Lux®
Polysaccharide Chiral Columns
Dependable. Scalable. Affordable.

Affordable Chiral Columns,

Brilliant Separation Power

- Guaranteed alternatives to CHIRALCEL® and CHIRALPAK® columns

Lux Amylose-1

Guaranteed Alternative to CHIRALPAK® AD® Columns

phenomenex®
...breaking with tradition℠

Lux Chiral Columns
Dependable. Scalable. Affordable.

- Stable in Normal Phase (NP), Polar Organic (PO), Reversed Phase (RP), and Supercritical Fluid Chromatography (SFC) conditions
- 3 µm and 5 µm for packed columns, and 10 µm and 20 µm bulk media for scale-up
- High efficiency, high loading capacity, and outstanding durability

Lux Chiral Stationary Phases

Preparative Advantage

SFC Compatibility

Column Protection

Helpful Chiral Resources

Ordering Information

"Lux Axia preparative columns are wonderful! I regularly use Lux chiral stationary phase Cellulose-2 and Cellulose-4 and less frequently, the Lux Amylose-2. In our community of chiral analysis/purification scientists, there are some who use the CC4 column instead of the *equivalent* Lux Cellulose-4. On several occasions we've seen separation and good peak shape on the Lux Cellulose-4 that was completely missing from the CC4. Customer support and delivery times are always within a few days."

Julia G. Christie. GlaxoSmithKline, USA.

guarantee

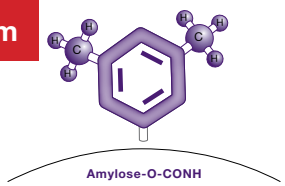
If Lux analytical columns (≤ 4.6 mm ID) do not provide at least an equivalent or better chiral separation as compared to a competing column of the same particle size, similar phase and dimensions, send in your comparative data within 45 days and keep the Lux column for FREE.

Six Chiral Stationary Phases With Brilliant Separation Power

Lux columns are guaranteed to perform as well or better than the equivalent DAICEL® Chiral Technologies column. Lux phases can also provide alternative selectivity to other chiral selectors for the most challenging chiral separations.

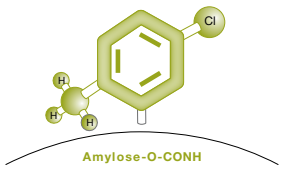
Lux columns offer a wide and complementary range of enantioselectivity for even the most difficult chiral separation projects. Our six distinct Lux polysaccharide phases can resolve over 92% of your enantiomers*.

NEW
3 µm and 5 µm



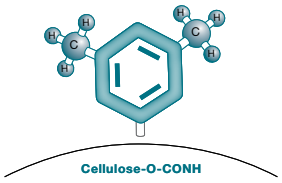
Lux Amylose-1

Amylose tris(3,5-dimethylphenylcarbamate)



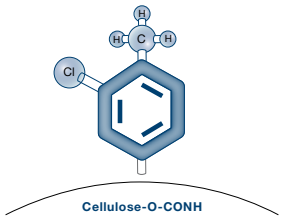
Lux Amylose-2

Amylose tris(5-chloro-2-methylphenylcarbamate)



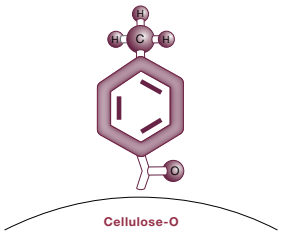
Lux Cellulose-1

Cellulose tris(3,5-dimethylphenylcarbamate)



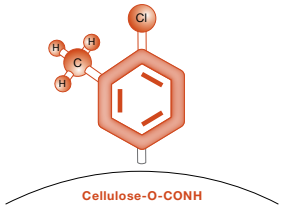
Lux Cellulose-2

Cellulose tris(3-chloro-4-methylphenylcarbamate)



Lux Cellulose-3

Cellulose tris(4-methylbenzoate)



Lux Cellulose-4

Cellulose tris(4-chloro-3-methylphenylcarbamate)

If you are using one of the DAICEL columns below:	Guaranteed alternative:	Phase description for both columns:
CHIRALPAK® AD®, AD-H®, AD-3, AD-RH®, and AD-3R	Lux Amylose-1	Amylose tris(3,5-dimethylphenylcarbamate)
CHIRALPAK AY®, AY-H®, AY-3, AY-RH, and AY-3R	Lux Amylose-2	Amylose tris(5-chloro-2-methylphenylcarbamate)
CHIRALCEL® OD®, OD-H®, OD-3, OD-RH®, and OD-3R	Lux Cellulose-1	Cellulose tris(3,5-dimethylphenylcarbamate)
CHIRALCEL OZ, OZ-H®, OZ-3, OZ-RH, and OZ-3R	Lux Cellulose-2	Cellulose tris(3-chloro-4-methylphenylcarbamate)
CHIRALCEL OJ®, OJ-H®, OJ-3, OJ-RH®, and OJ-3R	Lux Cellulose-3	Cellulose tris(4-methylbenzoate)
CHIRALCEL OX-H, OX-3, OX-RH, and OX-3R	Lux Cellulose-4	Cellulose tris(4-chloro-3-methylphenylcarbamate)

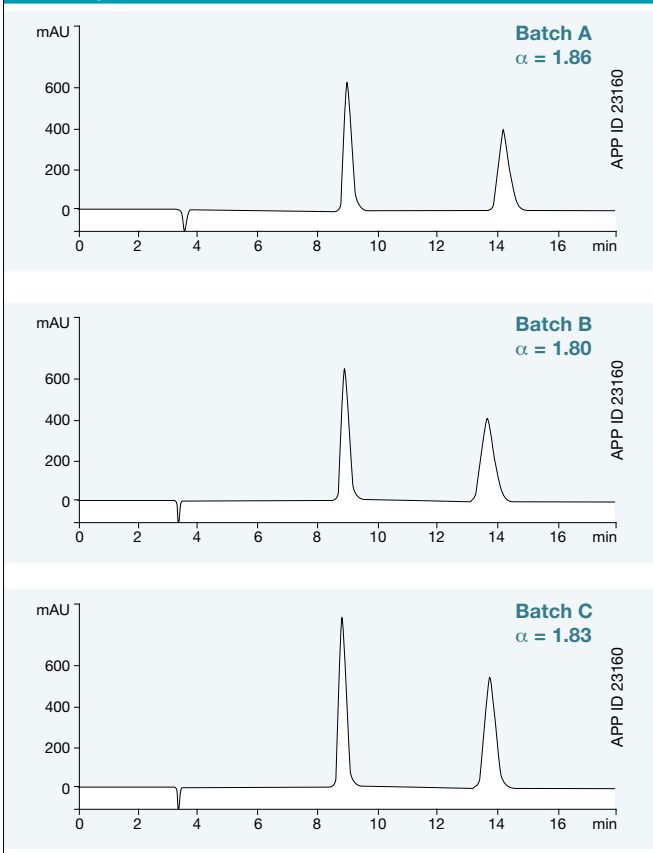
*Based on 233 compounds screened on five Lux phases.

Many chiral screening groups use all 6 Lux phases on their primary screen to increase chances of locating the optimal enantiomeric separation.

Dependability
Batch-to-Batch, Column-to-Column

Your chiral separations depend upon consistent quantitation and consistent results. With the reliability of the Lux chiral column LC product line, you do not have to settle for the inconsistent results that many other polysaccharide CSPs show. Our highest standards of quality will ensure that you are fully satisfied with each and every Lux chiral column.

Lux 5 µm Cellulose-1



Conditions for all batches:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Hexane / 0.1 % Diethylamine in Ethanol (80:20)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient
Sample: Propranolol

Quality Assurance

Phenomenex's quality management system is ISO 9001:2008 certified. This certification validates that all our processes are fully established, functional and meet international standards. Phenomenex's employees believe that the implementation of our quality system is everyone's responsibility. From the manufacturing of our products to their timely delivery and continued customer support, we are dedicated to continually improve our processes to consistently meet or exceed our customers' expectations.

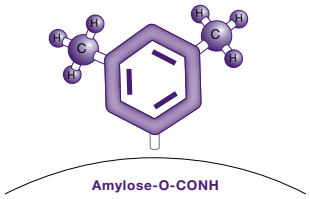
QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001:2008

NEW

Lux Amylose-1

Dimethyl Amylose Chiral Selector

This universally trusted amylose phenylcarbamate derivative is absolutely essential to any chiral screen. Lux Amylose-1 is a guaranteed alternative to CHIRALPAK® AD®. Expect equivalent or better performance when using this Lux phase.

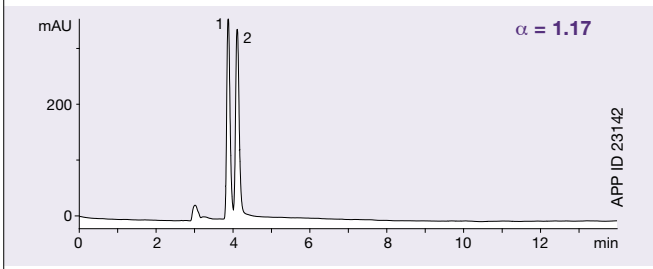


Amylose tris(3,5-dimethylphenylcarbamate)

Guaranteed alternative to CHIRALPAK® AD®, AD-H®, AD-3, AD-RH®, and AD-3R

LUX PERFORMANCE ADVANTAGE

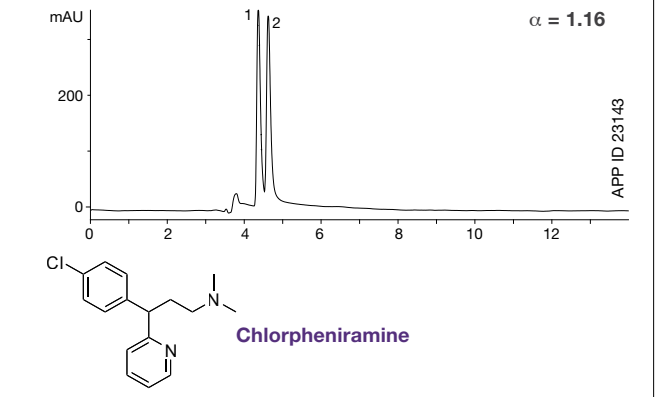
Lux 5 µm Amylose-1



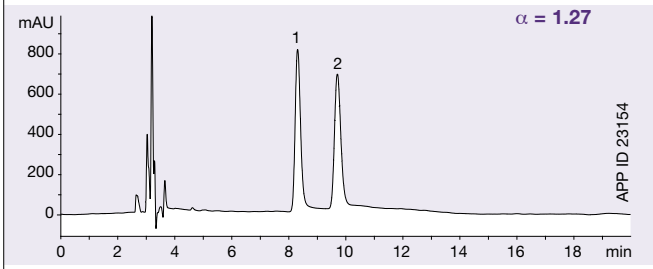
Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1% Diethylamine in Hexane / 0.1% Diethylamine in IPA (60:40)
Flow Rate: 1 mL/min
Detection: UV @ 254 nm
Temperature: Ambient

