One of The World’s Leading HPLC Columns
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore Successful Separations/Phase Overview</td>
<td>4</td>
</tr>
<tr>
<td>Explore Robust Methods</td>
<td>5</td>
</tr>
<tr>
<td>Explore Options for Every Development Route</td>
<td>6</td>
</tr>
<tr>
<td>Luna C18(2), C8(2), C5</td>
<td>8</td>
</tr>
<tr>
<td>Luna PFP(2)</td>
<td>16</td>
</tr>
<tr>
<td>Luna Phenyl-Hexyl</td>
<td>18</td>
</tr>
<tr>
<td>Luna CN (Cyan)</td>
<td>20</td>
</tr>
<tr>
<td>Luna NH2 (Amino)</td>
<td>21</td>
</tr>
<tr>
<td>Luna HILIC</td>
<td>22</td>
</tr>
<tr>
<td>Luna SCX</td>
<td>24</td>
</tr>
<tr>
<td>Axia-Packed Preparative HPLC</td>
<td>25</td>
</tr>
<tr>
<td>Fast LC</td>
<td>26</td>
</tr>
<tr>
<td>Ordering Information</td>
<td>28</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Luna Phases</th>
<th>Description</th>
<th>Particle Size (µm)</th>
<th>Pore Size (Å)</th>
<th>Surface Area (m²/g)</th>
<th>Carbon Load (%)</th>
<th>Bonded Phase Coverage (µmole/m²)</th>
<th>pH Stability</th>
<th>Application</th>
<th>Reversed Phase</th>
<th>Normal Phase</th>
<th>HILIC</th>
<th>IEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica(2)</td>
<td>Unbonded silica</td>
<td>3, 5, 10, 10-PREP.</td>
<td>100</td>
<td>400</td>
<td>12.5</td>
<td>7.85</td>
<td>2.0 - 7.5</td>
<td>Non-polar compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>5 Carbon ligand</td>
<td>5, 10</td>
<td>100</td>
<td>440</td>
<td>13.5</td>
<td>5.50</td>
<td>1.5 - 9.0°C</td>
<td>Good alternative to C8 when less retention is desired</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C8(2)</td>
<td>C8 ligand optimized for improved peak shape</td>
<td>3, 5, 10, 10-PREP.</td>
<td>100</td>
<td>400</td>
<td>17.5</td>
<td>3.00</td>
<td>1.5 - 9.0°C</td>
<td>Great starting phase for method development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C18(2)</td>
<td>C18 ligand optimized for improved peak shape</td>
<td>2.5, 3, 5, 10, 10-PREP.</td>
<td>100</td>
<td>400</td>
<td>7.0</td>
<td>3.80</td>
<td>1.5 - 7.0</td>
<td>From capillary LC/MS to process scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Versatile CN phase</td>
<td>3, 5, 10</td>
<td>100</td>
<td>400</td>
<td>9.5</td>
<td>5.80</td>
<td>1.5 - 11</td>
<td>For improving the retention of polar compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH₂</td>
<td>Rugged and reproducible NH₂</td>
<td>3, 5, 10</td>
<td>100</td>
<td>400</td>
<td>17.5</td>
<td>4.00</td>
<td>1.5 - 9.0°C</td>
<td>Sugar alcohols, anionic or hydrogen bonding compounds</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Phenyl-Hexyl</td>
<td>Phenyl phase attached to C6 (hexyl) ligand</td>
<td>3, 5, 10, 10-PREP.</td>
<td>100</td>
<td>400</td>
<td>7.0</td>
<td>3.80</td>
<td>1.5 - 7.0</td>
<td>Unique selectivity for very polar and aromatic compounds</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>SCX</td>
<td>Benzene sulfonic acid</td>
<td>5, 10</td>
<td>100</td>
<td>400</td>
<td>12.5</td>
<td>7.85</td>
<td>2.0 - 7.0</td>
<td>Amine and polyamine containing compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HILIC</td>
<td>Reproducible, cross-linked diol</td>
<td>3, 5</td>
<td>200</td>
<td>200</td>
<td>5.7</td>
<td>4.30</td>
<td>1.5 - 8.0</td>
<td>Increased retention and MS sensitivity of polar compounds</td>
<td></td>
<td></td>
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<tr>
<td>PFP(2)</td>
<td>Pentafluorophenyl with a C3 (propyl) linkage</td>
<td>3, 5</td>
<td>100</td>
<td>400</td>
<td>11.5</td>
<td>2.2</td>
<td>1.5 - 8.0</td>
<td>Highly polar compounds, halogenated compounds and isomers</td>
<td></td>
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</tbody>
</table>

