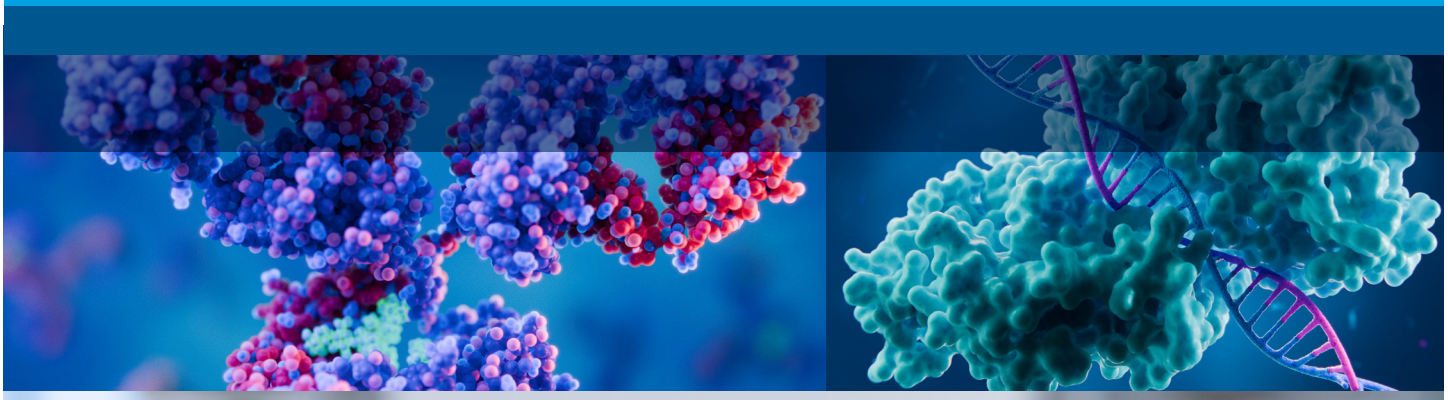
Agilent

Trusted Answers

Reach New Heights in Performance

Agilent Altura HPLC columns with Ultra Inert technology for biomolecule analysis







Unlock the true potential of HPLC with Ultra Inert technology

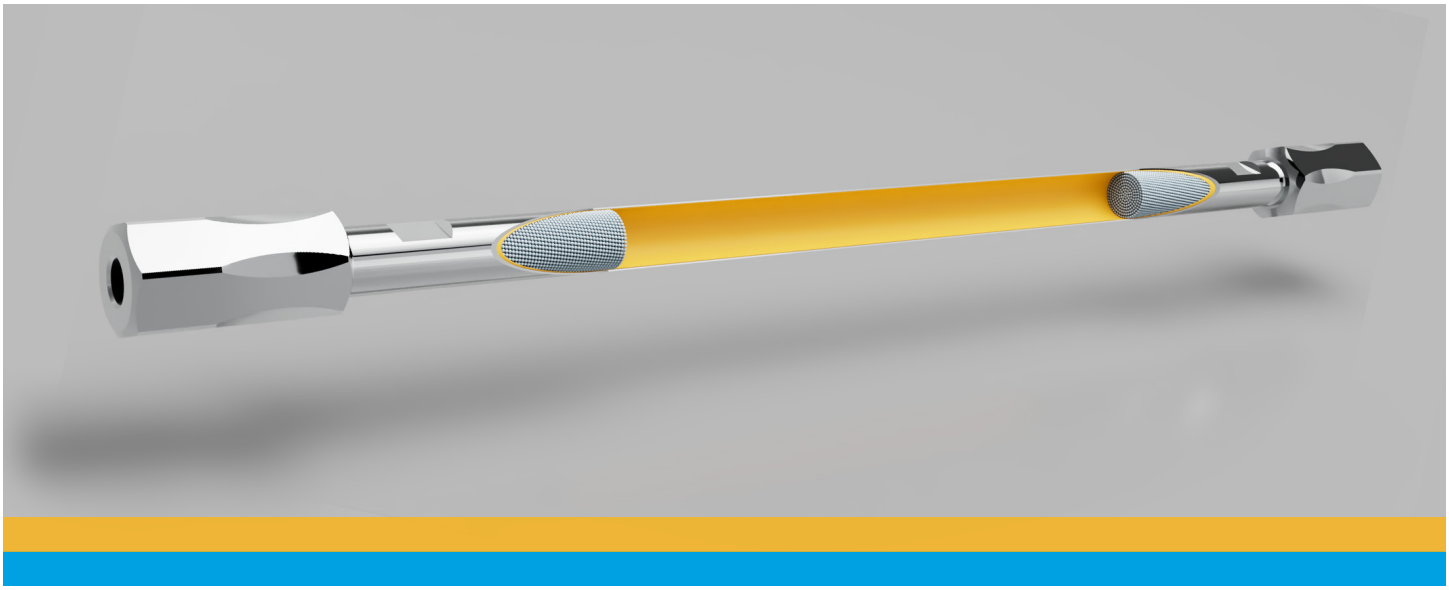
Experience the difference with Agilent Altura HPLC columns. Our Ultra Inert technology sets a new standard in liquid chromatographic performance, providing the reliability and efficiency you need for your most demanding applications. Choose Altura columns and elevate your analytical results to new heights.