CHIRALPAK® 5 µm AD-H®



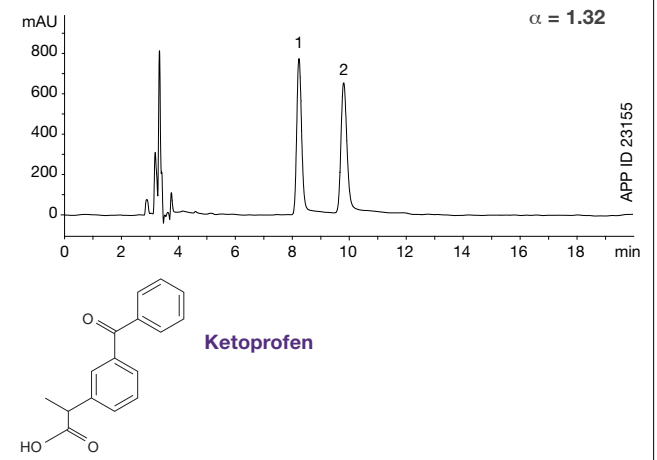
Lux 5 µm Amylose-1



Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Formic acid in Hexane / 0.1 % Formic acid in IPA (80:20)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient

CHIRALPAK 5 µm AD-H



Comparative separations may not be representative of all applications.

UPGRADE TO LUX

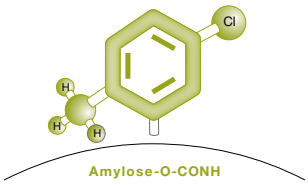
Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4732-E0	Lux Amylose-1	5 µm	250 x 4.6
DAICEL	19325	CHIRALPAK AD-H	5 µm	250 x 4.6
Phenomenex	00G-4732-P0-AX	Lux Amylose-1	5 µm	250 x 21.2
DAICEL	19345	CHIRALPAK AD-H	5 µm	250 x 20

More column dimensions on page 22

Lux Amylose-2

Chlorinated Amylose Chiral Selector

This first-to-market chlorinated amylose phenylcarbamate phase offers chiral recognition properties that greatly increase the chances of achieving chiral resolution.

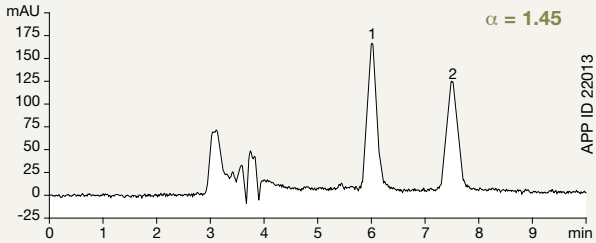


Amylose tris(5-chloro-2-methylphenylcarbamate)

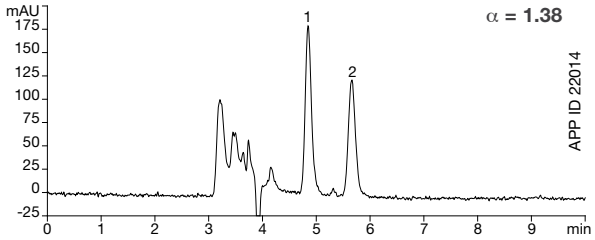
Guaranteed alternative to CHIRALPAK® AY®, AY-H®, AY-3, AY-RH, and AY-3R

LUX PERFORMANCE ADVANTAGE

Lux 5 µm Amylose-2

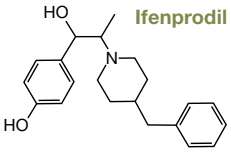


CHIRALPAK® 5 µm AY-H®



Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Hexane / 0.1 % Diethylamine in Ethanol (80:20)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient



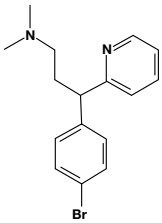
Ifenprodil

Comparative separations may not be representative of all applications.

UPGRADE TO LUX

Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4472-E0	Lux Amylose-2	5 µm	250 x 4.6
DAICEL	47325	CHIRALPAK AY-H	5 µm	250 x 4.6
Phenomenex	00G-4472-P0-AX	Lux Amylose-2	5 µm	250 x 21.2
DAICEL	47345	CHIRALPAK AY-H	5 µm	250 x 20

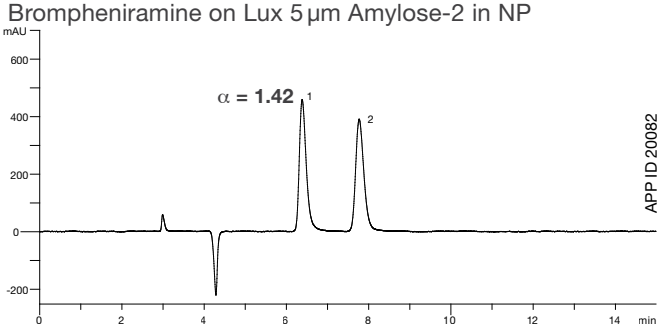
More column dimensions on page 22



Brompheniramine

Are you analyzing Anti-Allergic drugs?

Brompheniramine on Lux 5 µm Amylose-2 in NP

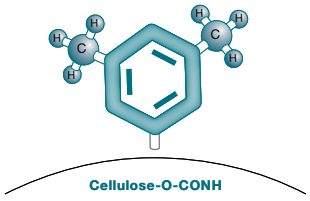


For additional Anti-Allergic Drug separations, request technote: TN-1143 Chromatographic Enantioseparation of 15 Racemic Anti-Allergic Drugs.

Lux Cellulose-1

Dimethyl Cellulose Chiral Selector

This universally trusted cellulose phenylcarbamate derivative is absolutely essential to any chiral screen. Lux Cellulose-1 is a guaranteed alternative to Chiralcel® OD-H®. Expect equivalent or better performance when using this Lux phase.

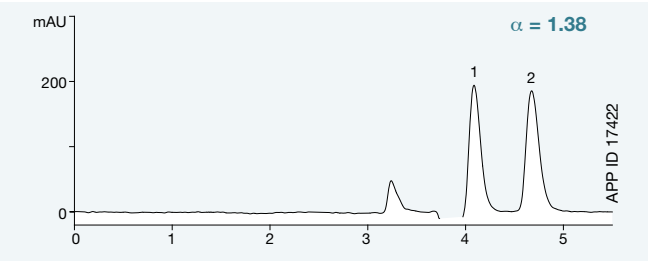


Cellulose tris(3,5-dimethylphenylcarbamate)

Guaranteed alternative to CHIRALCEL® OD®, OD-H®, OD-3, OD-RH, and OD-3R

LUX PERFORMANCE ADVANTAGE

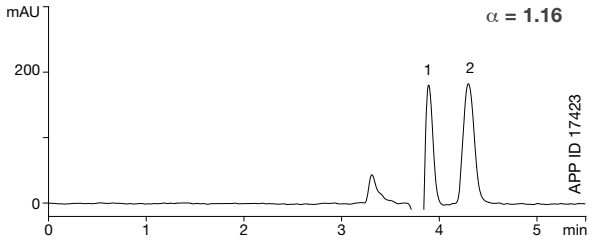
Lux 5 µm Cellulose-1

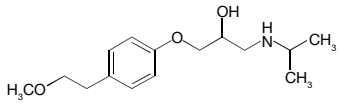


Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Acetonitrile / 0.1 % Diethylamine in Isopropanol (95:5)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient

CHIRALCEL® 5 µm OD-H®





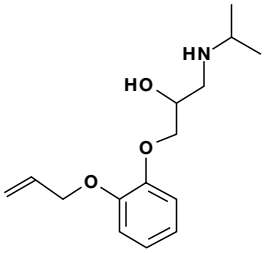
Metoprolol

Comparative separations may not be representative of all applications.

UPGRADE TO LUX

Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4459-E0	Lux Cellulose-1	5 µm	250 x 4.6
DAICEL	14325	CHIRALCEL OD-H	5 µm	250 x 4.6
Phenomenex	00G-4459-P0-AX	Lux Cellulose-1	5 µm	250 x 21.2
DAICEL	14345	CHIRALCEL OD-H	5 µm	250 x 20

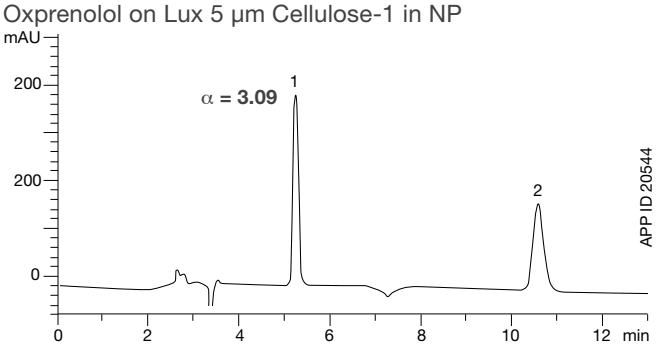
More column dimensions on page 22



Oxprenolol

Are you analyzing Beta Blockers?

Oxprenolol on Lux 5 µm Cellulose-1 in NP

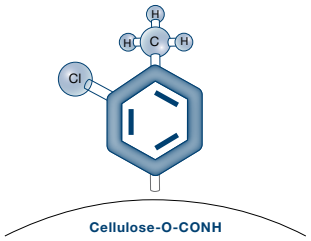


For additional Beta Blocker separations, request technote: TN-1142 Chiral Separations of 15 Beta Blockers.

Lux Cellulose-2

Chlorinated Cellulose Carbamate Phase

This first-to-market halogenated cellulose phenylcarbamate derivative offers unique chiral recognition abilities that complement the rest of the Lux family of columns.

