# Raptor™ LC Columns

## *Selectivity Accelerated*

- Higher efficiency for drastically faster analysis times.
- Better selectivity for substantially improved resolution.
- Increased sample throughput with existing HPLC instrumentation.
- Long-lasting ruggedness for dependable reproducibility.


RESTEK®
Pure Chromatography

**www.restek.com/raptor**

# The Dawn of an Era

Superficially porous particles (commonly referred to as SPP or "core-shell" particles) have been proven to provide fast separations without the need for expensive Ultra High Performance Liquid Chromatography (UHPLC) instruments, thereby increasing sample throughput without capital investment. These particles feature a solid, impermeable core enveloped by a thin, porous layer of silica that decreases the diffusion path and reduces peak dispersion. As a result, they offer significantly higher efficiency than traditional fully porous particles of similar dimensions—often rivaling the efficiency of smaller particles. Core-shell particles changed LC, but they were only the beginning...

## A New Species Has Evolved

Restek is proud to announce that SPP core-shell technology has evolved with the introduction of Raptor™ LC columns. Although column efficiency, which is boosted with superficially porous particles, considerably accelerates analysis time, it has little effect on resolution (i.e., peak separation). Selectivity, on the other hand, has a substantial impact on resolution, but shows minimal improvement in analysis times. New Raptor™ LC columns bond rugged 2.7 and 5 µm superficially porous particles with Restek's unique Ultra Selective Liquid Chromatography™ (USLC®) phases to offer chromatographers the best of both worlds.

By being the first to combine the speed of SPP with the resolution of highly selective USLC® technology, Raptor™ LC columns provide the practicing analyst with the most powerful tools available for fast and efficient method development. And because they are from Restek, Raptor™ LC columns are backed by the manufacturing and quality systems you've come to trust along with the best Plus 1 service in the industry. Choose them for all of your valued assays to experience *Selectivity Accelerated*.

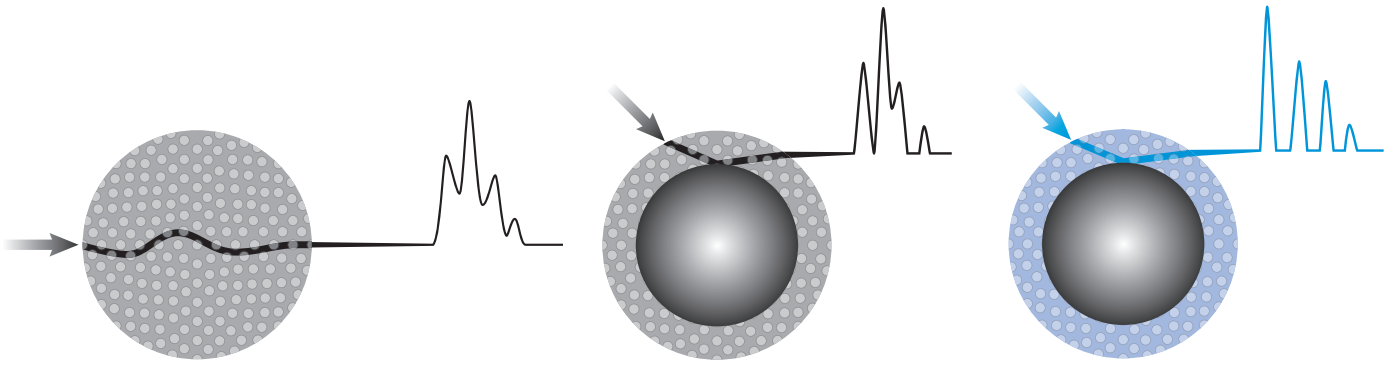
### The History of USLC® Technology

Restek extended the hydrophobic-subtraction model to describe orthogonal selectivity and then applied it to create our unique USLC® stationary phases.

Learn more at **www.restek.com/uslc**

RESTEK USLC®
Ultra Selective Liquid Chromatography

**Figure 1:** Only Raptor™ LC columns offer the higher efficiency of a superficially porous particle *plus* the improved resolution of USLC® phases.



Fully porous particles with typical stationary phases show longer retention times and less resolution.

Ordinary superficially porous particles (SPP) with typical stationary phases show shorter retention times than fully porous particles, but still exhibit less resolution.

Only Raptor™ LC columns with highly selective USLC® stationary phases show shorter retention times and greater resolution.

**Experience *Selectivity Accelerated*. Put Raptor™ LC columns and guards to the test today on your most challenging workflows.**

# Evolutionary Chromatography

It is only possible to fully utilize the efficiency of superficially porous particle technology when it is united with the power of USLC® selectivity. With Raptor™ LC columns, you can speed up method development and enhance sample throughput—without investing in costly UHPLC equipment—to create faster, more reliable, and more sensitive analyses.

