

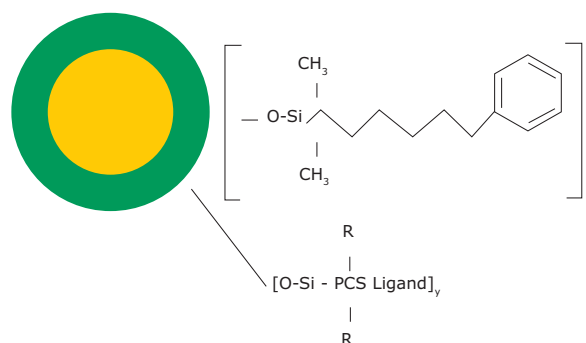
# Ascentis<sup>®</sup> Express PCS Phenyl-Hexyl, 2.7 μm U/HPLC Columns

Positive Charge Surface Phenyl-Hexyl Phase for Improved Separations of Basic Analytes

The Ascentis<sup>®</sup> Express 90 Å PCS Phenyl-Hexyl 2.7 μm U/HPLC column offers an alternative selectivity in comparison to C18 columns. The pi-pi interactions between the Phenyl-Hexyl bonded phase and aromatic analytes can alter the separation selectivity relative to the alkyl C18 phase. This PCS Phenyl-Hexyl phase is recommended for separating aromatic compounds, such as small molecule pharmaceuticals, many of which include both basic and aromatic functional groups.

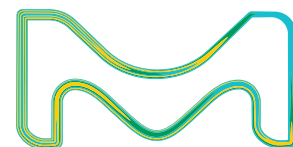
## Features and Benefits

- Alternative selectivity compared to C18
- Excellent peak shape and increased loading capacity for basic compounds
- Advanced Fused-Core<sup>®</sup> technology for fast separations with maximum resolution
- Excellent UHPLC and LC-MS compatibility



### Ascentis<sup>®</sup> Express PCS Phenyl-Hexyl, 2.7 μm specifications:

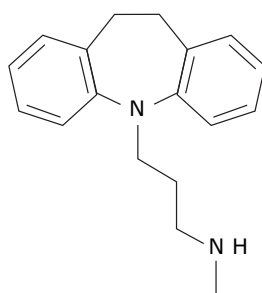
<b>Silica:</b>	Type B (High purity silica)
<b>Particle platform:</b>	Superficially porous particles (FPP)
<b>Phase chemistry:</b>	Dimethylphenyl-hexyl and positively charged ligand
<b>USP:</b>	L11
<b>Particle size:</b>	2.7 μm
<b>Pore size:</b>	90 Å
<b>Carbon load:</b>	6.10%
<b>Surface Area:</b>	125 m <sup>2</sup> /g
<b>pH range:</b>	2 - 7
<b>Max temperature:</b>	60 °C
<b>Endcapped:</b>	Yes



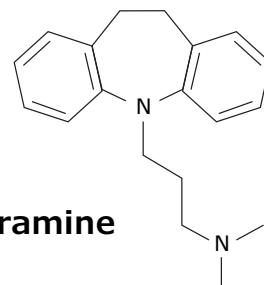
## Improved Resolution of Imipramine Impurity Analysis

The isocratic separation of imipramine and its N-demethylation product, desipramine, demonstrates how the enhancements in peak shape and selectivity of the Ascentis® Express PCS Phenyl-Hexyl column can effectively resolve two closely retained solutes.

The PCS Phenyl-Hexyl column exhibits a selectivity value of 1.08 for this peak pair, which represents a modest but beneficial improvement over the competitor C18 value of 1.06. This increase in selectivity is further supported by sharper peaks at both 20 and 200 ng, resulting in baseline resolution.