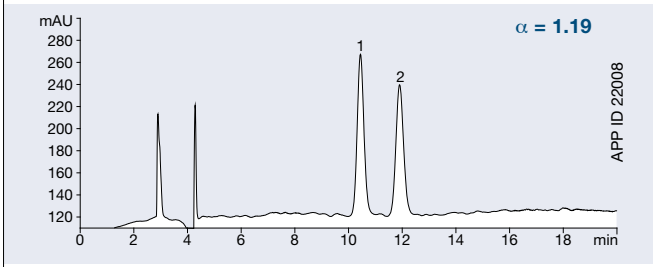


Cellulose tris(3-chloro-4-methylphenylcarbamate)

Guaranteed alternative to CHIRALCEL® OZ, OZ-H®, OZ-3, OZ-RH, and OZ-3R

LUX PERFORMANCE ADVANTAGE

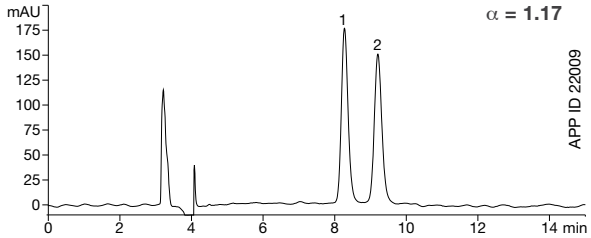
Lux 5 µm Cellulose-2



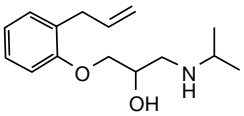
Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Hexane / 0.1 % Diethylamine in Ethanol (90:10)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient

CHIRALCEL® 5 µm OZ-H®



Alprenolol

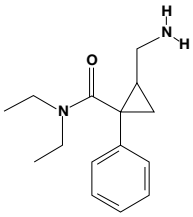


Comparative separations may not be representative of all applications.

UPGRADE TO LUX

Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4457-E0	Lux Cellulose-2	5 µm	250 x 4.6
DAICEL	42325	CHIRALCEL OZ-H	5 µm	250 x 4.6
Phenomenex	00G-4457-P0-AX	Lux Cellulose-2	5 µm	250 x 21.2
DAICEL	42345	CHIRALCEL OZ-H	5 µm	250 x 20

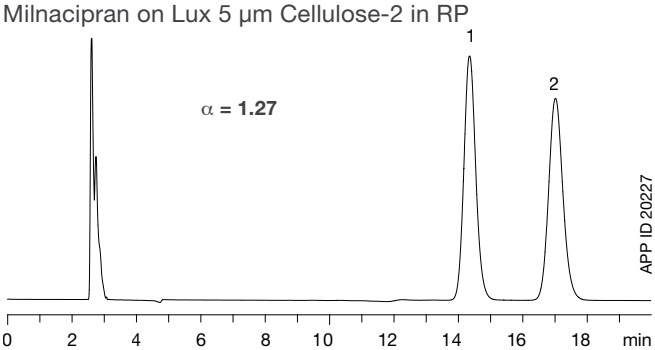
More column dimensions on page 22



Milnacipran

Are you analyzing Anti-Depressive and Anti-Anxiety Drugs?

Milnacipran on Lux 5 µm Cellulose-2 in RP

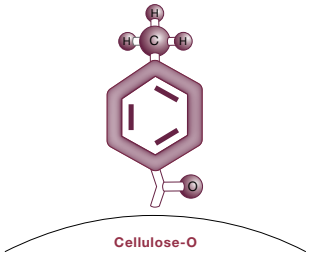


For additional Anti-Depressive y Anti-Anxiety Drug separations, request technote: TN-1146 Chromatographic Enantioseparation of 13 Racemic Anti-Depressive y Anti-Anxiety Drugs.

Lux Cellulose-3

Cellulose Ester Phase

This cellulose methylbenzoate derivative offers distinct and complementary chiral recognition abilities.

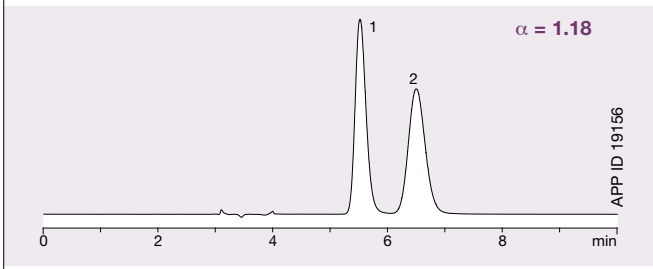


Cellulose tris(4-methylbenzoate)

Guaranteed alternative to CHIRALCEL® OJ®, OJ-H®, OJ-3, OJ-RH®, and OJ-3R

LUX PERFORMANCE ADVANTAGE

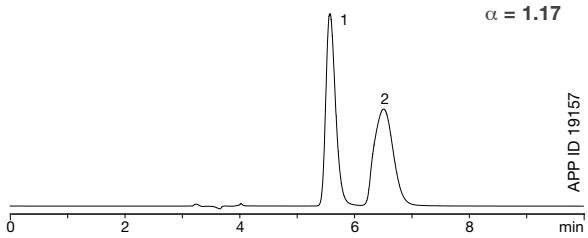
Lux 5 µm Cellulose-3

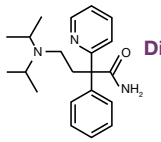


Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Hexane / 0.1 % Diethylamine in Ethanol (90:10)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient

CHIRALCEL® 5 µm OJ-H®





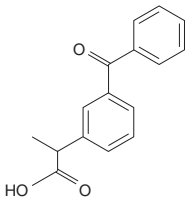
Disopyramide

Comparative separations may not be representative of all applications.

UPGRADE TO LUX

Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4493-E0	Lux Cellulose-3	5 µm	250 x 4.6
DAICEL	17325	CHIRALCEL OJ-H	5 µm	250 x 4.6
Phenomenex	00G-4493-P0-AX	Lux Cellulose-3	5 µm	250 x 21.2
DAICEL	17345	CHIRALCEL OJ-H	5 µm	250 x 20

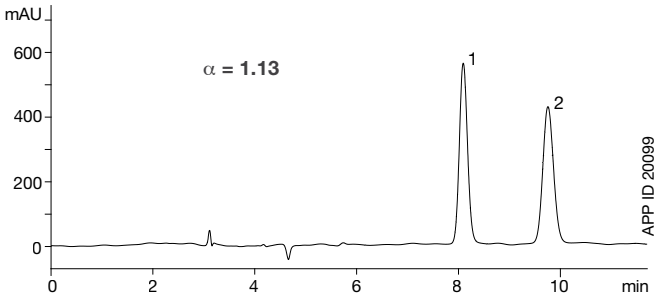
More column dimensions on page 22



Ketoprofen

Are you analyzing Pain Relievers?

Ketoprofen on Lux 5 µm Cellulose-3 in NP

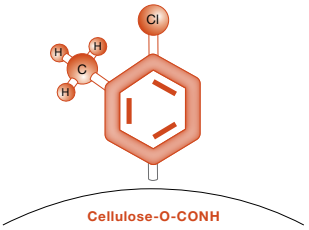


For additional Pain Reliever separations, request technote: TN-1144 Chromatographic Enantioseparation of 12 Racemic Pain Relievers.

Lux Cellulose-4

Chlorinated Cellulose Carbamate Phase

This chlorinated cellulose phenylcarbamate derivative offers unique chiral recognition abilities. Expect a high hit percentage on screens with other chlorinated Lux phases.

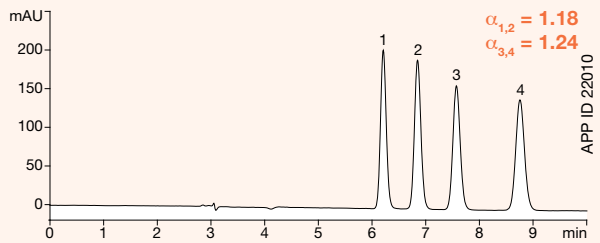


Cellulose tris(4-chloro-3-methylphenylcarbamate)

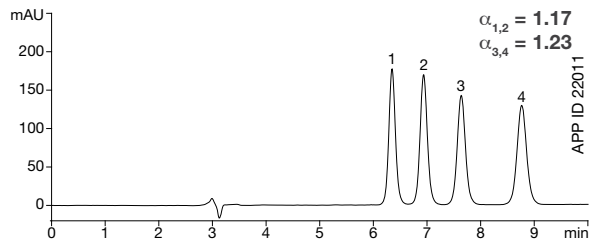
Guaranteed alternative to CHIRALCEL® OX-H, OX-3, OX-RH, AND OX-3R

LUX PERFORMANCE ADVANTAGE

Lux 5 µm Cellulose-4

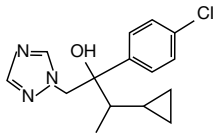


CHIRALCEL® 5 µm OX-RH



Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Acetonitrile / 0.1 % Diethylamine in 20 mM Ammonium bicarbonate (60:40)
Flow Rate: 1 mL/min
Detection: UV @ 220 nm
Temperature: Ambient



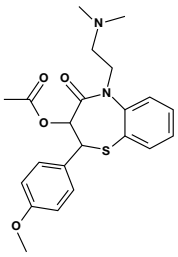
Cyproconazole

Comparative separations may not be representative of all applications.

UPGRADE TO LUX

Manufacturer	Part Number	Description	Particle Size	Dimensions (mm)
Phenomenex	00G-4491-E0	Lux Cellulose-4	5 µm	250 x 4.6
DAICEL	63325	CHIRALCEL OX-H	5 µm	250 x 4.6
Phenomenex	00G-4491-P0-AX	Lux Cellulose-4	5 µm	250 x 21.2
DAICEL	63345	CHIRALCEL OX-H	5 µm	250 x 20

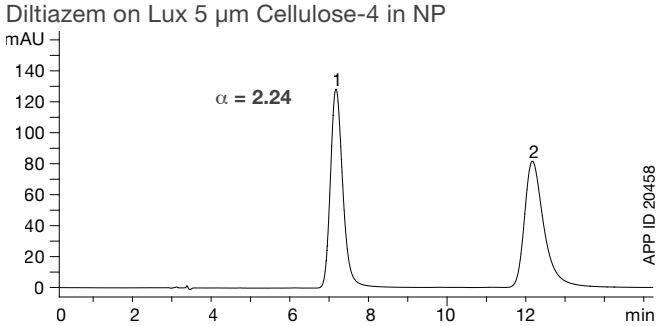
More column dimensions on page 22



Diltiazem

Are you analyzing Vasodilator Drugs?

Diltiazem on Lux 5 µm Cellulose-4 in NP



For additional Vasodilator Drug separations, request technote: TN-1145 Chromatographic Enantioseparation of 14 Racemic Vasodilator Drugs.