Meet the Altura family of HPLC columns

Altura columns feature our innovative Ultra Inert technology. This advanced coating blocks active metal sites, ensuring an inert flow path while maintaining the strength, pressure tolerance, and consistency of a traditional stainless steel HPLC column.

The result? Altura columns unlock the true separation potential of the stationary phase. Experience superior chromatographic performance, faster equilibration, reduced carryover, and enhanced sensitivity for your most challenging metal-sensitive analytes.



Enhance your separations with Ultra Inert technology

Ultra Inert technology, featured in Altura HPLC columns, minimizes nonspecific interactions and metal adsorption to enhance the accuracy and reproducibility of analytical measurements. Delivering exceptional inertness across the entire sample path, Agilent inert LCs and Altura HPLC columns together ensure reliable results even with highly active or trace-level compounds. Backed by over a decade of expertise, innovation, and trusted performance, Ultra Inert components from Agilent have helped laboratories worldwide achieve lower detection limits, greater sensitivity, and more consistent data quality across a broad range of analytical applications.

Altura HPLC columns with Ultra Inert technology offer:

- **Reduced nonspecific binding** for pure selectivity
- **Better peak shape** with less tailing
- **Enhanced sensitivity** due to improved sample recovery
- **Long lifetime** due to robust coating and column packing
- **Rapid equilibration** to get high-quality data faster
- **Versatile use** with various chromatographic techniques
- **Readiness for evolving regulatory needs** with lower limits of detection



Improve analytical sensitivity with sharper, more symmetrical peaks

Peak tailing and asymmetry are common issues caused by interactions with active metal sites in traditional columns. Ultra Inert technology in Altura columns eliminates these interactions. This results in more symmetrical and sharper peaks, which provides more accurate quantification and identification of analytes, especially in complex mixtures. With Altura columns, you can trust that your peaks will be well-defined and reproducible, enhancing the reliability of your analytical results.

