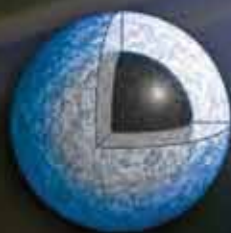


# Faster HPLC on *ANY* System



**Ascentis**  
**Express**

Maximize speed with sharp peaks

More peaks in less time

Faster throughput with rugged design

# Fast Ascentis Express HPLC Columns

Designed to deliver speed and resolution on all HPLC systems, Ascentis® Express with Fused-Core® technologies exceeds the benefits of sub-2, 3, and 5 micron particles. Ascentis Express delivers more resolving power per unit pressure than even sub-2 µm particles on any HPLC system (including UHPLC).

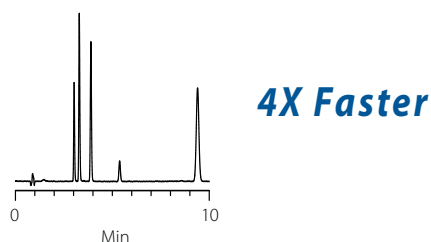
- Maximize speed with sharp peaks even at ultra-high flow rates
- More peaks in less time versus traditional columns
- Faster throughput per column with rugged design

## Faster HPLC on ANY System

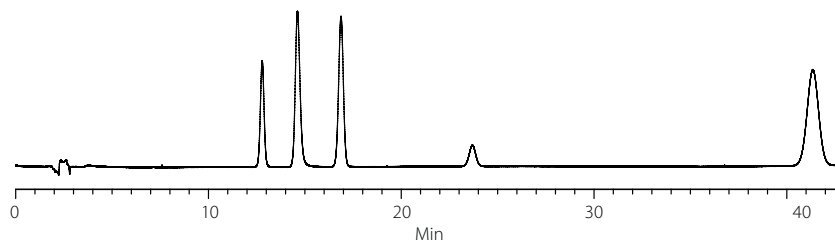
With identical conditions, the Ascentis Express C18 column performs more than **4X faster** than a standard C18 column.

Sample Prep	CONDITIONS Flow Rate	HPLC System	Ascentis Express C18 Throughput	Standard C18 Throughput
SAME	SAME	SAME	<b>4X Faster</b>	1X

**Ascentis Express C18, 10 cm x 4.6 mm I.D., 2.7 µm particles (53827-U)**



**C18, 25 cm x 4.6 mm I.D., 5 µm particles**



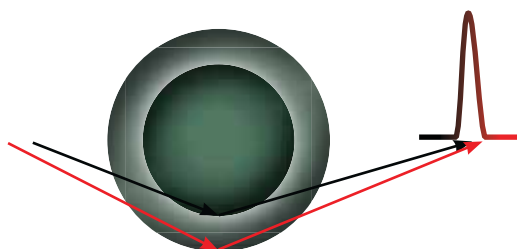
### Testimonial

*"The Ascentis Express columns packed with 2.7 µm Fused-Core particles offer a really high-separation power with modest operating pressure. The performance achieved under both gradient and isocratic condition, is comparable to those obtained with totally porous sub-2 µm particles."*

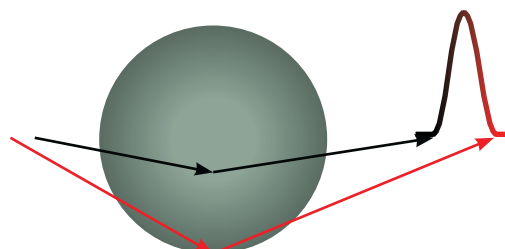
S. Fekete et al. / Journal of Pharmaceutical and Biomedical Analysis (2009) 703–709