* 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.
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.

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 m²/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)

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Applications

Polar, Acidic Drugs

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

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

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

Hydrophobic, Acidic Compounds

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

Basic Compounds

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

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

α- and β-acids in Hop Extract

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

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

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

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

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Applications

USP METHOD: ESTRADIOL

Column: Luna® 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-60
Mobile Phase: Acetonitrile/Water (55:45)
Flow Rate: 1 mL/min
Temperature: 30 °C
Detection: UV @ 233 nm
Sample: 1. Estrone
2. Estradiol

USP METHOD: PHENYLEPHRINE HYDROCHLORIDE INJECTION

Column: Luna® 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-60
Mobile Phase: Acetonitrile/Water (55:45)
Flow Rate: 1 mL/min
Temperature: 30 °C
Detection: UV @ 233 nm
Sample: 1. Ethylparaben
2. Estrone
3. Estradiol

USP METHOD: HYDROCORTISONE CREAM

Column: Luna 5 µm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Water/MeOH with 1.1 % 1-Octanesulfonic acid pH 3.0 (50:50)
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Phenylephrine hydrochloride
2. Epinephrine bitartrate

Column: Luna 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-60
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

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

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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. 2,4-Dinitrotoluene
10. 2,6-Dinitrotoluene
11. 2-Nitrotoluene
12. 4-Nitrotoluene
13. 1,3,5-Trinitrobenzene
14. 2,4-Dinitrotoluene
15. Nitrobenzene
16. 2-Nitrotoluene
17. 4-Nitrotoluene
18. 3-Nitrotoluene

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. Acenaphthene
3. Fluorene
4. Phenanthrene
5. Anthracene
6. Fluoranthene
7. Pyrene
8. Benzo(a)anthracene
9. Chrysene
10. Benzo(b)fluoranthene
11. Benzo(k)fluoranthene
12. Benzo(a)pyrene
13. Benzo(b)pyrene
14. Dibenzo(a,h)anthracene
15. Benzo(g,h,i)perylene
16. Indeno(1,2,3-c,d)pyrene

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 (50:50) in 15 min,
A/B (10:90) in 40 min
Flow Rate: 1 mL/min
Temperature: 50 °C
Detection: UV @ 254 nm
Sample:
1. 6-Gingerol
2. 8-Gingerol + isomer
3. 6-Shogaol
4. 10-Gingerol
5. 8-Shogaol
6. 10-Shogaol

Cold Medicine

Column: Luna 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4249-E0
Mobile Phase: Methanol/Acetonitrile with 0.1 % H3PO4/Water with 0.1 % KPO4 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
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: 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. 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. Benzaldehyde
5. Ethylparaben
6. 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-4252-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
- **Temperature:** 22 °C
- **Detection:** Evaporative Light Scattering (ELSD)
- **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. Butynophene

**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

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Applications

SAW PALMETO BERRY, p-BROMOPHENACLYL ESTERS

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

CAPSAICIN

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

CYCLOSPORIN - IMMUNOSUPPRESSANTS

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 H₃PO₄ (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

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. Benzic Acid

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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 π-π Interactions
4. Hydrophobic

Halogen 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 µm PFP(2)

Column: Luna 3 µm 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 µm C18(2)

Column: Luna 3 µm 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.

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.