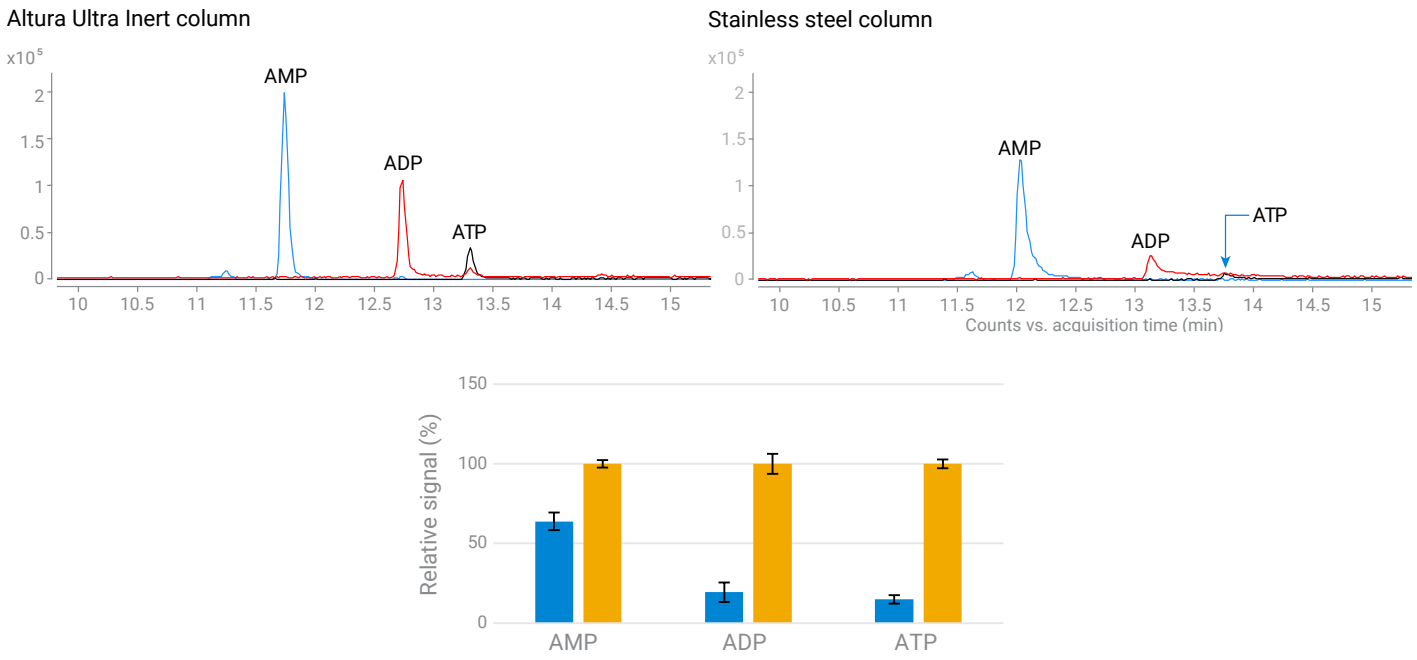


Figure 1. Altura HPLC columns deliver better peak shape and signal response for adenine nucleotides compared to a traditional stainless steel column.

Save time with rapid column conditioning

Long equilibration times can delay analysis and reduce laboratory efficiency. Altura columns are designed to stabilize rapidly, significantly reducing the time required before analysis. This feature is particularly beneficial in high-throughput laboratories where time is of the essence. By minimizing startup times, Altura columns help you achieve faster turnaround and increased productivity without compromising on performance.

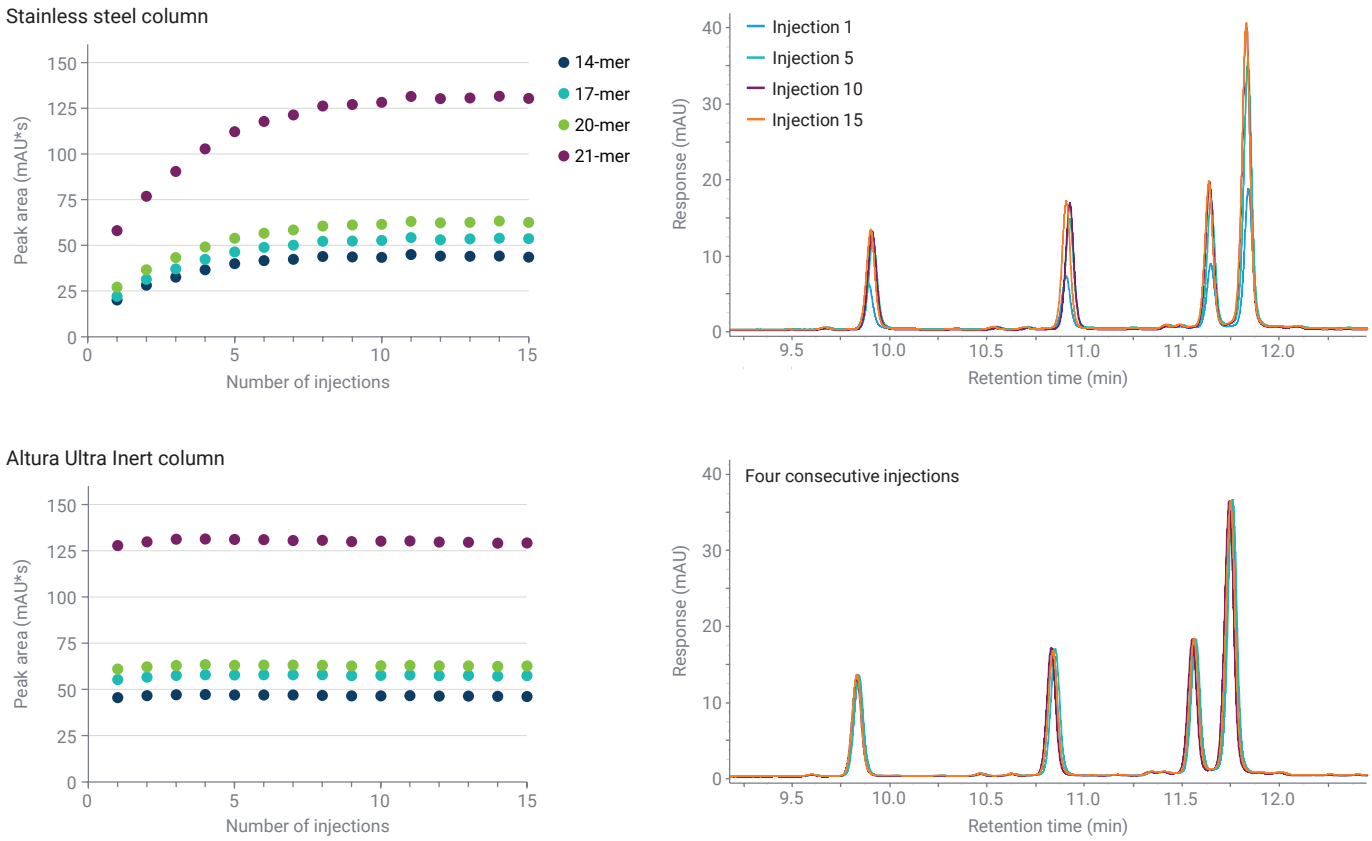


Figure 2. Altura columns equilibrate up to 8× faster than stainless steel and deliver stable UV absorption from the first injection—minimizing metal adsorption and improving reproducibility as demonstrated in this reversed-phase RNA analysis.