Maximize Chiral Purification Performance with Axia Packed Columns

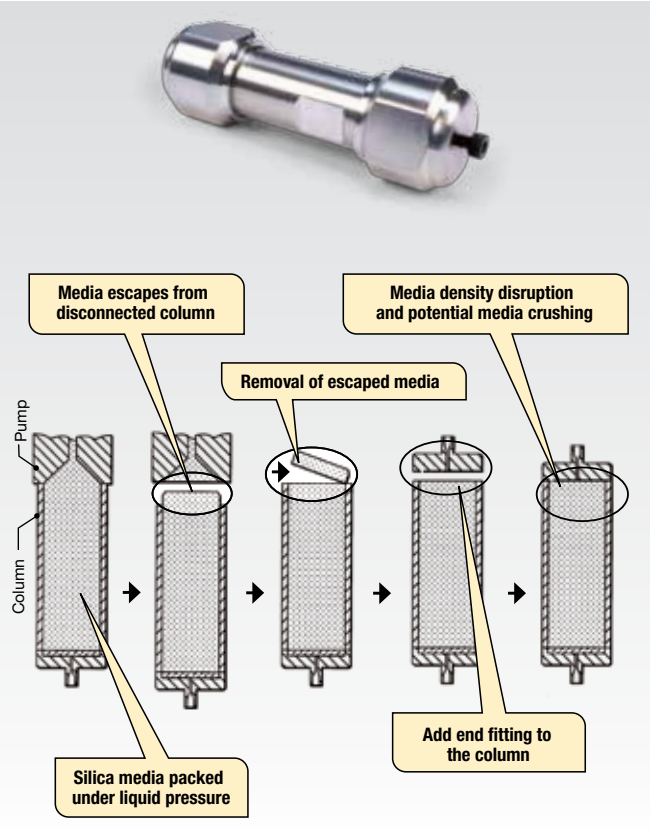
AXIA™ Preparative Columns

- Longer Column Lifetimes
- Improved Column-to-Column Reproducibility
- Recover Higher Compound Purity

Axia packed preparative columns involve a single axial compression step unlike conventional packed preparative columns like DAICEL® CHIRALCEL® and CHIRALPAK® prep columns. During the Axia packing process, the packing piston is locked in place, eliminating any decompression and then re-compression of the media sorbent, thus maintaining media and column bed integrity.

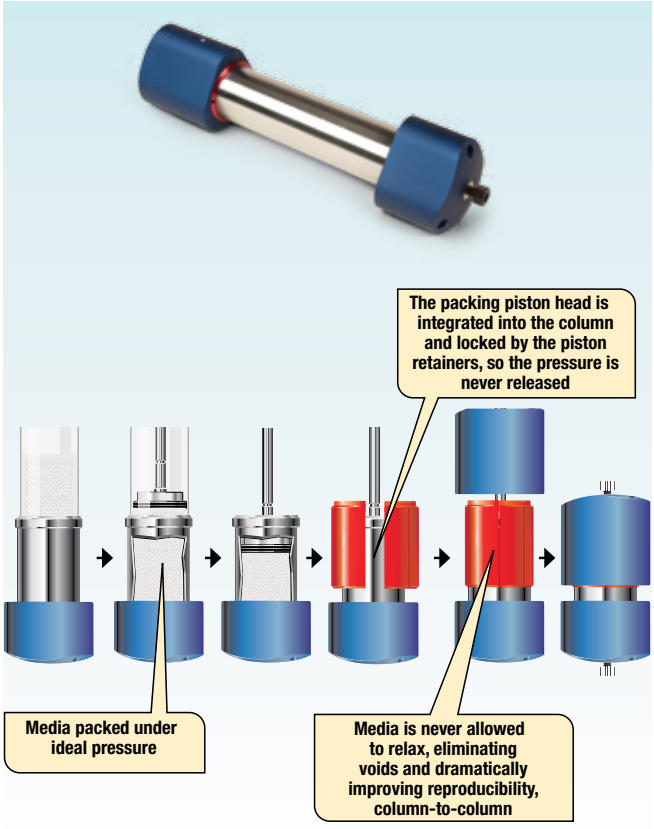
Conventional Packing Process Involves:

Compression → Decompression → Re-compression → Final Column



Axia Packing Process Involves:

Compression → Final Column



View an animated packing process comparison at www.AxiaPrep.com

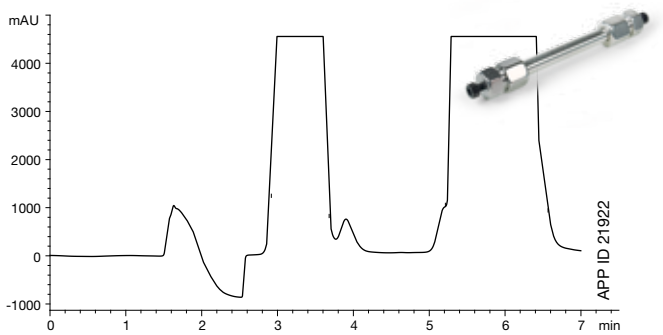
> "Axia packed column has a great efficiency for the separation of several classes of natural compounds. Due to its low back pressure and therefore high flow work conditions, time for conditioning the columns is sped up greatly!"
>
> **Sylvian Cretton - Europe**

Axia™ Outperforms All Other Prep Columns

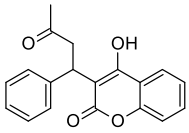
In the example below, the Axia packing technology shows substantial increase in column efficiency resulting in increased resolution over traditionally packed preparative columns. With increased resolution, you are able to increase your sample load enabling you to purify more target compound(s) per purification run. This equates to better throughput and economics.

Warfarin Chiral Purification in Normal Phase Mode

Analytical

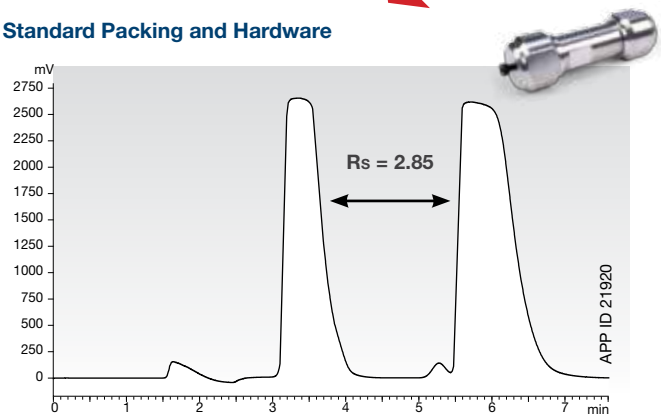


Column: Lux 5 µm Cellulose-1
Dimensions: 150 x 4.6 mm
Mobile Phase: Hexane/Ethanol (75:25)
Flow Rate: 1 mL/ min
Temperature: Ambient
Inj. Volume: 100 µL

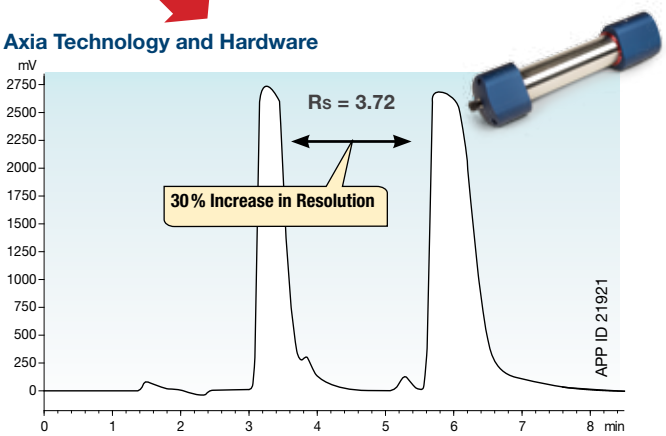


Warfarin

Standard Packing and Hardware



Axia Technology and Hardware



Conditions for both PREP columns:

Media: Lux 5 µm Cellulose-1
Dimensions: 150 x 21.2 mm
Mobile Phase: Hexane / Ethanol (75:25)
Flow Rate: 20 mL/ min
Temperature: Ambient
Inj. Volume: 2 mL

Column (mm)	Analytical 150 x 4.6	Standard 150 x 21.2	Axia 150 x 21.2
Mass Loaded (mg)	2	40	40
Resolution*	1.5	2.85	3.72
Plates (N)	117	535	**760**

42 % Increase in Efficiency

*Resolution calculated with peak width at baseline and center retention time due to the overloaded peaks being off-scale

> "We have used Phenomenex Axia prep-HPLC columns for several years and they consistently provide excellent separation and reproducibility for a variety of different compounds."
>
> **Jeremy R. Wolf. ABC Laboratories, USA.**

Extreme Stability and Separating Power Under SFC Conditions

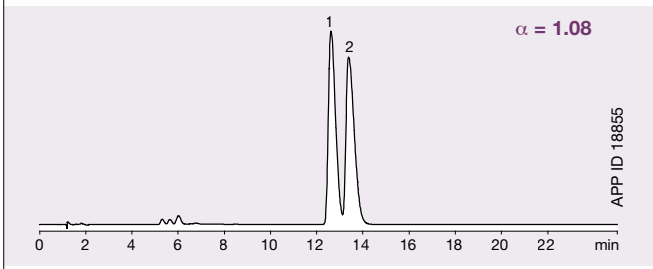
SFC APPROVED

All Lux analytical and Axia™ preparative columns are compatible under both SFC and HPLC conditions. Unlike other manufacturers columns, a single Lux column works great for both running conditions.

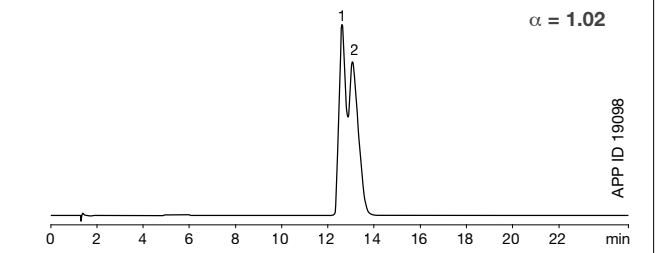
With a pressure stability up to 300 bar (4350 psi), you can feel confident about running at high operating pressures (if necessary). Lux media is SFC approved and versatile enough to satisfy all of your chiral separation needs.