### Positional Isomers of Methylacetophenone

**Luna 3 µm PFP(2)**

- Column: Luna 3 µm PFP(2)
- Dimension: 150 x 4.6 mm
- 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 µm C18(2)**

- Column: Luna 3 µm C18(2)
- Dimension: 150 x 4.6 mm
- 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

### Catechins

**Luna 3 µm PFP(2)**

- Column: Luna 3 µm 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

**Luna 3 µm C18(2)**

- Column: Luna 3 µm 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 @ 280 nm
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 KH2PO4, 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. Sulfachlomazine
7. Nalidixic acid
8. Piroxicam acid

Waters® Spherisorb® 5 µm Phenyl

Agilent Technologies® ZORBAX® 5 µm Phenyl

Agilent Technologies® ZORBAX® 5 µm SB-Phenyl

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Applications

COUGH AND COLD-USP METHOD

Column: Luna 5 µm Phenyl-Heptyl
Dimension: 150 x 4.6 mm
Part No.: 00F-4257-60
Mobile Phase: Methanol/Water with 0.1 % H3PO4
and 0.1 % Heptane Sulfonate/
Acetonitrile with 0.1 % H3PO4 (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-Heptyl
Dimension: 150 x 4.6 mm
Part No.: 00F-4257-60
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-Heptyl
Dimension: 150 x 4.6 mm
Part No.: 00F-4237-60
Mobile Phase: A: 50 mM KH2PO4 + 0.1% H3PO4
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. Dihydroxyacetic acid
6. p-Toluic acid
7. p-Hydroxybenzoic acid ethyl ester
8. n-Propyl p-hydroxybenzoate

COUGH AND COLD MEDICINE

Column: Luna 5 µm Phenyl-Heptyl
Dimension: 75 x 4.6 mm
Part No.: 00C-4256-60
Mobile Phase: A: Acetonitrile
B: 20 mM KH2PO4 / 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. Dihydroxyacetone
8. Dextromethorphan

Phenomenex | WEB: www.phenomenex.com
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 (90:10), A/B (90:10)

Flow Rate: 1.0 mL/min

Detection: UV @ 254 nm

Injection: 5.0 µL

Temperature: Ambient

Sample:
1. DIBUTYL PHTHALATE
2. Dioctyl phthalate
3. Diethyl phthalate
4. 2-Ethylhexyl phthalate

PHTHALATE ESTERS: A COMPARISON OF CN COLUMNS

Phenomenex Luna 5 µm 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 (NH₂) Amino

Developed for Ruggedness

Luna® NH₂ 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 NH₂ 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 NH₂
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. Maltotriose
7. Raffinose

**Nucleic Acid Bases**

Column: Luna 5 µm NH₂
Dimension: 150 x 4.6 mm
Part No.: 00F-4378-EO
Mobile Phase: Acetonitrile/Water (80:20)
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Temperature: 40 °C
Sample:
1. Thymine
2. Uridine
3. Cytosine
4. Adenine
5. Guanosine

**Steroids**

Column: Luna 5 µm NH₂
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).

Polynomial Compounds in HILIC Mode

S/N = 20.6

Great MS sensitivity

Polynomial Compounds in C18 Reversed Phase

S/N = 6.2

Poor MS sensitivity

Ion Suppression Region is from 0.5-1.0 min

\[ t_o \leq 0.5 \text{ min} \]

\[ k' = \frac{t_r - t_o}{t_o} = 1 - 0.5 \]

\[ \frac{0.5}{0.5} \]
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

- Increased retention and sensitivity
- Peak area = 20,759

**RIBAVIRIN ON C18**
0.5 ng on column

- Elutes at void peak
- Area = 17,956

**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® 5 µm HILIC**
- Column: Luna 3 µm 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 (MD)
- Temperature: Ambient
- Sample: 1. Ribavirin (MRM: 245.2/113.2)

**Waters® Atlantis® 5 µm HILIC**
- Column: Atlantis 5 µm HILIC
- 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

**SeQuant 5 µm ZIC®-HILIC**
- Column: ZIC®-HILIC
- Dimension: 100 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

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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

