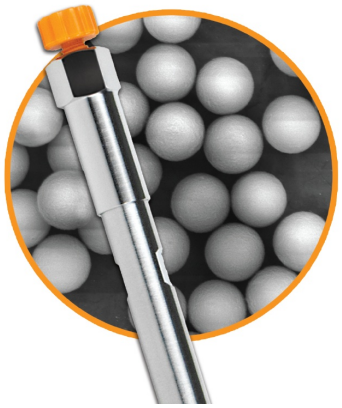
DiamondAnalytics
tools for tomorrows chemistry

Diamond Analytics Application Note: DA1012-A

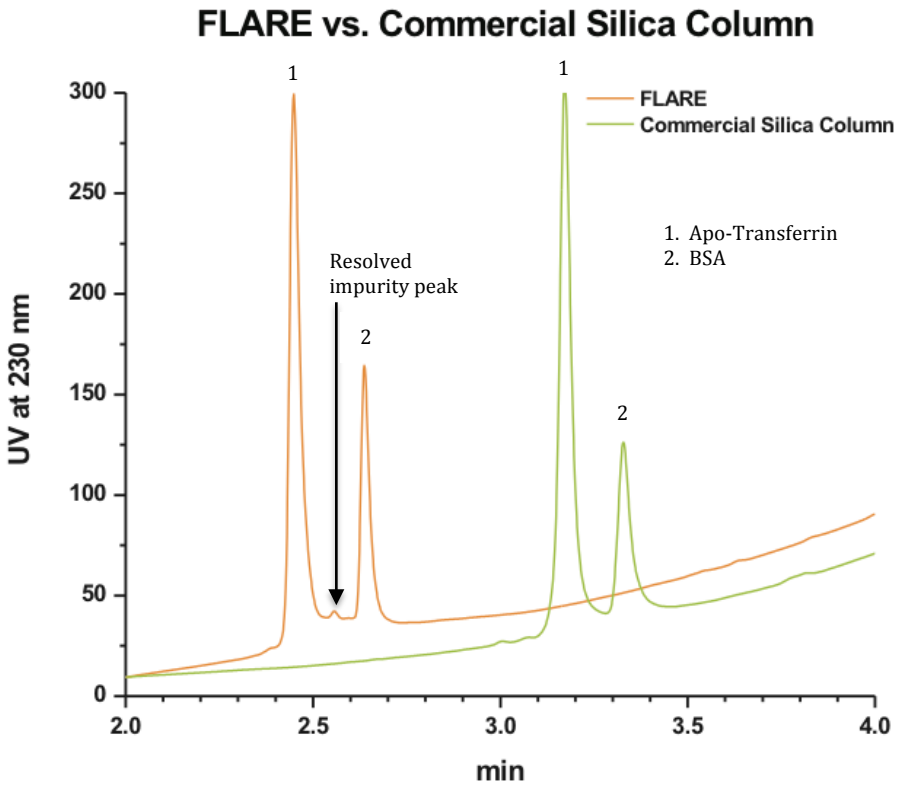
Separation of Apo-Transferrin and Bovine Serum Albumin (BSA) Proteins



The unique surface chemistry of the FLARE diamond core-shell column combines ionic and hydrophobic separation mechanisms to effectively retain a variety of chemical species in a single run.

HPLC Conditions

Columns:	FLARE 4.6x33 mm, Commercial Silica Column 4.6x50mm
Temperature:	55.0°C
Mobile Phase:	Solvent A: 50 ml ACN + 950 ml water + 2 ml TFA
	Solvent B: 1000 ml ACN + 2 ml TFA
Flow Rate:	1 ml/min
Injection:	2 µl, ca. 0.2 mg/ml in solvent A
Detection:	UV @ 230 nm
Gradient:	0 min 100% A. 4 min 10% A. 4.1 min 100% A. 10 min END



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Notes

Proteins are complex structures that are essential in modern drug development and discovery. Proteins are vital building blocks in our bodies and play a major role in creating overall health and wellness. In laboratory settings, separating complex proteins from other chemical structures, impurities and excipients is a major challenge for the pharmaceutical industry. The problem is that proteins may be complex, bulky, and fragile. They may also denature under certain conditions. In addition, these compounds are notorious for "sticking" onto columns, making their purification, analysis and quantitation difficult.

Conclusions

Recent drug development is creating a growing interest in the separation and purification of a variety of proteins, such as monoclonal antibodies (mAb) and antibody drug conjugates (ADC). These challenging separations require more robust platforms for improved analytical results. Diamond-based columns provide an exciting new tool that can handle complex protein mixtures even under elevated pH and temperature conditions, and can also deliver a more cost-effective solution that will save time and money to laboratory scientists. Diamond-based columns can also be regenerated under high pH conditions for a longer, useful life.

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