Experience durable and reliable inert performance

The robust Ultra Inert coating on Altura columns withstands a wide range of mobile phase conditions, ensuring consistent performance even under demanding analytical protocols. This durability translates to fewer column replacements and lower operational costs. Altura columns are built to last, providing reliable results even after prolonged exposure to harsh solvents.

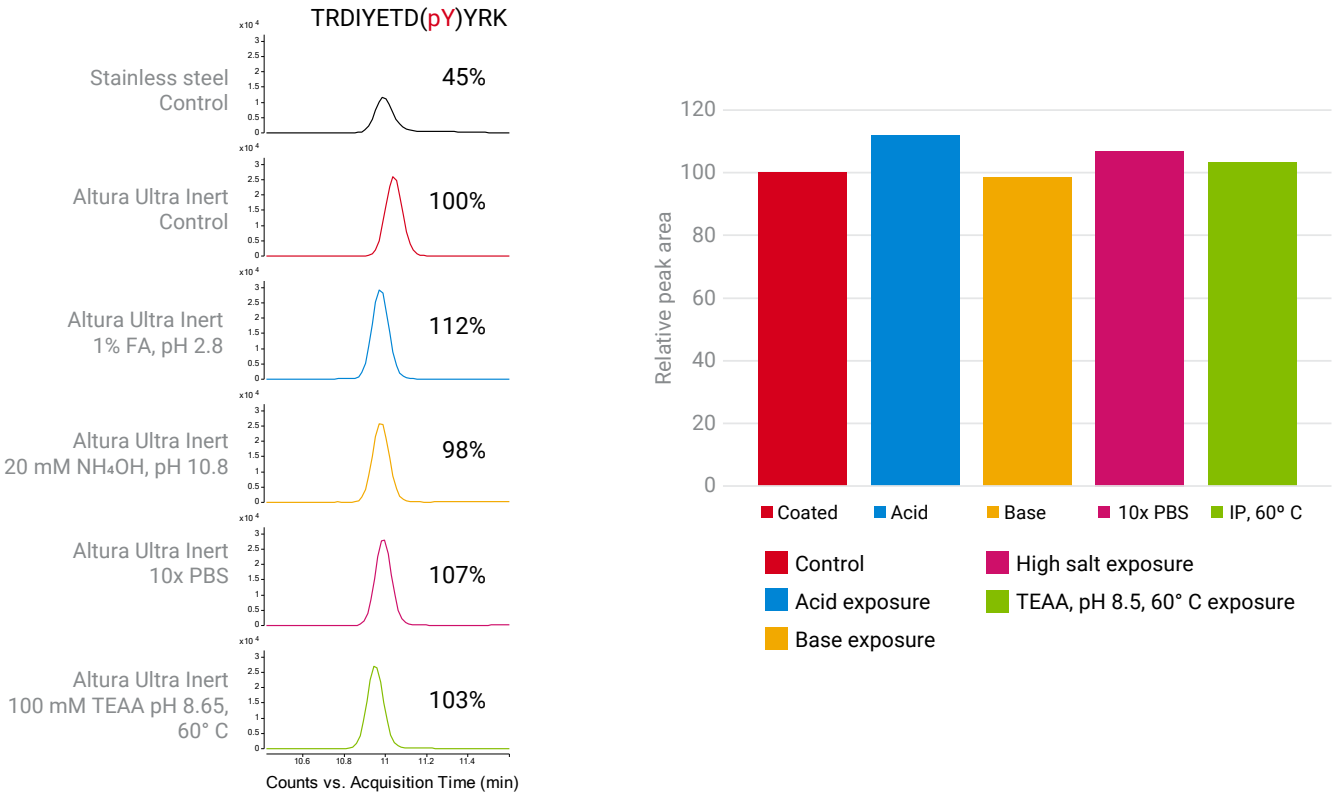


Figure 3. The chemical stability of Altura HPLC columns with Ultra Inert technology was confirmed using four chemical buffers over six weeks. Afterward, the Altura hardware was packed with media and analyzed via LC/MS with phosphopeptides, using fresh Altura and stainless steel columns as controls. The results demonstrate the exceptional chemical robustness of Altura column hardware to remain inert under challenging conditions.