# Fast Fused-Core Advantage

## Shorter Diffusion Path - Fast HPLC

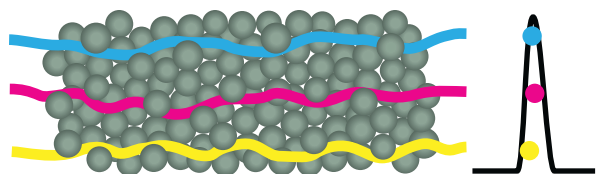


Fused-Core Particles

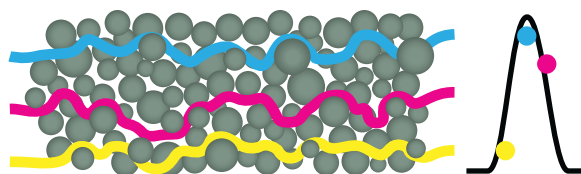


Traditional Porous Particles

## Consistent Bed - Sharp Peaks

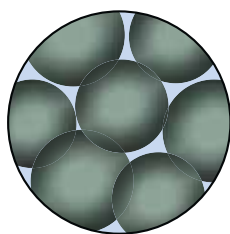


Fused-Core Particles

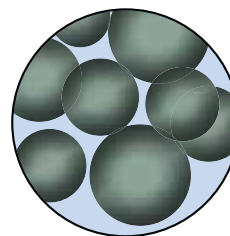


Traditional Porous Particles

## Narrow Particle Size Distribution - Rugged Column



Fused-Core Particles



Traditional Porous Particles

### Testimonial

*"The partially porous stationary phase material has demonstrated equivalent resolving power to sub-2  $\mu\text{m}$  materials under the ballistic gradient chromatography conditions employed, and shown to exhibit excellent resilience and performance over the analysis of thousands of protein precipitated plasma extracts, suggesting that this type of column is a valuable tool for pharmaceutical bioanalysts."*

D.N. Mallett, C. Ramírez-Molina / Journal of Pharmaceutical and Biomedical Analysis (2009) 100-107

# How to Get Started

Additional resources are available for helping you implement Fast Ascentis Express HPLC Columns into your laboratory.



## Web

Visit [sigma-aldrich.com/express](http://sigma-aldrich.com/express) for videos, product information, ordering and real time availability information.



## Email

Our technical service staff is ready to answer questions.

EU: [eurtechserv@sial.com](mailto:eurtechserv@sial.com)  
US: [techservice@sial.com](mailto:techservice@sial.com)

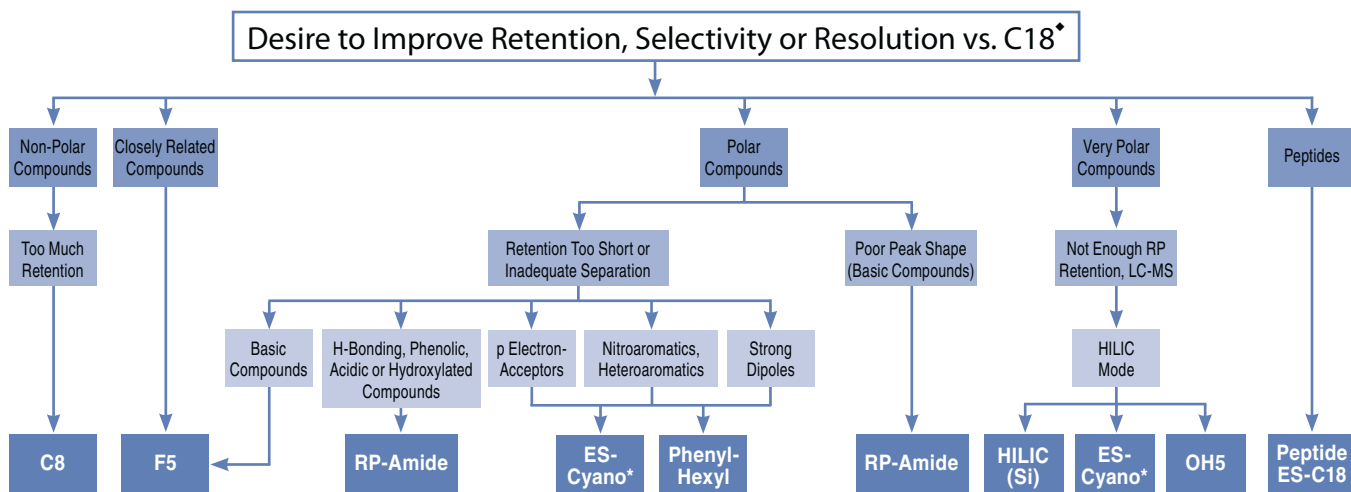


## In Person

A technical seminar can be arranged on-site or via the web. Request via [seminars@sial.com](mailto:seminars@sial.com).