Column: Luna 5 μm SCX
Dimension: 150 x 4.6 mm
Part No.: 00F-4398-60
Mobile Phase:
A: 20 mM Potassium Phosphate, 25 % Acetonitrile, pH 2.5
B: 20 mM Potassium Phosphate, 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

Column: Luna 5 μm SCX
Dimension: 150 x 4.6 mm
Part No.: 00F-4398-60
Mobile Phase:
A: 20 mM Potassium Phosphate, 25 % Acetonitrile
B: 20 mM Potassium Phosphate, 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

Compare Lifetime

Axia Packed
Luna® 5 µm C18(2) Axia Packed
First Run 800th Run

Leading Competitive Preparative Column
Waters® X Terra® 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 X Terra 5 µm Prep MS C18 OBD
Dimension: 50 x 21.2 mm (Luna)
50 x 19 mm (X Terra)
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 (X Terra)*
Temperature: Ambient
Detection: UV @ 254 nm
Sample: 1. Triprolidine 1.6 mg
2. Methacycline 16 mg
3. Amitriptyline 5.25 mg
*Same linear velocity

Waters and X Terra 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.

For more detailed information on Axia Preparative columns visit: www.phenomenex.com/axia

Overlay of 1, 800, 1300 chromatograms

2006 R&D 100 Award Recipient
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

<table>
<thead>
<tr>
<th>Speed</th>
<th>Pressure</th>
<th>Efficiency</th>
<th>Selectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 High Speed Technology (HST) Columns</td>
<td>Fast Run Time</td>
<td>&lt; 400 Bar</td>
<td>Highest</td>
</tr>
<tr>
<td>2 MercuryMS™ Columns and Cartridges</td>
<td>Fastest Run Time</td>
<td>&lt; 400 Bar</td>
<td>High</td>
</tr>
<tr>
<td>3 Monolithic Columns</td>
<td>Fast Run Time</td>
<td>&lt; 200 Bar</td>
<td>Good</td>
</tr>
</tbody>
</table>

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

Luna 5 µm C18(2) 250 x 4.6 mm
Flow Rate: 1.5 mL/min

Luna 3 µm C18(2) 150 x 4.6 mm
Flow Rate: 1.5 mL/min

Luna 2.5 µm C18(2)-HST 100 x 2.0 mm
Flow Rate: 0.65 mL/min

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 C3 to C16

Phenomenex | WEB: www.phenomenex.com
Reduced 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

Column: Luna 3 μm C18(2) 20 x 2.0 mm MercuryMS Cartridge
Part No.: 00M-4251-B0-CE
Mobile Phase: A: Water with 0.1 % Trifluoroacetic acid (TFA)
B: Methanol with 0.1 % TFA
Gradient: 95:5 A/B to 5:95 A/B in 2 min at a flow rate of 0.4 mL/min, then reequilibrate for 3 min at 1.0 mL/min
Flow Rate: 0.4 and 1.0 mL/min
Detection: UV @ 230 nm
Temperature: Ambient
Sample: 2 µL containing:
1. Propranolol
2. Metoprolol
3. Pindolol