Want to learn more?

Explore how Ultra Inert HPLC column technology delivers exceptional inertness, stability, and sensitivity for biomolecular separations in publication **5994-8618EN.**



Achieve high-quality data, injection after injection

Altura columns are engineered for exceptional stability and longevity, meeting the high-quality standards you expect from Agilent. Rigorous testing under high-pressure and high-flow conditions has demonstrated their ability to maintain performance over numerous injections. This extended lifetime not only reduces the frequency of column replacements but also ensures consistent and reliable results throughout the lifetime of the column.

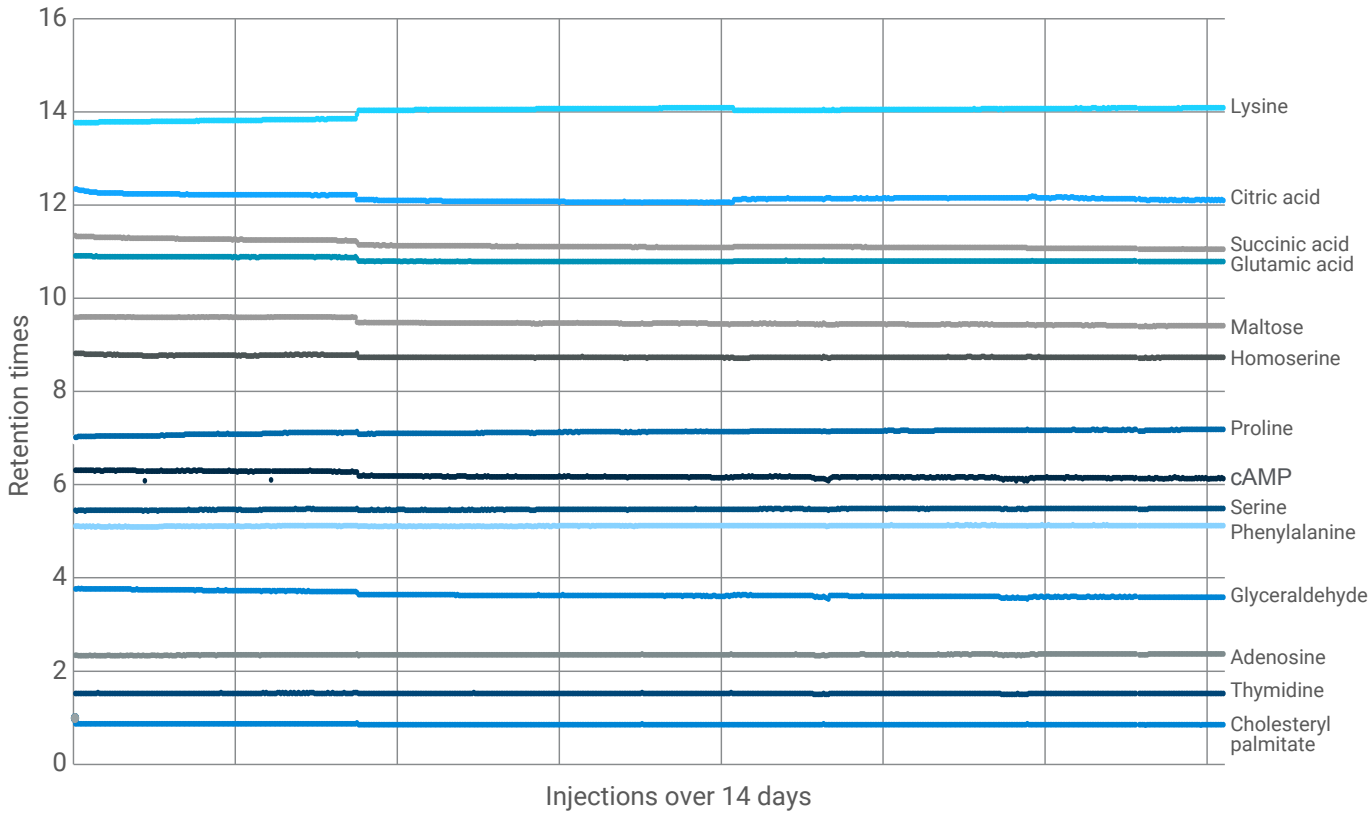


Figure 4. Altura Poroshell HILIC-Z showed consistent retention times over 14 days of continuous use at pH 9.3 for more than 700 injections of metabolites in plasma.

Experience superior quantitation and reliability

When compared to traditional stainless steel (SS) columns and inert columns from other vendors, Altura columns consistently result in better analyte recovery and peak shape. Altura columns provide more accurate and reliable quantitation, ensuring that your analytical results are consistent and reproducible for all analytes, including your most challenging ones. The inert hardware of Altura columns allows the stationary phase to be used to its maximum potential for unmatched performance and reliability in your HPLC analyses.