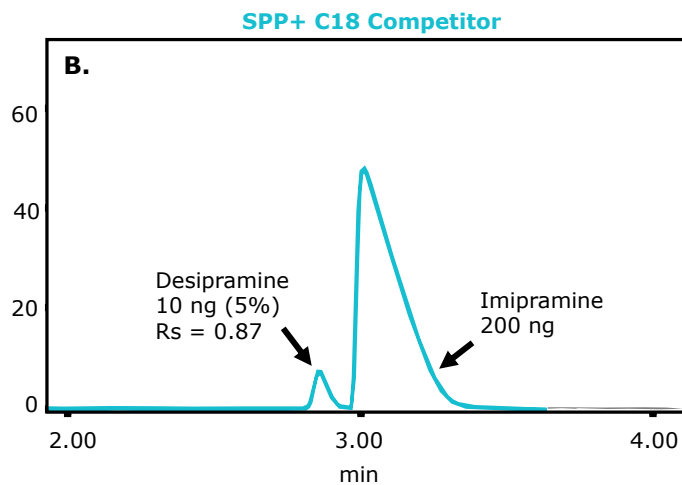
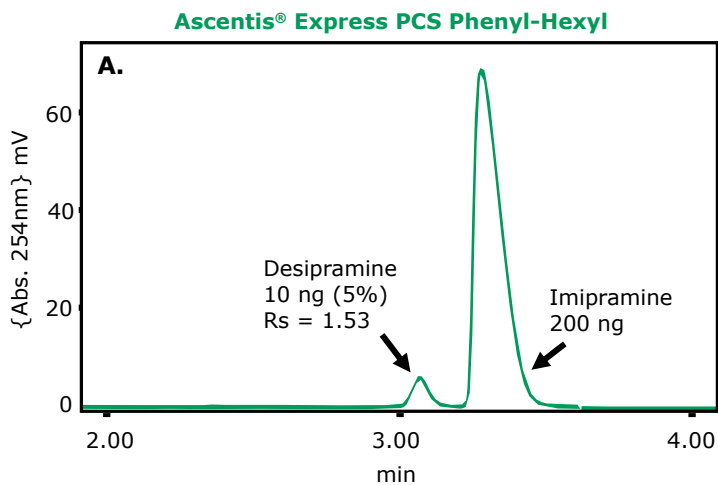
**Desipramine**



**Imipramine**

### Chromatographic Conditions:

<b>Column:</b>	(A) Ascentis® Express 90 Å PCS Phenyl-Hexyl, (B) 90 Å SPP Comp. Charged Surface C18, both 2.7 µm, 100 mm x 2.1 mm I.D.
<b>Mobile Phase:</b>	(A) Water, 0.1% Formic Acid (B) Acetonitrile, 0.1% Formic Acid
<b>Isocratic:</b>	Ascentis® Express 90 Å PCS Phenyl-Hexyl: 17% B 90 Å SPP Comp. Charged Surface C18: 22% B
<b>Flow Rate:</b>	0.5 mL/min
<b>Temperature:</b>	35 °C
<b>Injection:</b>	1 µL
<b>Detection:</b>	PDA, 254 nm