LUX PERFORMANCE ADVANTAGE

Lux 5 µm Cellulose-1

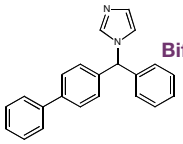


CHIRALCEL® 5µm OD-H®



Conditions for both columns:

Dimensions: 250 x 4.6 mm
Mobile Phase: 0.1 % Diethylamine in Methanol / Carbon Dioxide (15:85)
Flow Rate: 2.5 mL/min
Detection: Diode Array Detector
Temperature: 35 °C



Bifonazole

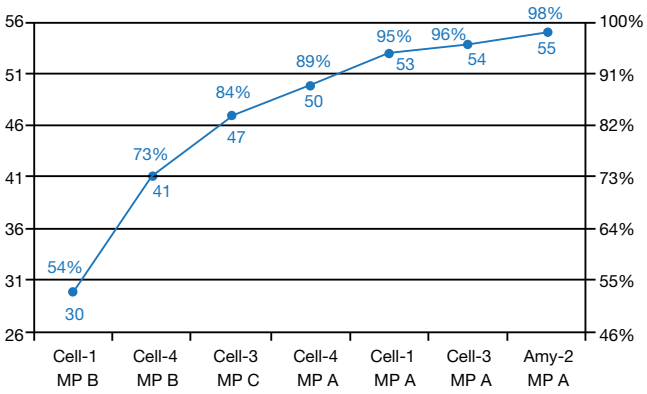
Comparative separations may not be representative of all applications.

Increase Successful Separation Potential By Using a Variety of Lux Columns

By using 7 chromatographic systems, which require three mobile phases (A, B, and C) and four Lux stationary phases (Cellulose-1, Cellulose-3, Cellulose-4, and Amylose-2), 55 of the 56 test group compounds are baseline separated.

Tip: **Lux columns are interchangable between normal phase and SFC modes with a simple solvent switch. See page 21.**

Cumulative baseline separations across seven chromatographic systems made up of four Lux phases and three mobile phases



SFC mobile phases used in this study

MP	Description
A	CO_2/(MeOH with 0.25 % IPA and 0.25 % TFA) 90/10
B	CO_2/(MeOH with 0.1 % IPA and 0.1 % TFA) 80/20
C	CO_2/(2PrOH with 0.5 % IPA and 0.5 % TFA) 90/10

CO_2 = carbon dioxide, MP = mobile phase, MeOH = methanol, 2PrOH = isopropanol/ 2-propanol, TFA = trifluoroacetic acid, IPA = isopropylamine. For acidic compounds, additive was TFA and for all other compounds (neutral, amphoteric, basic) IPA was used as additive.

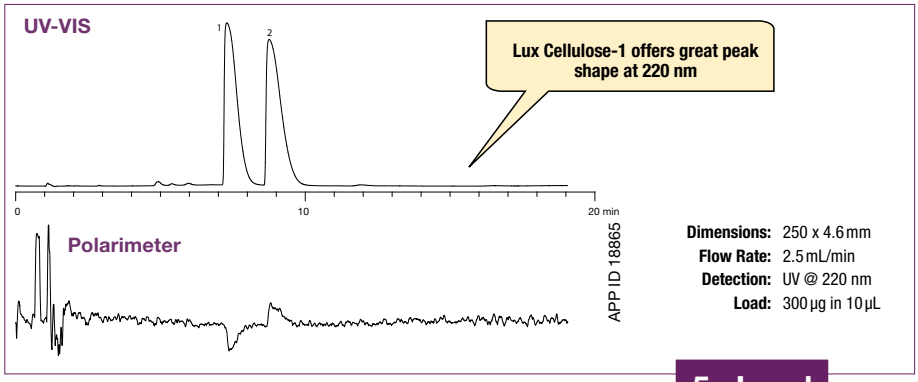
Download Technical Note TN-9003 for more Chiral SFC tips.

www.phenomenex.com/LuxSFC

SFC Preparative Advantage Using Axia™ Packed Technology

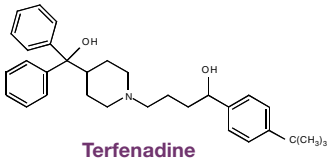
With the additional efficiency provided by the Axia packed preparative columns, greater resolution between your enantiomers can be attained thus allowing for greater loadability during purifications.

Analytical Baseline Separation



Lux Cellulose-1 offers great peak shape at 220 nm

Dimensions: 250 x 4.6 mm
Flow Rate: 2.5 mL/min
Detection: UV @ 220 nm
Load: 300 µg in 10 µL

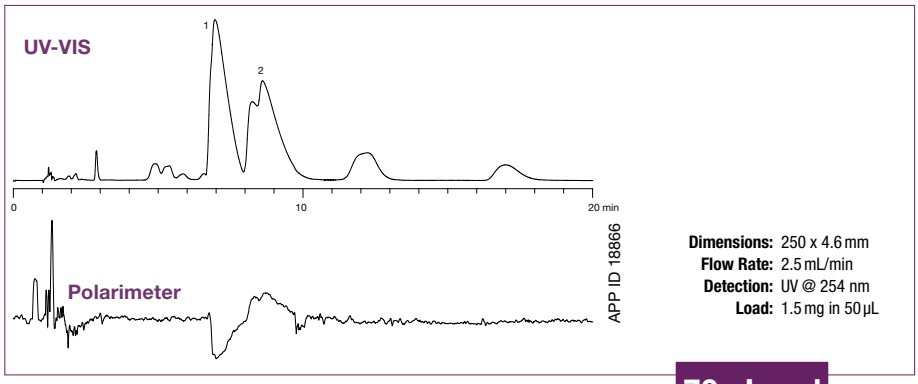


Terfenadine

Conditions for all columns:
Columns: Lux 5 µm Cellulose-1
Mobile Phase: Methanol with 0.1 % DEA/ Carbon Dioxide (25:75)
Column Temperature: 35 °C
Polarimeter: ALP-PDR-Chiral
Sample: Terfenadine with ethanol dissolution solvent

5x Load Increase

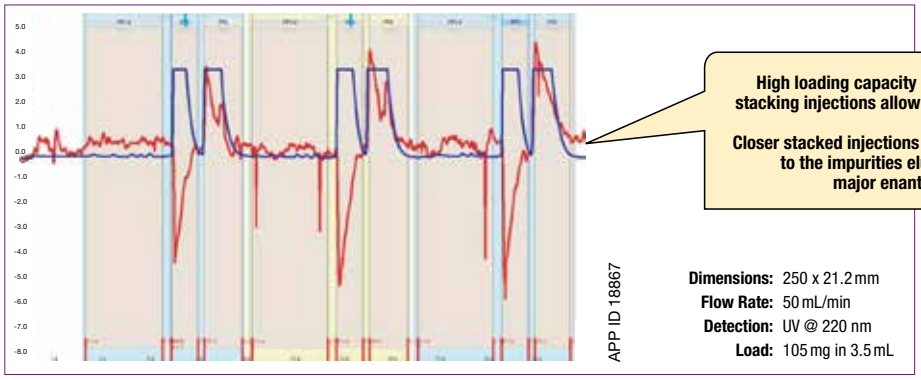
Analytical Overload Study



Dimensions: 250 x 4.6 mm
Flow Rate: 2.5 mL/min
Detection: UV @ 254 nm
Load: 1.5 mg in 50 µL

70x Load Increase

Increased Load Study on Axia Preparative Column



High loading capacity media along with stacking injections allow for increased yields

Closer stacked injections can not be used due to the impurities eluting after the major enantiomers

Dimensions: 250 x 21.2 mm
Flow Rate: 50 mL/min
Detection: UV @ 220 nm
Load: 105 mg in 3.5 mL

7.5 cycles per hr/ 787 mg per hr

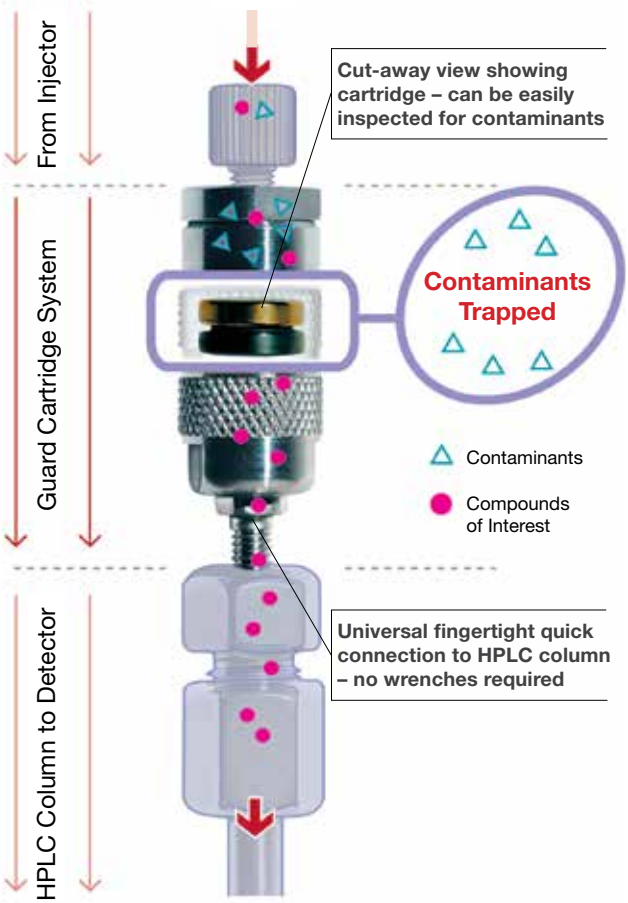
Save Time and Money with Less Frequent Column Replacement

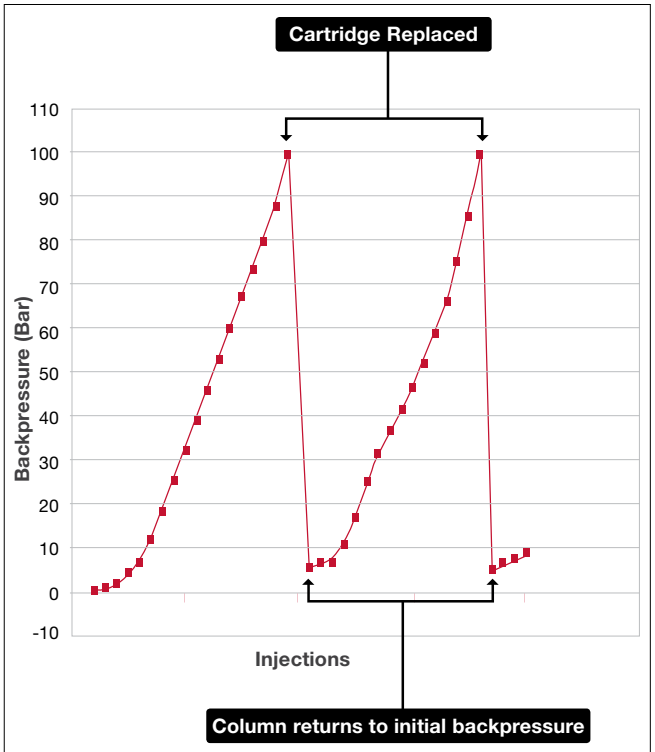
SecurityGuard™ HPLC Column Protection

SFC APPROVED

The easiest way to extend column performance is to prevent contaminants and particulates from getting into your Lux column with the SecurityGuard Cartridge System.