60% Reduction in Analysis Time Using MercuryMS

50 x 4.6 mm Column

30 x 4.6 mm Column

20 x 4.0 mm Cartridge

60% Reduction in Run Time
**Ordering Information**

### 2.5 µm High Speed Technology (HST) Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>30 x 2.0</th>
<th>50 x 2.0</th>
<th>100 x 2.0</th>
<th>50 x 3.0</th>
<th>100 x 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luna 2.5 µm C18(2)-HST</td>
<td>00A-4446-B0</td>
<td>00B-4446-B0</td>
<td>00C-4446-B0</td>
<td>00D-4446-B0</td>
<td>00E-4446-B0</td>
</tr>
<tr>
<td>Luna 2.5 µm C8(2)-HST</td>
<td>00A-4447-B0</td>
<td>00B-4447-B0</td>
<td>00C-4447-B0</td>
<td>00D-4447-B0</td>
<td>00E-4447-B0</td>
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### 3 µm and 5 µm Capillary Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>50 x 0.30</th>
<th>150 x 0.30</th>
<th>250 x 0.30</th>
<th>50 x 0.50</th>
<th>150 x 0.50</th>
<th>250 x 0.50</th>
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</thead>
<tbody>
<tr>
<td>3 µm C8(2)</td>
<td>00B-4248-AC</td>
<td>00F-4248-AC</td>
<td>—</td>
<td>00B-4248-AF</td>
<td>00F-4248-AF</td>
<td>—</td>
</tr>
<tr>
<td>3 µm C18(2)</td>
<td>00B-4251-AC</td>
<td>00F-4251-AC</td>
<td>00G-4251-AC</td>
<td>00B-4251-AF</td>
<td>00F-4251-AF</td>
<td>00G-4251-AF</td>
</tr>
<tr>
<td>5 µm C8(2)</td>
<td>—</td>
<td>00F-4249-AC</td>
<td>00G-4249-AC</td>
<td>—</td>
<td>00F-4249-AF</td>
<td>—</td>
</tr>
<tr>
<td>5 µm C18(2)</td>
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<td>00F-4252-AC</td>
<td>00G-4252-AC</td>
<td>00B-4252-AF</td>
<td>00F-4252-AF</td>
<td>00G-4252-AF</td>
</tr>
<tr>
<td>5 µm Phenyl-Hexyl</td>
<td>00B-4257-AC</td>
<td>—</td>
<td>—</td>
<td>00B-4257-AF</td>
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</table>

### SecurityGuard™ LC/MS Cartridges (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>10 x 2.0</th>
<th>10 x 4.0</th>
<th>20 x 2.0</th>
<th>20 x 4.0</th>
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<tbody>
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<td>00B-4248-AC</td>
<td>00F-4248-AC</td>
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<td>00B-4248-AF</td>
</tr>
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<td>00F-4251-AC</td>
<td>00G-4251-AC</td>
<td>00B-4251-AF</td>
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<td>00G-4249-AC</td>
<td>—</td>
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<td>00F-4252-AC</td>
<td>00G-4252-AC</td>
<td>00B-4252-AF</td>
</tr>
<tr>
<td>5 µm Phenyl-Hexyl</td>
<td>00B-4257-AC</td>
<td>—</td>
<td>—</td>
<td>00B-4257-AF</td>
</tr>
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### MercuryMS™ LC/MS Cartridges (mm)

<table>
<thead>
<tr>
<th>Phases</th>
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<th>10 x 4.0</th>
<th>20 x 2.0</th>
<th>20 x 4.0</th>
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</tr>
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<td>00B-4257-AC</td>
<td>—</td>
<td>—</td>
<td>00B-4257-AF</td>
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</table>

### Cartridge Holders

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>CH0-5845</td>
<td>10 mm standard holder</td>
<td>10/pk</td>
</tr>
<tr>
<td>CH0-7187</td>
<td>10 mm direct-connect holder</td>
<td></td>
</tr>
<tr>
<td>CH0-7188</td>
<td>20 mm direct-connect holder</td>
<td></td>
</tr>
</tbody>
</table>