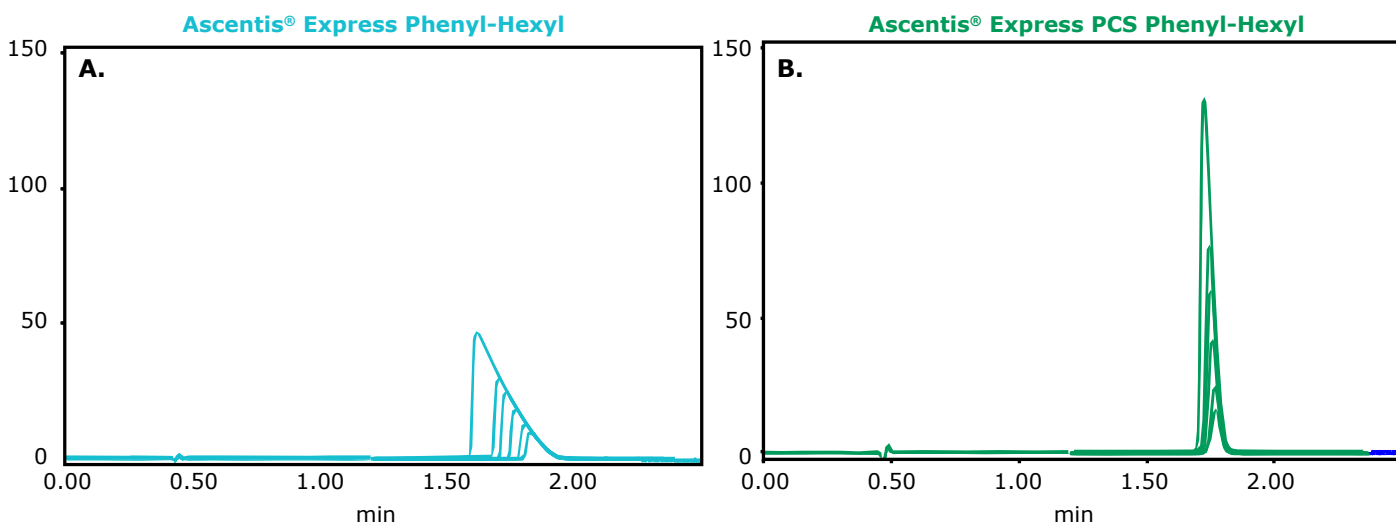
An improved baseline resolved separation of spiked desipramine impurity from imipramine using the new PCS Phenyl-Hexyl column.

## Improving the Separation of Antidepressants

The chromatogram below demonstrates the improved performance of basic analytes with PCS technology. In this experiment, nortriptyline is injected at loads of 20-200 ng using water and acetonitrile (MeCN) with 0.1% formic acid as the mobile phase. A non-charged 90 Å SPP Phenyl-Hexyl column (2.7 µm) is compared to the 90 Å Ascentis® Express PCS Phenyl-Hexyl column (2.7 µm). The positively charged ligand significantly reduces peak tailing and enhances column efficiency, while the PCS column shows less overload compared to the non-charged version. The amount of acetonitrile in the mobile phase is also reduced for the PCS Phenyl-Hexyl, although the PCS ligand decreases retention of cationic analytes compared to the non-charged column.

### Chromatographic Conditions:

<b>Column:</b>	(A) Ascentis® Express 90 Å Phenyl-Hexyl, (B) Ascentis® Express 90 Å PCS Phenyl-Hexyl, both 2.7 µm, 100 mm x 2.1 mm I.D.
<b>Mobile Phase:</b>	(A) Water, 0.1% Formic Acid (B) Acetonitrile, 0.1% Formic Acid
<b>Isocratic:</b>	Ascentis® Express 90 Å Phenyl-Hexyl: 32% B Ascentis® Express 90 Å PCS Phenyl-Hexyl : 22% B
<b>Flow Rate:</b>	0.5 mL/min
<b>Temperature:</b>	35 °C
<b>Injection:</b>	1 µL
<b>Detection:</b>	PDA, 254 nm
<b>Sample:</b>	Nortriptyline 20-200ng



Improvements in basic peak shape with Ascentis® Express PCS Phenyl-Hexyl compared to non-charged SPP Phenyl-Hexyl.

## Ordering Information

### Ascentis® Express PCS Phenyl-Hexyl, 2.7 µm

Length (mm)		I.D. (mm)	Cat. No.
50	x	1.5	50686-U
100	x	1.5	50688-U
150	x	1.5	50689-U
50	x	2.1	50690-U
100	x	2.1	50691-U
150	x	2.1	50692-U
50	x	3.0	50693-U
100	x	3.0	50694-U
150	x	3.0	50696-U
50	x	4.6	50697-U
100	x	4.6	50700-U
150	x	4.6	50702-U
<b>Guard Columns (3 pk)</b>			
5	x	2.1	50703-U
5	x	3	50704-U
5	x	4.6	50705-U

#### To place an order or receive technical assistance

Order/Customer Service: [SigmaAldrich.com/order](https://SigmaAldrich.com/order)

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