities for virtually any separation challenge.

5 µm Analytical, Semi-Prep and Preparative Columns (mm)						SecurityGuard™ Cartridges (mm)	
	100 x 4.6	150 x 4.6	250 x 4.6	250 x 10	250 x 15	4 x 3.0*	10 x 10‡
Phases						10/pk	3/pk
Silica(2)	00D-4274-E0	00F-4274-E0	00G-4274-E0	00G-4274-N0	—	AJO-4348	AJO-7223
C5	00D-4043-E0	00F-4043-E0	00G-4043-E0	—	—	AJO-4293	AJO-7372
C8(2)	00D-4249-E0	00F-4249-E0	00G-4249-E0	00G-4249-N0	—	AJO-4290	AJO-7222
C18(2)	00D-4252-E0	00F-4252-E0	00G-4252-E0	00G-4252-N0	00G-4252-AK	AJO-4287	AJO-7221
CN	00D-4255-E0	00F-4255-E0	00G-4255-E0	00G-4255-N0	—	AJO-4305	AJO-7313
Phenyl-Hexyl	00D-4257-E0	00F-4257-E0	00G-4257-E0	00G-4257-N0	—	AJO-4351	AJO-7314
NH <sub>2</sub>	00D-4378-E0	00F-4378-E0	00G-4378-E0	00G-4378-N0	—	AJO-4302	AJO-7364
SCX	00D-4398-E0	00F-4398-E0	00G-4398-E0	00G-4398-N0	—	AJO-4308	AJO-7369
HILIC	00D-4450-E0	00F-4450-E0	00G-4450-E0	00G-4450-N0	—	AJO-8329	AJO-8902
PPFP(2)	00D-4448-E0	00F-4448-E0	00G-4448-E0	00G-4448-N0	—	AJO-8327	AJO-8376

for ID: 3.2-8.0 mm 9-16 mm

Method Development Kits				
Part No.	Description	Dimensions (mm)	Unit	Price
KHO-4760	Luna Method Development Kit (5 columns) 1 each of 5 µm C18(2), C8(2), C5, CN, Phenyl-Hexyl Phases	150 x 4.6	5/pk	
KHO-4354	Luna Rapid-MD Kit (3 columns) 1 each of 3 µm C18(2), C8(2) and Phenyl-Hexyl phases	50 x 4.6	3/pk	
KHO-4761	Luna Selectivity Kit 1 (3 columns) 1 each of 5 µm C18(2), Phenyl-Hexyl, CN phases	150 x 4.6	3/pk	
KHO-4762	Luna Selectivity Kit 2 (3 columns) 1 each of 5 µm C8(2), Phenyl-Hexyl, CN phases	150 x 4.6	3/pk	

Axia™ Packed Preparative Columns (mm)								SecurityGuard Cartridges (mm)	
	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 †
Phases								ea	ea
<b>5 µm</b>									
Silica(2)	00B-4274-P0-AX	00D-4274-P0-AX	00F-4274-P0-AX	00G-4274-P0-AX	00B-4274-U0-AX	00D-4274-U0-AX	00G-4274-U0-AX	AJO-7229	AJO-8312
C5	—	—	00F-4043-P0-AX	—	—	—	—	—	—
C8(2)	00B-4249-P0-AX	00D-4249-P0-AX	00F-4249-P0-AX	—	00B-4249-U0-AX	00D-4249-U0-AX	—	AJO-7840	AJO-8302
C18(2)	00B-4252-P0-AX	00D-4252-P0-AX	00F-4252-P0-AX	00G-4252-P0-AX	00B-4252-U0-AX	00D-4252-U0-AX	00G-4252-U0-AX	AJO-7839	AJO-8301
CN	00B-4255-P0-AX	—	00F-4255-P0-AX	00G-4255-P0-AX	—	00D-4255-U0-AX	—	AJO-8220	AJO-8311
Phenyl-Hexyl	00B-4257-P0-AX	00D-4257-P0-AX	00F-4257-P0-AX	—	00B-4257-U0-AX	00D-4257-U0-AX	—	AJO-7841	AJO-8303
NH <sub>2</sub>	—	00D-4378-P0-EX	00F-4378-P0-AX	00G-4378-P0-AX	—	—	—	AJO-8162	AJO-8309
PPFP(2)	00B-4448-P0-AX	00D-4448-P0-AX	00F-4448-P0-AX	00G-4448-P0-AX	00B-4448-U0-AX	00D-4448-U0-AX	00G-4448-U0-AX	AJO-8377	AJO-8378
HILIC	00B-4450-P0-AX	00D-4450-P0-AX	00F-4450-P0-AX	00G-4450-P0-AX	—	—	00G-4450-U0-AX	—	—