- Protects and extends column lifetimes
- Virtually no change in chromatography
- Simple to use





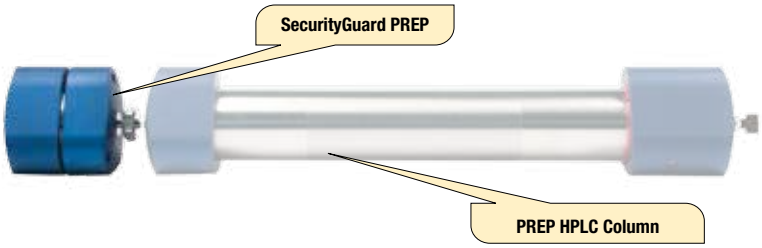
Accelerated lifetime test using endogenous biomolecule matrix on a 5 µm 50 x 4.6 mm column with SecurityGuard cartridges. Backpressure values represent additional backpressure contributed by SecurityGuard.

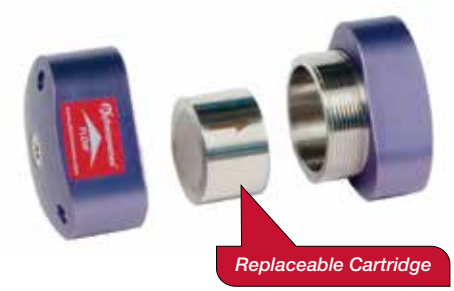
The SecurityGuard analytical cartridge holder (patented) directly finger-tightens into virtually any manufacturer's column endfitting. Contaminants are retained by an inexpensive disposable cartridge instead of damaging your valuable HPLC and SFC column investment. Simply replace SecurityGuard cartridges instead of your expensive columns. In this graph, once the expired SecurityGuard cartridge was replaced, the pressure immediately dropped and the column performance was restored allowing for extended column use.

U.S. Patent No. 6, 162, 362

Lower Your Cost Per Injection with SecurityGuard PREP

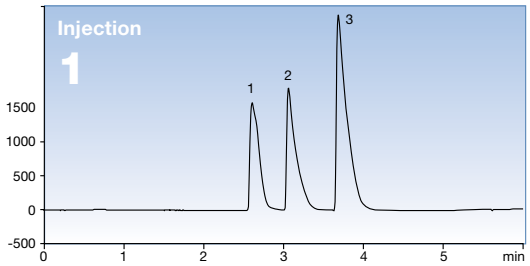
SecurityGuard isn't only about column protection, it's about lowering your cost per injection! When you increase the number of injections from a single preparative column you're lowering your overall cost per injection. With SecurityGuard PREP, the inexpensive cartridge captures contaminants while the integrity of the prep column is maintained.





Forced Degradation Study

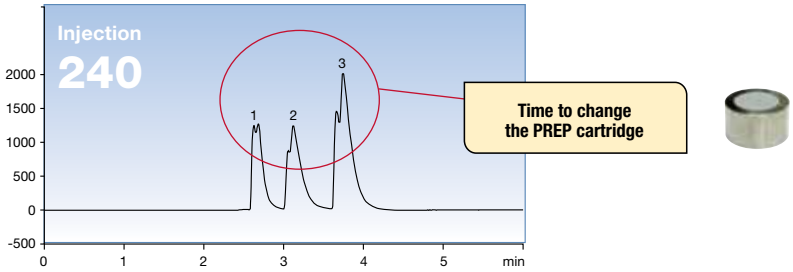
Axia™ Packed column with SecurityGuard PREP cartridge



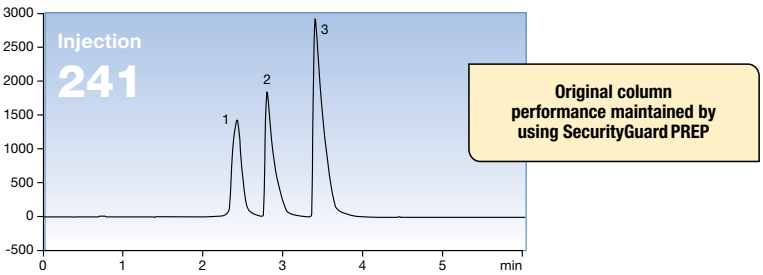
Conditions

Column:	Luna® 10 µm C18(2) Axia Packed
Dimension:	50 x 21.2 mm
Part No.:	00B-4253-P0-AX
Mobile Phase:	A: 0.1% TFA in Water B: 0.1% TFA in Water / Acetonitrile (25:75)
Gradient:	Linear 93:7 (A/B) to 100 % B over 5 minutes
Injection Volume:	420 µL
Flow Rate:	60 mL/min
Temperature:	Ambient
Detection:	UV @ 270 nm
Sample:	1. Nadolol 2. Metoprolol 3. Propranolol

Axia Packed column with SecurityGuard PREP cartridge



Axia Packed column after removing SecurityGuard column protection system



> "I used about 10-12 SecurityGuard Cartridges and received extremely long Axia column lifetimes (8000 injections). During this time the columns showed extremely good efficiency with no significant changes concerning the backpressure."
>
> **Claudia Oschwald. Bayer, Germany.**

Free Chiral Screening with >90% Success Rate

Join other chiral chromatographers from around the world who have achieved success with our in-house screening services.

FREE Chiral Screening Services

- Rapid 10 Day Screening From Receipt of Samples
- Screen All 6 Lux® Phases in Normal Phase, Reversed Phase, and Polar Organic Modes
- Over 90% Hit Ratio
- Detailed Report
- Easy Method Transfer
- Confidentiality Agreements Accepted Upon Request

Preparative and Process Scale-Up

- Media screening
- Small Scale Purification
- DAC Packing Assistance

Submit your FREE screening application today.

Simply visit **www.phenomenex.com/ChiralScreening**

phenoLogix℠
Your Method. Our Scientists.

"Our scientists at American Peptide have taken advantage of Phenomenex's column packing services, application development, and project-specific consultation services for some of our most challenging separations."

American Peptide Company, USA.

"We requested two different chiral compounds be separated and purified. We received the first set of compounds at 99% e.e. within a week and the second set in 2 weeks, also at greater than 99% e.e. The second set was a difficult separation. We were very happy with the quality of the separation and the quick turnaround, which was tantamount. [PhenoLogix] did a great job of informing me on the progress and chemistry/separation issues that arose. I have recommended this service to other colleagues in the Pharmaceutical and BioTech industry here in San Diego and I look forward to using them again."

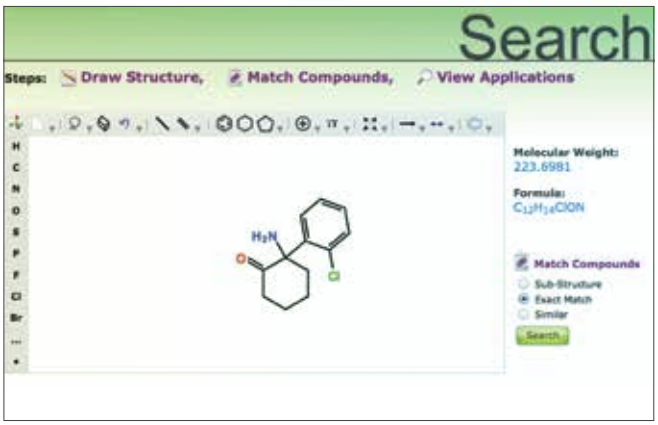
Isabelle Okuda. Celgene Corporation, USA.

Helpful Chiral Resources

1. Online Chiral Application Search (2000+ Chiral Application)

Search by: Application Structure

www.phenomenex.com/ChiralStructureSearch

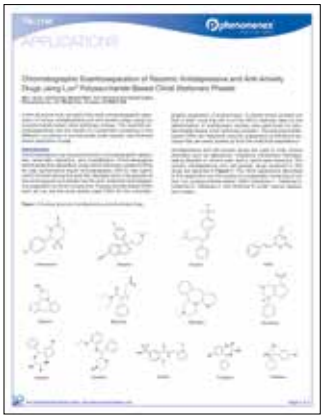


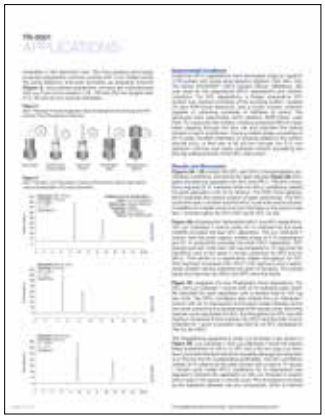
Search by: Application Name

www.phenomenex.com/ChiralNameSearch

2. Chiral and Prep Technical Notes

- Detailed insight into difficult chiral separations

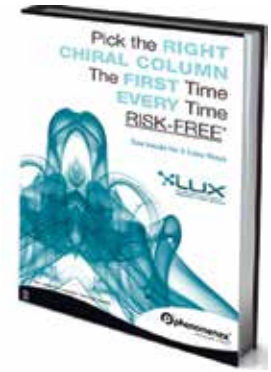




View them at:
www.phenomenex.com/LuxTechnotes

3. Chiral Column Selection Guide

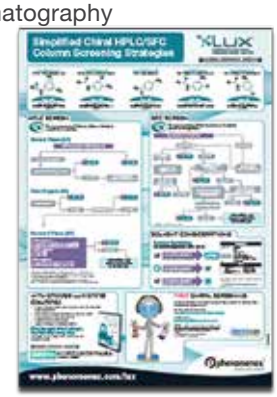
- Discover the 3 Easy Ways to Choose the best Chiral Column for your application



Visit:
www.phenomenex.com/LuxGuide

4. Simplified Chiral Method Development Poster

- Method Development walk-through for both HPLC and SFC conditions
- Convert your Lux column to different modes of chromatography