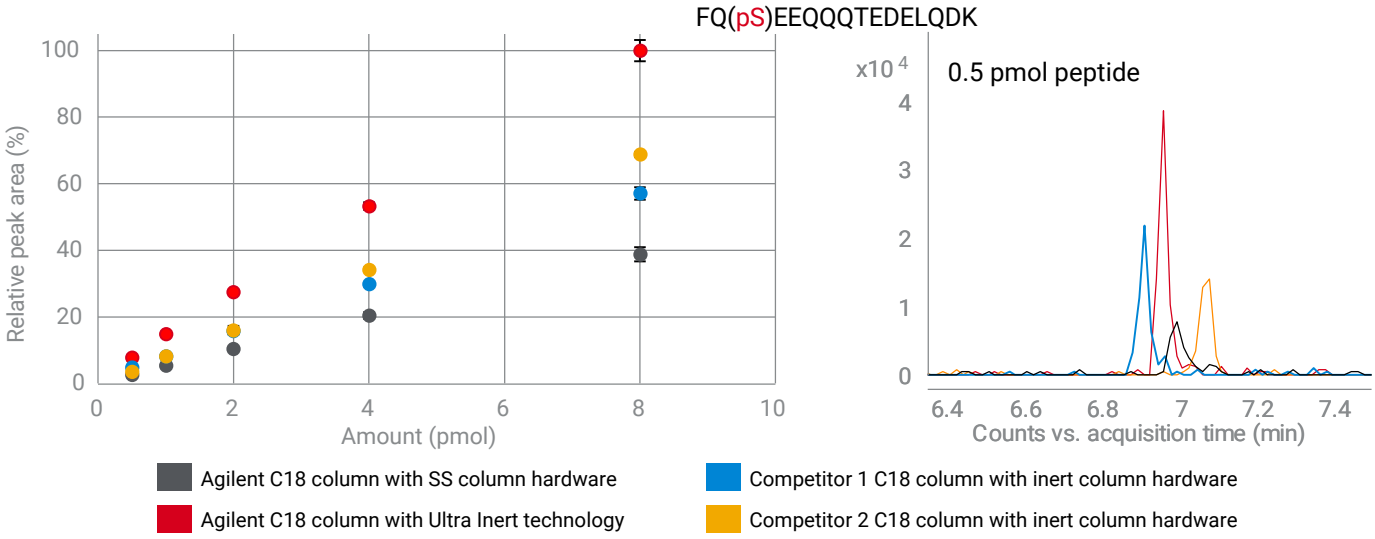


Figure 5. Altura HPLC columns deliver superior peak shape and signal response in reversed-phase phosphopeptide separations, consistently outperforming other columns with higher sensitivity and signal-to-noise for this metal-sensitive compound.

Altura columns with Ultra Inert technology deliver:

- **Up to 14× higher** sensitivity than SS columns
- **Up to 2× higher** sensitivity versus Competitor 1
- **Up to 3× higher** signal-to-noise ratio than Competitor 1
- **Up to 10×** higher signal-to-noise ratio versus SS

Flexibility for the analysis you need

When you no longer need to mitigate potential metal–analyte interactions with mobile phase additives, you gain the freedom to develop methods that better support your science. Method development becomes simpler, and your platform method more robust, with fewer outliers or reruns.