for ID: 18-29 mm 30-49 mm

10 µm Analytical and Semi-Prep	SecurityGuard Cartridges (mm)			
	250 x 4.6	250 x 10	4 x 3.0*	10 x 10‡
Phases			10/pk	3/pk
Silica(2)	00G-4091-E0	00G-4091-N0	AJO-4348	AJO-7223
C5	00G-4092-E0	00G-4092-N0	AJO-4293	AJO-7372
C8(2)	00G-4250-E0	00G-4250-N0	AJO-4290	AJO-7222
C18(2)	00G-4253-E0	00G-4253-N0	AJO-4287	AJO-7221
CN	00G-4300-E0	00G-4300-N0	AJO-4305	AJO-7313
Phenyl-Hexyl	00G-4285-E0	00G-4285-N0	AJO-4351	AJO-7314
NH <sub>2</sub>	00G-4379-E0	00G-4379-N0	AJO-4302	AJO-7364
SCX	00G-4401-E0	00G-4401-N0	AJO-4308	AJO-7369

for ID: 3.2-8.0 mm 9-16 mm

Axia Packed Preparative Columns (mm)											SecurityGuard Cartridges (mm)	
	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	50 x 50	100 x 50	250 x 50	15 x 21.2**	15 x 30 †
Phases											ea	ea
<b>10 µm</b>												
Silica(2)	—	—	—	00G-4091-P0-AX	—	—	00G-4091-U0-AX	—	—	—	AJO-7229	AJO-8312
C5	—	00D-4092-P0-AX	—	00G-4092-P0-AX	—	—	—	—	—	00G-4092-V0-AX	—	—
C8(2)	00B-4250-P0-AX	—	00F-4250-P0-AX	00G-4250-P0-AX	00B-4250-U0-AX	—	—	—	—	00G-4250-V0-AX	AJO-7840	AJO-8302
C18(2)	00B-4253-P0-AX	00D-4253-P0-AX	00F-4253-P0-AX	00G-4253-P0-AX	00B-4253-U0-AX	00D-4253-U0-AX	00G-4253-U0-AX	00B-4253-V0-AX	00D-4253-V0-AX	00G-4253-V0-AX	AJO-7839	AJO-8301
CN	—	—	—	00G-4300-P0-AX	—	—	—	—	—	—	AJO-8220	AJO-8311
Phenyl-Hexyl	—	—	—	00G-4285-P0-AX	—	—	00G-4285-U0-AX	—	—	—	AJO-7841	AJO-8303
NH <sub>2</sub>	—	—	—	00G-4379-P0-AX	—	—	—	—	—	—	AJO-8162	AJO-8309

for ID: 18-29 mm 30-49 mm

\*SecurityGuard Analytical Cartridges require holder, Part No.: KJO-4282  
 †SemiPrep SecurityGuard Cartridges require holder, Part No.: AJO-7220

\*\*PREP SecurityGuard Cartridges require holder, Part No.: AJO-8223  
 ‡PREP SecurityGuard Cartridges require holder, Part No.: AJO-8277

# Phenex™ Syringe Filters

For Sample and Solvent Filtration Prior to Chromatography!

- Less system downtime
- More consistent, reproducible results
- Increased column lifetime