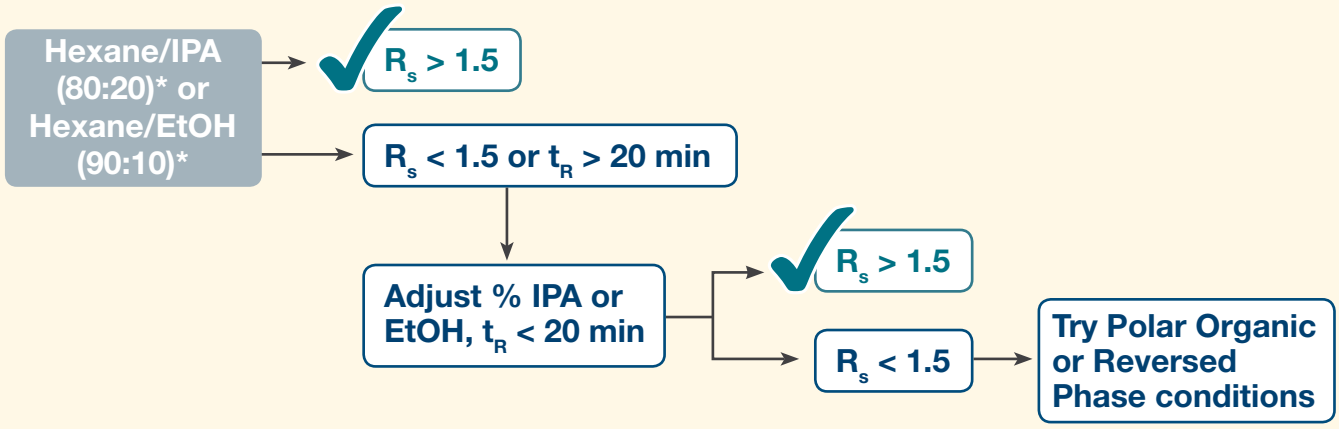


Visit:
www.phenomenex.com/LuxPoster

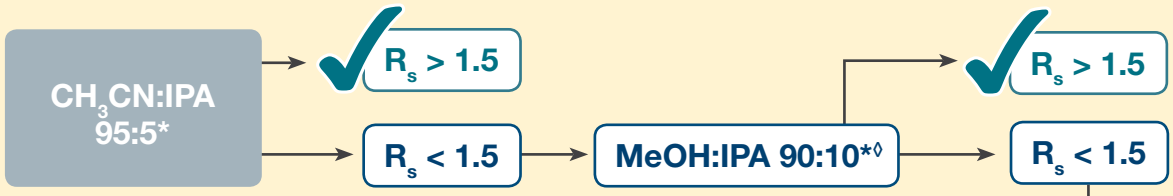
HPLC Screen

We suggest screening all six Lux phases to identify the optimal chiral separation.

Normal Phase (NP)



Polar Organic (PO)



Reversed Phase (RP)

Acidic Compounds

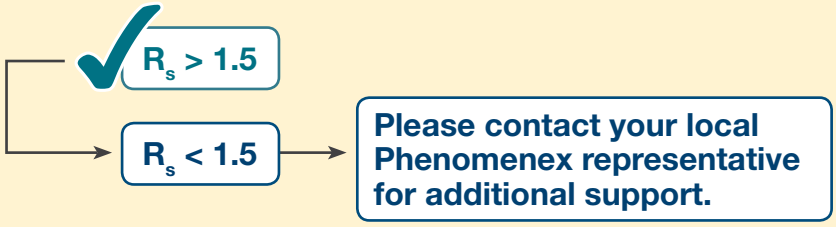
1. CH_3CN:0.1 % Formic Acid or 0.1 % Acetic Acid
2. MeOH:0.1 % Formic Acid or 0.1 % Acetic Acid

Neutral Compounds

1. CH_3CN: Water
2. MeOH: Water

Basic Compounds

1. CH_3CN w/ 20 mM NH_4HCO_3 + 0.1 % DEA
2. MeOH w/ 20 mM NH_4HCO_3 + 0.1 % DEA



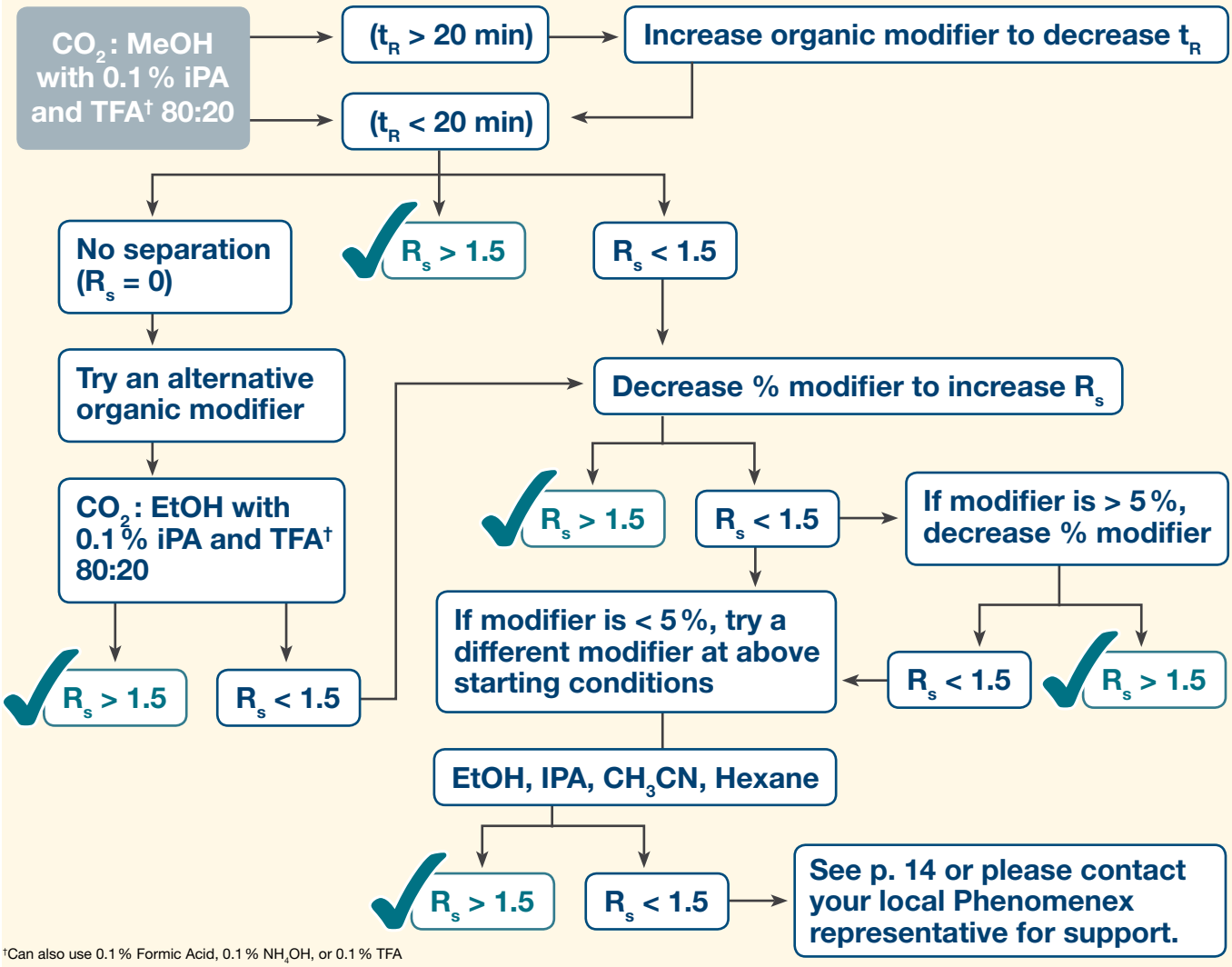
Notes: This screening strategy can be started at any step depending on the properties of the racemates.
A common dimension used in chiral screening is 250 x 4.6 mm. For faster screening, use shorter columns.
* Use 0.1 % DEA with basic and neutral compounds and 0.1 % HCOOH with acidic and neutral compounds
◊ Changing % IPA in methanol can be occasionally beneficial

Key: IPA: Isopropanol; **iPA:** Isopropylamine; **DEA:** Diethylamine; **MeOH:** Methanol; **CH_3CN:** Acetonitrile; **EtOH:** Ethanol; **CH_3COONH_4:** Ammonium acetate; **HCOOH:** Formic acid; **NH_4HCO_3:** Ammonium bicarbonate; **CO_2:** Carbon Dioxide

SFC Screen

We suggest screening all six Lux phases to identify the optimal chiral separation.

Supercritical Fluid Chromatography (SFC)



†Can also use 0.1 % Formic Acid, 0.1 % NH_4OH, or 0.1 % TFA

Solvent Considerations

Solvent Switching

Lux columns are shipped in 90 % Hexane : 10 % IPA

Normal Phase → Flush your column with ten column volumes of MeOH: EtOH 90:10 at a flow rate of 0.5 mL/min → **Polar Organic or Reversed Phase****

Followed by your mobile phase for 10 column volumes.

Polar Organic → Flush your column with ten column volumes of MeOH: EtOH 90:10 at a flow rate of 0.5 mL/min → **Normal Phase**

Followed by your mobile phase for 10 column volumes.

Normal Phase → Flush your column with ten column volumes of CO_2:MeOH (80:20) or CO_2:EtOH (80:20) at a flow rate of 0.5 mL/min → **SFC**

Followed by your mobile phase for 10 column volumes.

COMPATIBLE	
Polar Organic	Methanol Acetonitrile IPA Mixtures of above
Normal Phase	Alkane/alcohol mixtures
Reversed Phase	Aqueous methanol/acetonitrile Buffer and methanol/acetonitrile mixtures
SFC	Supercritical CO_2

AVOID	
Tetrahydrofuran Acetone Chlorinated hydrocarbons Ethylacetate	Dimethylsulfoxide Dimethylformamide N-methylformamide Pyridine

**Once column is in reversed phase mode, it is not recommended to solvent switch.

See column care and use notes at www.phenomenex.com/lux for more information.