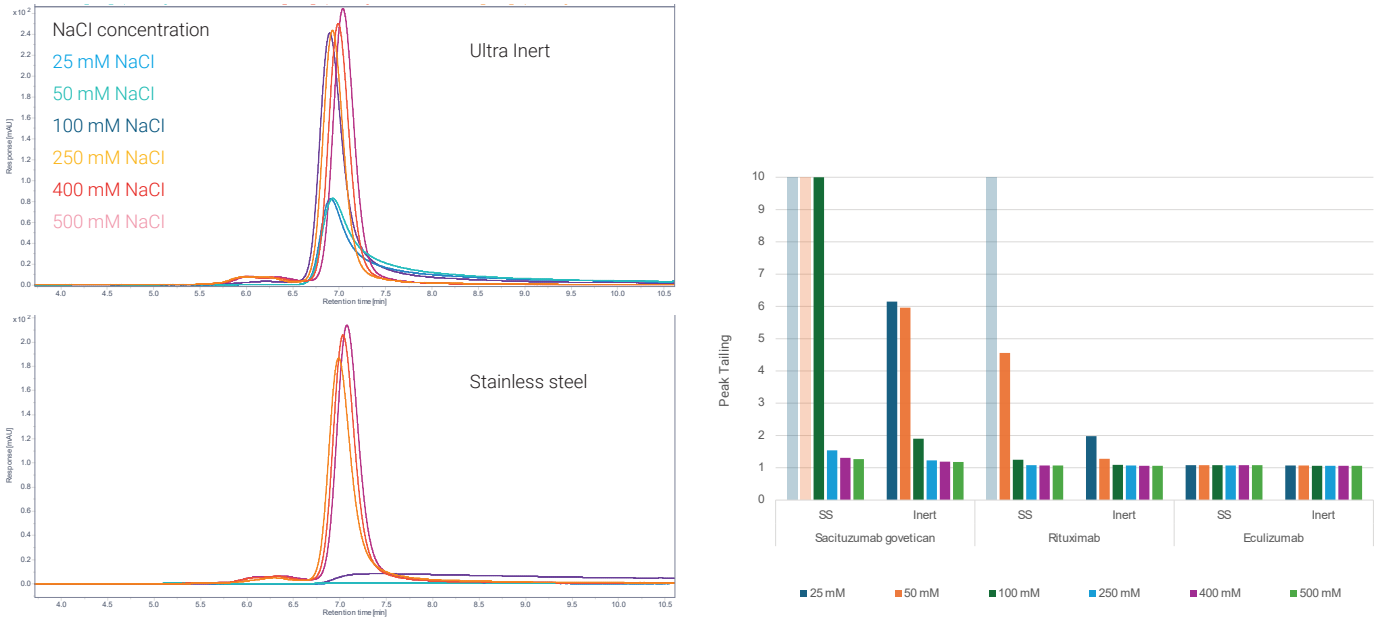


Figure 6. Representative SEC chromatograms obtained for the ADC sacituzumab govitecan using an Ultra Inert column versus a stainless steel column at varying NaCl concentrations added to 50 mM phosphate buffer. Altura SEC effectively improves sample recovery and peak shape. On the right, peak tailing as a function of mobile phase ionic strength, showing decreased tailing for metal-sensitive analytes. Fainter bars indicate extremely high tailing.

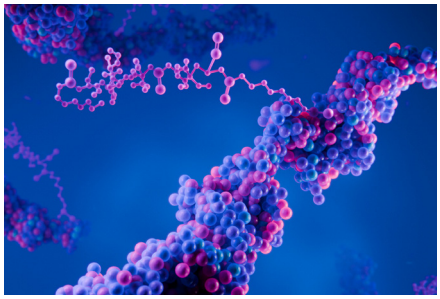


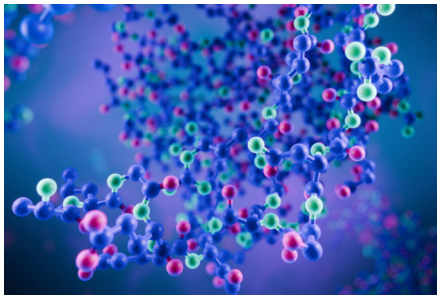
Get more confident results for your most demanding bio LC applications



Application note 5994-8055EN illustrates the benefit of an inert flow path combining an Agilent 1290 Infinity II bio LC with an Agilent Altura Oligo HPH-C18 column, yielding higher analyte recovery and narrow peaks. With parallel RNase 4 and RNase T1 cutters, 94.7% of the mRNA sequences could be covered.

Application note 5994-8308EN shows the improved recovery and peak shape for GLP-1 peptides and related excipients using an inert Agilent 1290 Infinity III bio LC with an Altura Poroshell HILIC-Z column.





In **application note 5994-8776EN** Altura ZORBAX Eclipse Plus C18 columns with Ultra Inert technology demonstrate decreased tailing and improved recovery for peptides, increasing reliability of PTM monitoring and quantitation.

Meet your most complex analytical challenges

Agilent Infinity III bio LC solutions deliver robust, reliable performance for demanding analytical workflows, including biopharma. The 1290 Infinity III bio LC system offers high chromatographic precision for complex separations, while the 1260 Infinity III bio-inert LC system provides maximum inertness and durability for metal-sensitive and high-salt applications. Both systems feature advanced Infinity III technology for enhanced usability, seamless compatibility with InfinityLab consumables, and long-term reliability in regulated environments.