### 3 µm Microbore and Minibore Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>50 x 1.0</th>
<th>150 x 1.0</th>
<th>30 x 2.0</th>
<th>50 x 2.0</th>
<th>100 x 2.0</th>
<th>150 x 2.0</th>
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<td>Silica(2)</td>
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<td>—</td>
<td>00A-4162-B0</td>
<td>00B-4162-B0</td>
<td>00C-4162-B0</td>
<td>00D-4162-B0</td>
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<tr>
<td>C8(2)</td>
<td>00B-4248-A0</td>
<td>00F-4248-A0</td>
<td>00B-4248-B0</td>
<td>00F-4248-B0</td>
<td>00B-4248-A0</td>
<td>00F-4248-A0</td>
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<tr>
<td>C18(2)</td>
<td>00B-4251-A0</td>
<td>00F-4251-A0</td>
<td>00B-4251-B0</td>
<td>00F-4251-B0</td>
<td>00B-4251-A0</td>
<td>00F-4251-A0</td>
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<tr>
<td>CN</td>
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<td>—</td>
<td>00A-4254-B0</td>
<td>00B-4254-B0</td>
<td>00C-4254-B0</td>
<td>00D-4254-B0</td>
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<tr>
<td>Phenyl-Hexyl</td>
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<td>00B-4256-B0</td>
<td>00F-4256-B0</td>
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<tr>
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<td>00B-4377-B0</td>
<td>00C-4377-B0</td>
<td>00D-4377-B0</td>
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<tr>
<td>HILIC</td>
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<td>—</td>
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<td>00B-4449-B0</td>
<td>00C-4449-B0</td>
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<tr>
<td>PFP</td>
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**SecurityGuard™ Analytical Cartridges require universal holder Part No.: KJO-4282**

for ID: 2.0-3.0 mm
# Ordering Information

## 3 μm Narrow Bore and Analytical Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>SecurityGuard Cartridges (mm)</th>
<th>SecurityGuard Cartridges (mm)</th>
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<tbody>
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<td>00B-4248-Y0</td>
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<td>00A-4251-Y0</td>
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<td>Pheny-Hexyl</td>
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<td></td>
</tr>
<tr>
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<td>00B-4377-Y0</td>
<td>00F-4377-Y0</td>
</tr>
<tr>
<td>HILIC</td>
<td>00B-4449-Y0</td>
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<td>PFP(2)</td>
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## 5 μm Microbore and Minibore Columns (mm)

<table>
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<th>SecurityGuard Cartridges (mm)</th>
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<td>C18(2)</td>
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<td></td>
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<td>Pheny-Hexyl</td>
<td></td>
<td></td>
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<tr>
<td>NH2</td>
<td>00B-4377-Y0</td>
<td>00F-4377-Y0</td>
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## 5 μm Narrow Bore and Analytical Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>SecurityGuard Cartridges (mm)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>30 x 3.0</td>
</tr>
<tr>
<td>Silica(2)</td>
<td></td>
</tr>
<tr>
<td>C8(2)</td>
<td>00A-4248-Y0</td>
</tr>
<tr>
<td>C18(2)</td>
<td>00A-4252-Y0</td>
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<tr>
<td>PFP(2)</td>
<td>00B-4447-Y0</td>
</tr>
</tbody>
</table>

*Contact your Phenomenex technical consultant for bulk media sales.*

**SecurityGuard Analytical Cartridges require universal holder Part No.: KJ0-4282**

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.

For ID: 2.0-3.0 mm 3.2-8.0 mm

For ID: 2.0-3.0 mm 3.2-8.0 mm

For ID: 2.0-3.0 mm 3.2-8.0 mm

For ID: 30 x 3.0 50 x 3.0 150 x 3.0 30 x 4.6 50 x 4.6 100 x 4.6 150 x 4.6 4 x 2.0* 4 x 3.0*

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**Phenomenex | WEB: www.phenomenex.com**

29
**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.

### Ordering Information

**Method Development Kits**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Dimensions (mm)</th>
<th>Unit Price</th>
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</thead>
<tbody>
<tr>
<td>KH0-4760</td>
<td>Luna Method Development Kit (5 columns)</td>
<td>150 x 4.6</td>
<td>5/pk</td>
</tr>
<tr>
<td>KH0-4354</td>
<td>Luna Rapid-MD Kit (3 columns)</td>
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<td>3/pk</td>
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<tr>
<td>KH0-4761</td>
<td>Luna Selectivity Kit 1 (3 columns)</td>
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<td>3/pk</td>
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<tr>
<td>KH0-4762</td>
<td>Luna Selectivity Kit 2 (3 columns)</td>
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### Axia® Packed Preparative Columns (mm)