Ordering Information

Lux Chiral Columns

SFC APPROVED

3 µm Minibore, MidBore™, and Analytical Columns (mm)								SecurityGuard™ Cartridges (mm)	
Phases	50 x 2.0	150 x 2.0	150 x 3.0	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 2.0*	4 x 3.0*
								/10pk	/10pk
Cellulose-1	00B-4458-B0	00F-4458-B0	00F-4458-Y0	00B-4458-E0	00D-4458-E0	00F-4458-E0	00G-4458-E0	AJ0-8402	AJ0-8403
Cellulose-2	00B-4456-B0	00F-4456-B0	00F-4456-Y0	00B-4456-E0	00D-4456-E0	00F-4456-E0	00G-4456-E0	AJ0-8398	AJ0-8366
Cellulose-3	00B-4492-B0	00F-4492-B0	00F-4492-Y0	00B-4492-E0	00D-4492-E0	00F-4492-E0	00G-4492-E0	AJ0-8621	AJ0-8622
Cellulose-4	00B-4490-B0	00F-4490-B0	00F-4490-Y0	00B-4490-E0	00D-4490-E0	00F-4490-E0	00G-4490-E0	AJ0-8626	AJ0-8627
Amylose-1	00B-4729-B0	00F-4729-B0	00F-4729-Y0	00B-4729-E0	00D-4729-E0	00F-4729-E0	00G-4729-E0	AJ0-9337	AJ0-9336
Amylose-2	00B-4471-B0	00F-4471-B0	00F-4471-Y0	00B-4471-E0	00D-4471-E0	00F-4471-E0	00G-4471-E0	AJ0-8471	AJ0-8470
							for ID:	2.0–3.0 mm	3.2–8.0 mm

5 µm Minibore and Analytical Columns (mm)						SecurityGuard™ Cartridges (mm)	
Phases	50 x 2.0	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 2.0*	4 x 3.0*
						/10pk	/10pk
Cellulose-1	00B-4459-B0	00B-4459-E0	00D-4459-E0	00F-4459-E0	00G-4459-E0	AJ0-8402	AJ0-8403
Cellulose-2	00B-4457-B0	00B-4457-E0	00D-4457-E0	00F-4457-E0	00G-4457-E0	AJ0-8398	AJ0-8366
Cellulose-3	00B-4493-B0	00B-4493-E0	00D-4493-E0	00F-4493-E0	00G-4493-E0	AJ0-8621	AJ0-8622
Cellulose-4	00B-4491-B0	00B-4491-E0	00D-4491-E0	00F-4491-E0	00G-4491-E0	AJ0-8626	AJ0-8627
Amylose-1	00B-4732-B0	00B-4732-E0	00D-4732-E0	00F-4732-E0	00G-4732-E0	AJ0-9337	AJ0-9336
Amylose-2	00B-4472-B0	00B-4472-E0	00D-4472-E0	00F-4472-E0	00G-4472-E0	AJ0-8471	AJ0-8470
					for ID:	2.0–3.0 mm	3.2–8.0 mm

5 µm Semi-Prep Columns (mm)			SecurityGuard™ Cartridges (mm)
Phases	150 x 10.0	250 x 10.0	10 x 10.0‡
			/3pk
Cellulose-1†	00F-4459-N0	00G-4459-N0	AJ0-8404
Cellulose-2†	00F-4457-N0	00G-4457-N0	AJ0-8399
Cellulose-3	–	00G-4493-N0	AJ0-8623
Cellulose-4	–	00G-4491-N0	AJ0-8628
Amylose-1	–	00G-4732-N0	AJ0-9344
Amylose-2	00F-4472-N0	00G-4472-N0	AJ0-8472
		for ID:	9–16 mm

†Inquire for Lux 10 µm Cellulose-1 and Cellulose-2 columns.

Column Performance Check Standard

Part No.	Description	Unit	Price
AL0-8412	Chiral Test Mix No. 5 (Lux)	ea	

Lux Chiral Method Screening Kits are available. Please contact your Phenomenex representative for more information.

5 µm Axia™ Packed Preparative Columns (mm)					SecurityGuard™ Cartridges (mm)	
Phases	150 x 21.2	250 x 21.2	250 x 30	250 x 50	15 x 21.2**	15 x 30.0♦
					/ea	/ea
Cellulose-1†	00F-4459-P0-AX	00G-4459-P0-AX	00G-4459-U0-AX	00G-4459-V0-AX	AJ0-8405	AJ0-8406
Cellulose-2†	00F-4457-P0-AX	00G-4457-P0-AX	00G-4457-U0-AX	00G-4457-V0-AX	AJ0-8400	AJ0-8401
Cellulose-3	00F-4493-P0-AX	00G-4493-P0-AX	00G-4493-U0-AX	00G-4493-V0-AX	AJ0-8624	AJ0-8625
Cellulose-4	00F-4491-P0-AX	00G-4491-P0-AX	00G-4491-U0-AX	00G-4491-V0-AX	AJ0-8629	AJ0-8630
Amylose-1	00F-4732-P0-AX	00G-4732-P0-AX	00G-4732-U0-AX	00G-4732-V0-AX	AJ0-9338	AJ0-9339
Amylose-2	00F-4472-P0-AX	00G-4472-P0-AX	00G-4472-U0-AX	–	AJ0-8473	AJ0-8474
				for ID:	18–29 mm	30–49 mm

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

‡ SemiPrep SecurityGuard™ Cartridges require holder, Part No.: AJ0-9281

**HPLC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8223
SFC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8617

♦ HPLC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8277
SFC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8618

Bulk Media		
Phases	100 g	1 kg
10 µm		
Cellulose-1	04G-4501	04K-4501
Cellulose-2	04G-4502	04K-4502
Cellulose-3	04G-4624	04K-4624
Cellulose-4	04G-4625	04K-4625
20 µm		
Cellulose-1	04G-4473	04K-4473
Cellulose-2	04G-4464	04K-4464
Cellulose-3	04G-4504	04K-4504
Cellulose-4	04G-4503	04K-4503

Please inquire for 20 µm Lux Amylose-2 media.

Ordering Information

Preparative Guard Cartridge Holders

Preparative Holder (Two Sizes)

For 21.2 mm ID cartridges, use with 18 to 29 mm ID columns

Prep Guard Cartridge Holder

Part No.	Description	Unit	Price
AJ0-8223	HPLC Holder Kit for 21.2 mm ID cartridges, includes column coupler	ea	
AJ0-8617	SFC Holder Kit for 21.2 mm ID cartridges, includes column coupler	ea	

For 30.0 mm ID cartridges, use with 30 to 49 mm ID columns

Prep Guard Cartridge Holder

Part No.	Description	Unit	Price
AJ0-8277	HPLC Holder Kit for 30.0 mm ID cartridges, includes column coupler	ea	
AJ0-8618	SFC Holder Kit for 30.0 mm ID cartridges, includes column coupler	ea	

Replacement Parts and Accessories

Part No.	Description	Unit	Price
AQ0-8374	PREP Coupler, SS w / PEEK Ferrule Inserts, 10-32 Threads, $^{1}/_{16}$ in. OD x 0.020 in. ID	ea	
AQ0-8375	Replacement Ferrule Inserts, for PREP Coupler, PEEK, 0.020 in. ID	10/pk	
AQ0-8222	PREP Replacement O-Rings, Kalrez® For 15 x 21.2 mm SG HPLC Holder, Size 2-021	2/pk	
AQ0-8318	PREP Replacement O-Rings, Kalrez® For 15 x 30 mm SG HPLC Holder, Size 2-025	2/pk	
AQ0-8500	PREP Replacement O-Rings, Teflon® For 15 x 21.2 mm SG SFC Holder, Size 2-021	2/pk	
AQ0-8501	PREP Replacement O-Rings, Teflon® For 15 x 30 mm SG SFC Holder, Size 2-025	2/pk	
AT0-0465	Capillary S.S. Tubing, 0.020 in. ID x 0.062 in. ($^{1}/_{16}$ in.) OD x 10 cm length	5/pk	
AT0-0466	Capillary S.S. Tubing, 0.020 in. ID x 0.062 in. ($^{1}/_{16}$ in.) OD x 20 cm length	5/pk	

guarantee

If Lux analytical columns (≤ 4.6 mm ID) do not provide at least an equivalent or better chiral separation as compared to a competing column of the same particle size, similar phase and dimensions, send in your comparative data within 45 days and keep the Lux column for FREE.

LUX®

Polysaccharide Chiral Columns
Dependable. Scalable. Affordable.

Affordable Chiral Columns,

Brilliant Separation Power

Australia
t: +61 (0)2-9428-6444
f: +61 (0)2-9428-6445
auinfo@phenomenex.com

Austria
t: +43 (0)1-319-1301
f: +43 (0)1-319-1300
anfrage@phenomenex.com

Belgium
t: +32 (0)2 503 4015 (French)
t: +32 (0)2 511 8666 (Dutch)
f: +31 (0)30-2383749
beinfo@phenomenex.com

Canada
t: +1 (800) 543-3681
f: +1 (310) 328-7768
info@phenomenex.com

China
t: +86 (0)20 2282-6668
f: +86 (0)20 2809-8130
chinainfo@phenomenex.com

Denmark
t: +45 4824 8048
f: +45 4810 6265
nordicinfo@phenomenex.com

Finland
t: +358 (0)9 4789 0063
f: +45 4810 6265
nordicinfo@phenomenex.com

France
t: +33 (0)1 30 09 21 10
f: +33 (0)1 30 09 21 11
franceinfo@phenomenex.com

Germany
t: +49 (0)6021-58830-0
f: +49 (0)6021-58830-11
anfrage@phenomenex.com

India
t: +91 (0)40-3012 2400
f: +91 (0)40-3012 2411
indiainfo@phenomenex.com

Ireland
t: +353 (0)1 247 5405
f: +44 1625-501796
eireinfo@phenomenex.com

Italy
t: +39 051 6327511
f: +39 051 6327555
italiainfo@phenomenex.com

Luxembourg
t: +31 (0)30-2418700
f: +31 (0)30-2383749
nlinfo@phenomenex.com

Mexico
t: 001-800-844-5226
f: 001-310-328-7768
tecnicomx@phenomenex.com

The Netherlands
t: +31 (0)30-2418700
f: +31 (0)30-2383749
nlinfo@phenomenex.com

New Zealand
t: +64 (0)9-4780951
f: +64 (0)9-4780952
nzinfo@phenomenex.com

Norway
t: +47 810 02 005
f: +45 4810 6265
nordicinfo@phenomenex.com

Puerto Rico
t: +1 (800) 541-HPLC
f: +1 (310) 328-7768
info@phenomenex.com

Spain
t: +34 91-413-8613
f: +34 91-413-2290
espinfo@phenomenex.com

Sweden
t: +46 (0)8 611 6950
f: +45 4810 6265
nordicinfo@phenomenex.com

United Kingdom
t: +44 (0)1625-501367
f: +44 (0)1625-501796
ukinfo@phenomenex.com

USA
t: +1 (310) 212-0555
f: +1 (310) 328-7768
info@phenomenex.com

All other countries
Corporate Office USA
t: +1 (310) 212-0555
f: +1 (310) 328-7768
info@phenomenex.com

phenomenex®
...breaking with tradition℠

www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com

BR3391215_I