1290 Infinity III bio LC



1260 Infinity III bio-inert LC



Bio solvent inlet filter
p/n 5320-0070



Propylene
bio solvent bottle
p/n 9301-6028



Customize your LC system using
our LC capillary selector tool



Find the vial that meets your application
needs with our vial selector tool



Ordering information

Part Number	Description
217205-502	Altura Poroshell HPH-C18, 1.9 µm, 2.1 × 50 mm
217210-502	Altura Poroshell HPH-C18, 1.9 µm, 2.1 × 100 mm
217215-502	Altura Poroshell HPH-C18, 1.9 µm, 2.1 × 150 mm
227205-702	Altura Oligo HPH-C18, 2.7 µm, 2.1 × 50 mm
227210-702	Altura Oligo HPH-C18, 2.7 µm, 2.1 × 100 mm
227215-702	Altura Oligo HPH-C18, 2.7 µm, 2.1 × 150 mm
227405-702	Altura Oligo HPH-C18, 2.7 µm, 4.6 × 50 mm
227410-702	Altura Oligo HPH-C18, 2.7 µm, 4.6 × 100 mm
227415-702	Altura Oligo HPH-C18, 2.7 µm, 4.6 × 150 mm
227205-903	Altura Peptide Plus, 2.7 µm, 2.1 × 50 mm
227210-903	Altura Peptide Plus, 2.7 µm, 2.1 × 100 mm
227215-903	Altura Peptide Plus, 2.7 µm, 2.1 × 150 mm
227225-903	Altura Peptide Plus, 2.7 µm, 2.1 × 250 mm
227405-903	Altura Peptide Plus, 2.7 µm, 4.6 × 50 mm
227410-903	Altura Peptide Plus, 2.7 µm, 4.6 × 100 mm
227415-903	Altura Peptide Plus, 2.7 µm, 4.6 × 150 mm
227205-924	Altura Poroshell HILIC-Z, 2.7 µm, 2.1 × 50 mm
227210-924	Altura Poroshell HILIC-Z, 2.7 µm, 2.1 × 100 mm
227215-924	Altura Poroshell HILIC-Z, 2.7 µm, 2.1 × 150 mm
204205-308	Altura Eclipse Plus C18, 1.8 µm, 2.1 × 50 mm
204210-308	Altura Eclipse Plus C18, 1.8 µm, 2.1 × 100 mm
204215-308	Altura Eclipse Plus C18, 1.8 µm, 2.1 × 150 mm

Part Number	Description
PL1580-5201A	Altura SEC 200Å, 1.9 µm, 4.6 x 300 mm
PL1580-3201A	Altura SEC 200Å, 1.9 µm, 4.6 x 150 mm
PL1580-1201A	Altura SEC 200Å, 1.9 µm, 4.6 x 30 mm, guard
PL1180-5350A	Altura SEC 130Å, 2.7 µm, 7.8 x 300 mm
PL1180-3350A	Altura SEC 130Å, 2.7 µm, 7.8 x 150 mm
PL1180-1350A	Altura SEC 130Å, 2.7 µm, 7.8 x 50 mm, guard
PL1580-5350A	Altura SEC 130Å, 2.7 µm, 4.6 x 300 mm
PL1580-3350A	Altura SEC 130Å, 2.7 µm, 4.6 x 150 mm
PL1580-1350A	Altura SEC 130Å, 2.7 µm, 4.6 x 50 mm, guard
PL1180-5301A	Altura SEC 300Å, 2.7 µm, 7.8 x 300 mm
PL1180-3301A	Altura SEC 300Å, 2.7 µm, 7.8 x 150 mm
PL1180-1301A	Altura SEC 300Å, 2.7 µm, 7.8 x 50 mm, guard
PL1580-5301A	Altura SEC 300Å, 2.7 µm, 4.6 x 300 mm
PL1580-3301A	Altura SEC 300Å, 2.7 µm, 4.6 x 150 mm
PL1580-1301A	Altura SEC 300Å, 2.7 µm, 4.6 x 50 mm, guard
PL1180-5325A	Altura SEC 500Å, 2.7 µm, 7.8 x 300 mm
PL1180-1325A	Altura SEC 500Å, 2.7 µm, 7.8 x 50 mm, guard
PL1580-5325A	Altura SEC 500Å, 2.7 µm, 4.6 x 300 mm
PL1580-3325A	Altura SEC 500Å, 2.7 µm, 4.6 x 150 mm
PL1580-1325A	Altura SEC 500Å, 2.7 µm, 4.6 x 50 mm, guard
PL1180-5302A	Altura SEC 1000Å, 2.7 µm, 7.8 x 300 mm
PL1180-1302A	Altura SEC 1000Å, 2.7 µm, 7.8 x 50 mm, guard
PL1580-5302A	Altura SEC 1000Å, 2.7 µm, 4.6 x 300 mm
PL1580-3302A	Altura SEC 1000Å, 2.7 µm, 4.6 x 150 mm
PL1580-1302A	Altura SEC 1000Å, 2.7 µm, 4.6 x 50 mm, guard
PL1912-1502A	Altura PLRP-S 1000Å, 5 µm, 2.1 x 50 mm
PL1912-2502A	Altura PLRP-S 1000Å, 5 µm, 2.1 x 100 mm

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