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<th>250 x 21.2</th>
<th>50 x 30</th>
<th>100 x 30</th>
<th>250 x 30</th>
<th>SecurityGuard Cartridges (mm)</th>
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<tbody>
<tr>
<td>Silica(2)</td>
<td>00B-4274-P0-AX</td>
<td>00D-4274-P0-AX</td>
<td>00F-4274-P0-AX</td>
<td>00G-4274-P0-AX</td>
<td>00B-4274-U0-AX</td>
<td>00D-4274-U0-AX</td>
<td>00F-4274-U0-AX</td>
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<td>C5</td>
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<tr>
<td>C18(2)</td>
<td>00B-4252-P0-AX</td>
<td>00D-4252-P0-AX</td>
<td>00F-4252-P0-AX</td>
<td>—</td>
<td>00B-4252-U0-AX</td>
<td>00D-4252-U0-AX</td>
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<td>CN</td>
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<td>00D-4255-P0-AX</td>
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<tr>
<td>Phenyl-Hexyl</td>
<td>00B-4257-P0-AX</td>
<td>00D-4257-P0-AX</td>
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<td>00F-4257-P0-AX</td>
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<tr>
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<td>00D-4378-P0-AX</td>
<td>—</td>
<td>00F-4378-P0-AX</td>
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<td>—</td>
</tr>
<tr>
<td>PFP(2)</td>
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<td>00D-4249-P0-AX</td>
<td>00F-4249-P0-AX</td>
<td>—</td>
<td>00B-4249-U0-AX</td>
<td>00D-4249-U0-AX</td>
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<td>00D-4450-P0-AX</td>
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<td>00F-4450-P0-AX</td>
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<td>00D-4450-P0-AX</td>
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### SecurityGuard Analytical Cartridges require holder, Part No.: KJ0-4282

### SemiPrep SecurityGuard Cartridges require holder, Part No.: AJ0-7220

### PFP SecurityGuard Cartridges require holder, Part No.: AJ0-8277

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**Phenomenex**

**WEB:** [www.phenomenex.com](http://www.phenomenex.com)
**Phenex™ Syringe Filters**

For Sample and Solvent Filtration Prior to Chromatography!

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

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
- Low protein absorption
- High total throughput
- Bi-directional use
- Certified quality

Tips: 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

**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
---|---|---|---
Phenex-RC (Regenerated Cellulose) | AF0-3203-12 100/pk | AF0-2203-12 100/pk | AF0-8203-12 100/pk
Phenex-RC (Regenerated Cellulose) | AF0-3203-52 500/pk | AF0-2203-52 500/pk | AF0-8203-52 500/pk
Phenex-PE 1 (Polyethersulfone) | — | — | —
Phenex-PE 2 (Polyethersulfone) | — | — | —
Phenex-PTFE 3, 4 (Polytetrafluoroethylene) | AF0-3202-12 100/pk | AF0-2202-12 100/pk | AF0-8208-12 100/pk
Phenex-PET 5, 6 (Polyethylene Terephthalate) | AF0-3202-52 500/pk | AF0-2202-52 500/pk | AF0-8208-52 500/pk
Phenex-RC (Nylon) | AF0-3207-12 100/pk | AF0-2207-12 100/pk | AF0-8207-12 100/pk
Phenex-CT 7 (Glass Fiber/Nylon) | AF0-3207-52 500/pk | AF0-2207-52 500/pk | AF0-8207-52 500/pk
Phenex-GF 8, 9 (Polyester) | AF0-3207-12 100/pk | AF0-2207-12 100/pk | AF0-8207-12 100/pk
Phenex-PES 10 (Polyethersulfone) | — | — | —
Phenex-PES 11 (Polyethersulfone) | — | — | —
Phenex-PTFE 12 (Polytetrafluoroethylene) | AF0-3202-12 100/pk | AF0-2202-12 100/pk | AF0-8208-12 100/pk
Phenex-PET 13, 14 (Polyethylene Terephthalate) | AF0-3202-52 500/pk | AF0-2202-52 500/pk | AF0-8208-52 500/pk
Phenex-NT 15, 16 (Nylon) | AF0-3207-12 100/pk | AF0-2207-12 100/pk | AF0-8207-12 100/pk
Phenex-PF 17 (Polypropylene) | AF0-3207-52 500/pk | AF0-2207-52 500/pk | AF0-8207-52 500/pk
Phenex-GF/NY 18 (Glass Fiber/Nylon) | — | — | —
Phenex-GF/CA 19, 20 (Glass Fiber/Cellulose Acetate) | AF0-3207-12 100/pk | AF0-2207-12 100/pk | AF0-8207-12 100/pk
Phenex-GF/CA 21, 22 (Glass Fiber/Cellulose Acetate) | AF0-3207-52 500/pk | AF0-2207-52 500/pk | AF0-8207-52 500/pk