## Selecting an Ascentis Express Phase

Ascentis Express C18 is the first choice for starting a new method. However, when a C18 doesn't give the desired separation or your sample contains compounds that are known to be difficult to retain or resolve on a C18, consider changing stationary phases. The range of selectivity provided by Ascentis Express makes this easy. The flow chart below helps guide in the selection of an Ascentis Express phase, based on the particular compound type or separation challenge.



\* Note that while the nominal pore size of the packing material in most Ascentis Express columns is 90 angstrom, the pore size of the packing material in Ascentis Express Peptide ES-C18 columns is 160 angstrom.

\* ES-Cyano is an extremely versatile column that works well in RP, NP or SFC modes.

### Testimonial

*"The performance characteristics of the new Fused-Core particle technology have been partially investigated in this work. The combination of low backpressures and high efficiencies allows for greater column length and flow rate flexibility than offered by sub-2 µm columns under any given pressure limitation."*

P. Donato et al. *J. Sep. Sci.* 2009, 32, 1129 – 1136

# Fast HPLC in *YOUR* Laboratory

Faster throughput is a driver for innovation in HPLC. Reducing particle size has been the strategy of many manufacturers to obtain Fast HPLC. The cost for the fast performance of smaller particles is the need to buy UHPLC systems due to the high backpressure of the small particles. Ascentis Express provides the fast HPLC of the smaller particles but at much lower backpressure suitable for all HPLC systems.

	Ascentis Express HPLC Columns	New UHPLC Systems
Low Cost to Evaluate	✓	
Uses Current HPLC Systems	✓	
Start Immediately	✓	
Expert Support Available Daily	✓	
Easy Transfer to other Labs	✓	
Expensive Capital Expenditure		✓
Long Trail of Paperwork for Approval		✓
Delays in Getting Set-up		✓
Overhaul SOPs		✓
Expensive User Training		✓
Columns Don't Last		✓

For more information, visit our website:  
[sigma-aldrich.com/express](http://sigma-aldrich.com/express)



#### Trademarks

Ascentis – Sigma-Aldrich Co. LLC; Fused-Core – Advanced Materials Technology, Inc.

#### Testimonial

*“The key advantages of the Fused-Core particle columns for pharmaceutically relevant analyses is their substantially lower back pressures which allows them to be used at much higher flow rates than porous sub-2 μm particle phases for fast LC applications, or the column length to be increased to improve separation efficiency without exceeding the capabilities of conventional HPLC equipment.”*

Abraham et al. / Journal of Pharmaceutical and Biomedical Analysis 51 (2010) 131–137

## Which column ID is best for my needs?

If you are doing Mass Spec ..... **2.1 mm I.D.**  
 If you want solvent savings ..... **3.0 mm I.D.**  
 If you are doing standard HPLC ..... **4.6 mm I.D.**

## Which column length is best for my needs?

If you want to maximize the speed of your application ..... **2 to 7.5 cm**  
 If you want a balance of resolution and speed ..... **10 cm**  
 If you want the best resolution possible ..... **15 cm**

## What flow rate is best for my needs?

If you are using a column with a 4.6 mm ID ..... **1.6 to 2.4 mL/min\***  
 If you are using a column with a 3.0 mm ID ..... **0.8 to 2.0 mL/min\***  
 If you are using a column with a 2.1 mm ID ..... **0.4 to 1.8 mL/min\***

\* Higher flow rates can be used.