Membrane Type/Size	4 mm Diameter for ≤ 2 mL sample volumes			15 mm Diameter for 2 – 10 mL sample volumes			25 - 28 mm Diameter for 10 – 100 mL sample volumes		
	Part No.	Unit	Price	Part No.	Unit	Price	Part No.	Unit	Price
<b>0.20 µm</b>									
Phenex-RC (Regenerated Cellulose)	AF0-3203-12	100/pk	—	AF0-2203-12	100/pk	—	AF0-8203-12 <sup>5</sup>	100/pk	—
	AF0-3203-52	500/pk	—	AF0-2203-52	500/Pk	—	AF0-8203-52 <sup>5</sup>	500/pk	—
Phenex-PES <sup>3</sup> (Polyethersulfone)	—	—	—	—	—	—	AF0-8208-12 <sup>7</sup>	100/pk	—
	—	—	—	—	—	—	AF0-8208-52 <sup>7</sup>	500/pk	—
Phenex-PTFE <sup>6</sup> (Polytetrafluoroethylene)	AF0-3202-12	100/pk	—	AF0-2202-12	100/pk	—	AF0-1202-12	100/pk	—
	AF0-3202-52	500/pk	—	AF0-2202-52	500/pk	—	AF0-1202-52	500/pk	—
Phenex-NY (Nylon)	AF3-3207-12	100/pk	—	AF0-2207-12	100/pk	—	AF0-1207-12	100/pk	—
	AF3-3207-52	500/pk	—	AF0-2207-52	500/pk	—	AF0-1207-52	500/pk	—
Phenex-GF/NY <sup>2</sup> (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer-lock.						AF0-1A47-12 <sup>7</sup>	100/pk	—
							AF0-1A47-52 <sup>7</sup>	500/pk	—
Phenex-GF/CA <sup>2,3,4</sup> (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.						AF0-8A09-12 <sup>7</sup>	100/pk	—
							AF0-8A09-52 <sup>7</sup>	500/pk	—
<b>0.45 µm</b>									
Phenex-RC (Regenerated Cellulose)	AF0-3103-12	100/pk	—	AF0-2103-12	100/pk	—	AF0-8103-12 <sup>5</sup>	100/pk	—
	AF0-3103-52	500/pk	—	AF0-2103-52	500/Pk	—	AF0-8103-52 <sup>5</sup>	500/pk	—
Phenex-PES <sup>3</sup> (Polyethersulfone)	—	—	—	—	—	—	AF0-8108-12 <sup>7</sup>	100/pk	—
	—	—	—	—	—	—	AF0-8108-52 <sup>7</sup>	500/pk	—
Phenex-PTFE <sup>6</sup> (Polytetrafluoroethylene)	AF0-3102-12	100/pk	—	AF0-2102-12	100/pk	—	AF0-1102-12	100/pk	—
	AF0-3102-52	500/pk	—	AF0-2102-52	500/pk	—	AF0-1102-52	500/pk	—
Phenex-NY (Nylon)	AF3-3107-12	100/pk	—	AF0-2107-12	100/pk	—	AF0-1107-12	100/pk	—
	AF3-3107-52	500/pk	—	AF0-2107-52	500/pk	—	AF0-1107-52	500/pk	—
Phenex-GF/NY <sup>2</sup> (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer-lock.						AF0-1B47-12 <sup>7</sup>	100/pk	—
							AF0-1B47-52 <sup>7</sup>	500/pk	—
Phenex-GF/CA <sup>2,3,4</sup> (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.						AF0-8B09-12 <sup>7</sup>	100/pk	—
							AF0-8B09-52 <sup>7</sup>	500/pk	—
<b>1.20 µm</b>									
Phenex-GF <sup>2,3</sup> (Glass Fiber)	Prefiltration of heavily contaminated or highly viscous samples. When used in-series preceding a membrane filter, clogging of the membrane filter is prevented and sample clean up is optimized. Outlet connection is luer lock.						AF0-8515-12 <sup>7</sup>	100/pk	—
							AF0-8515-52 <sup>7</sup>	500/pk	—

Comparative separations may not be representative of all applications. Phenomenex is in no way affiliated with Agilent, Sigma-Aldrich Biotechnology, Waters Corp., Macherey-Nagel, Thermo, Merck or CY/RO Industries.

## Phenex Offers:

- » Broad chemical compatibility
- » Minimized extractables
- » Excellent flow rate
- » High total throughput
- » Certified quality
- » 100 % integrity tested
- » Low hold-up volume
- » Low protein absorption
- » Bi-directional use

### Tip: Try a Sample Pack!

The best way to determine if a specific Phenex membrane is suitable for your application.

Request yours today by phone or visit [www.phenomenex.com/sample](http://www.phenomenex.com/sample)

Above syringe filters are non-sterile. Housing is made of medical-grade polypropylene (PP), and offer luer lock inlet/slip outlet connections, unless otherwise indicated.

guarantee

1. Larger quantity purchases at significant savings are available.
2. Glass fiber filters are 28 mm diameter and made of borosilicate. They will remove 90 % of all particles >1.2 µm.
3. Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cyrolite®.
4. Cellulose acetate is surfactant-free.
5. 26 mm diameter.
6. Hydrophobic membrane. Can be made hydrophilic by pre-wetting with IPA.
7. 28 mm diameter.
8. Additional dimensions and membrane types are available. Please contact your local Phenomenex technical consultant or distributor for availability or assistance.

### Terms and Conditions

Subject to Phenomenex Standard Terms & Conditions, which may be viewed at [www.phenomenex.com/TermsAndConditions](http://www.phenomenex.com/TermsAndConditions)

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### Disclaimer

Axia and SecurityGuard are patented by Phenomenex.

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If Phenex Syringe Filters do not perform as well or better than your current syringe filter product of similar membrane, diameter and pore size, send in your comparative data within 45 days and keep the Phenex product for FREE.

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