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.

- 0.45 µm
  - Phenex-RC (Regenerated Cellulose) | AF0-3103-12 100/pk | AF0-2103-12 100/pk | AF0-8103-12 100/pk
  - Phenex-PE 1 (Polyethersulfone) | — | — | —
  - Phenex-PET 2 (Polyethylene Terephthalate) | — | — | —
  - Phenex-RC (Nylon) | AF0-3107-12 100/pk | AF0-2107-12 100/pk | AF0-8107-12 100/pk
  - Phenex-GF/NY 3 (Glass Fiber/Nylon) | AF0-3107-52 500/pk | AF0-2107-52 500/pk | AF0-8107-52 500/pk
  - Phenex-GF/CA 4, 5 (Glass Fiber/Cellulose Acetate) | AF0-3107-12 100/pk | AF0-2107-12 100/pk | AF0-8107-12 100/pk
  - Phenex-GF/CA 6, 7 (Glass Fiber/Cellulose Acetate) | AF0-3107-52 500/pk | AF0-2107-52 500/pk | AF0-8107-52 500/pk

- 0.20 µm
  - Phenex-NC (Nylon) | AF0-3102-12 100/pk | AF0-2102-12 100/pk | AF0-8102-12 100/pk
  - Phenex-PE 1 (Polyethersulfone) | — | — | —
  - Phenex-PET 2 (Polyethylene Terephthalate) | — | — | —
  - Phenex-RC (Nylon) | AF0-3102-52 500/pk | AF0-2102-52 500/pk | AF0-8102-52 500/pk
  - Phenex-GF/NY 3 (Glass Fiber/Nylon) | AF0-3102-52 500/pk | AF0-2102-52 500/pk | AF0-8102-52 500/pk
  - Phenex-GF/CA 4, 5 (Glass Fiber/Cellulose Acetate) | AF0-3102-12 100/pk | AF0-2102-12 100/pk | AF0-8102-12 100/pk
  - Phenex-GF/CA 6, 7 (Glass Fiber/Cellulose Acetate) | AF0-3102-52 500/pk | AF0-2102-52 500/pk | AF0-8102-52 500/pk

- 0.10 µm
  - Phenex-NC (Nylon) | AF0-8515-12 100/pk | AF0-7515-12 100/pk | AF0-8515-12 100/pk
  - Phenex-PE 1 (Polyethersulfone) | — | — | —
  - Phenex-PET 2 (Polyethylene Terephthalate) | — | — | —
  - Phenex-RC (Nylon) | AF0-8515-52 500/pk | AF0-7515-52 500/pk | AF0-8515-52 500/pk
  - Phenex-GF/NY 3 (Glass Fiber/Nylon) | AF0-8515-52 500/pk | AF0-7515-52 500/pk | AF0-8515-52 500/pk
  - Phenex-GF/CA 4, 5 (Glass Fiber/Cellulose Acetate) | AF0-8515-12 100/pk | AF0-7515-12 100/pk | AF0-8515-12 100/pk
  - Phenex-GF/CA 6, 7 (Glass Fiber/Cellulose Acetate) | AF0-8515-52 500/pk | AF0-7515-52 500/pk | AF0-8515-52 500/pk

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