- Run faster and avoid lengthy gradient adjustments.
- Separate isobaric and hard-to-resolve compounds with ease.
- Avoid eluting compounds near the void volume and limit ion suppression.
- Skip the complex mobile phases and multiple method modifications.

# Dissecting Raptor™ LC Columns

*A closer look at a new species*

## Adaptive Traits: Raptor™ LC Column

Restek's dedicated R&D group studied every aspect of superficially porous particles (commonly referred to as SPP or "core-shell" particles) to develop the bonding chemistries that are best suited to both the SPP construction and our highly selective USLC® phases. But we didn't stop there. In addition to implementing a new, proprietary column-packing technique, we upgraded our LC column hardware. By looking at not only the particles, but also the packing and hardware, we have made sure that you will get repeatable, rugged performance from each and every Raptor™ LC column.

### Larger 2 µm Frit

Prevents clogging better than commonly used 0.5 µm frits; boosts column lifetime and helps maintain optimal pressures.

### Rugged Label

Clearly identifies both flow direction and column; resists solvents and tearing to last as long as your column does.


### Proprietary Column-Packing Technique

Provides greater pressure stability (600 bar for 2.7 µm; 400 bar for 5 µm); achieves higher linear velocities without sacrificing efficiency or lifetime.

### Raptor™ SPP Particles

**Robust 2.7 and 5 µm Particles**
Let you run high-speed analyses without UHPLC.

**Narrow Silica Distribution**
Ensures high efficiency and consistent flows.

**Updated Bonding and QC**
Guarantee retention time stability, run to run and column to column.

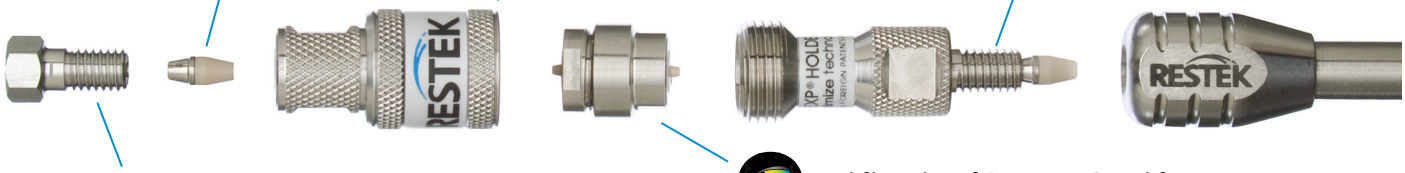
# Natural Protection: Raptor™ EXP® Guard Column

Regardless of its performance, lifespan, or frit size, we know the LC column is the most expensive consumable used for your chromatographic assay. To help protect your investment and further extend the life of our already-rugged Raptor™ LC columns, we have mated our new superficially porous particles with patent-pending guard column hardware developed by Optimize Technologies. A Raptor™ LC guard column cartridge in an EXP® direct connect holder is the ultimate in column protection.

**Patented Titanium Hybrid Ferrules**
Can be installed repeatedly without compromising high-pressure seal.

**Free-Turn® Architecture**
Allows you to change cartridges without breaking inlet/outlet fluid connections—and without tools.

**Auto-Adjusting Connection**
Provides ZDV (zero dead volume) connection to any 10-32 female port.




**Flexible Design**
Replace nut with longer or even tool-free options (below) to best suit your needs.

**Unidirectional Raptor™ Cartridge**

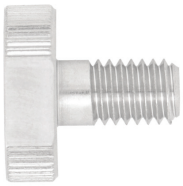
**In-Tandem Development**
Made to pair perfectly with Raptor™ LC columns.

**Superior Packing Technique**
Withstands 600 bar (2.7 µm) / 400 bar (5 µm) operating pressures.

**Restek® Quality**
Backed by the manufacturing and QC systems you trust.

View our full selection of Raptor™ EXP® guard column cartridges at **www.restek.com/raptor**

## Restek also recommends:



**Hand-Tight Nut** (cat.# 25937–25939)
Upgrade the supplied nut to install your Raptor™ EXP® guard column by hand—no tools needed.

**Long Hex-Head Nut** (cat.# 25934)
Extend the nut on your Raptor™ EXP® guard column for easier access in tight spaces—no more bumped knuckles.

**EXP® Hand-Tight Coupler** (cat.# 25940)
Achieve tool-free 8,700+ psi (600+ bar) seals anywhere in your LC system with EXP® hand-tight couplers and connectors.

Visit **www.restek.com/exp** for more EXP® hex-head fittings, couplers, replacement parts, and more!



RESTEK®
Pure Chromatography

**Questions about this or any other Restek® product?**
**Contact us or your local Restek® representative (www.restek.com/contact-us).**



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