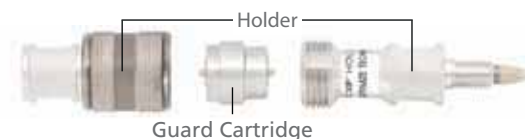
## Ordering Information

I.D.	Length	C18	C8	Peptide ES-C18	RP-Amide	Phenyl-Hexyl	ES-Cyano	F5	HILIC	OH5
<b>Ascentis Express Columns</b>										
2.1 mm	2 cm	53799-U	53795-U	—	53797-U	53798-U	53494-U	53592-U	—	53779-U
2.1 mm	3 cm	53802-U	53839-U	53299-U	53910-U	53332-U	53468-U	53566-U	53933-U	53748-U
2.1 mm	5 cm	53822-U	53831-U	53301-U	53911-U	53334-U	53470-U	53567-U	53934-U	53749-U
2.1 mm	7.5 cm	53804-U	53843-U	53304-U	53912-U	53335-U	53472-U	53568-U	53938-U	53755-U
2.1 mm	10 cm	53823-U	53832-U	53306-U	53913-U	53336-U	53473-U	53569-U	53939-U	53757-U
2.1 mm	15 cm	53825-U	53834-U	53307-U	53914-U	53338-U	53475-U	53571-U	53946-U	53764-U
3.0 mm	3 cm	53805-U	53844-U	53308-U	53915-U	53341-U	53476-U	53574-U	53964-U	53766-U
3.0 mm	5 cm	53811-U	53848-U	53311-U	53916-U	53342-U	53478-U	53576-U	53967-U	53767-U
3.0 mm	7.5 cm	53812-U	53849-U	53312-U	53917-U	53343-U	53479-U	53577-U	53969-U	53768-U
3.0 mm	10 cm	53814-U	53852-U	53313-U	53918-U	53345-U	53481-U	53578-U	53970-U	53769-U
3.0 mm	15 cm	53816-U	53853-U	53314-U	53919-U	53346-U	53483-U	53579-U	53972-U	53771-U
4.6 mm	3 cm	53818-U	53857-U	53316-U	53921-U	53347-U	53484-U	53581-U	53974-U	53772-U
4.6 mm	5 cm	53826-U	53836-U	53318-U	53922-U	53348-U	53486-U	53583-U	53975-U	53774-U
4.6 mm	7.5 cm	53819-U	53858-U	53323-U	53923-U	53351-U	53489-U	53584-U	53977-U	53775-U
4.6 mm	10 cm	53827-U	53837-U	53324-U	53929-U	53352-U	53491-U	53590-U	53979-U	53776-U
4.6 mm	15 cm	53829-U	53838-U	53328-U	53931-U	53353-U	53492-U	53591-U	53981-U	53778-U
<b>Ascentis Express Guard Cartridges, Pk of 3</b>										
2.1 mm	—	53501-U	53509-U	53536-U	53514-U	53524-U	53495-U	53594-U	53520-U	53780-U
3.0 mm	—	53504-U	53511-U	53537-U	53516-U	53526-U	53496-U	53597-U	53521-U	53781-U
4.6 mm	—	53508-U	53512-U	53542-U	53519-U	53531-U	53497-U	53599-U	53523-U	53782-U

<b>Capillary Ascentis Express Columns</b>				
75 µm	5 cm	53982-U	53983-U	53543-U
75 µm	15 cm	54219-U	54229-U	53549-U
100 µm	5 cm	53985-U	53987-U	53544-U
100 µm	15 cm	54256-U	54260-U	53552-U
200 µm	5 cm	53989-U	53991-U	53545-U
200 µm	15 cm	54261-U	54262-U	53553-U
300 µm	5 cm	53992-U	53997-U	53546-U
300 µm	15 cm	54271-U	54272-U	53554-U
500 µm	5 cm	53998-U	53999-U	53547-U
500 µm	15 cm	54273-U	54275-U	53558-U
1000 µm	5 cm	—	—	53548-U
1000 µm	15 cm	—	—	53561-U

## Ascentis Express Guard Columns

Description	Cat. No.
<b>Universal Guard Holder</b>	
Holder w/EXP Titanium Hybrid Ferrule (cartridge not included)	53500-U



## Trademarks

Ascentis – Sigma-Aldrich Co. LLC; Fused-Core – Advanced Materials Technology Inc.

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