

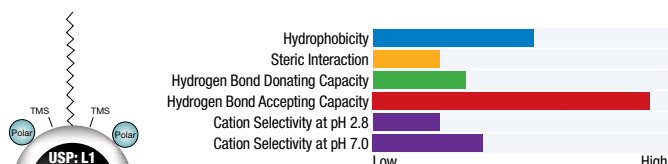
APPLICATIONS

Reference Analysis of Active Ingredients Betamethasone, Clotrimazole, and Gentamicin from a Topical Cream Formulation using a Kinetex® 2.6 µm Polar C18 HPLC/UHPLC Column

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Overview

The active ingredients gentamicin, clotrimazole, and betamethasone are drug substances which can be formulated into topically administered creams. In this application, we investigated a reversed phase method that leveraged the dual selectivity of the Kinetex Polar C18 because of the differences in polarity and hydrophobicity between these three compounds. This column combines a polar modified surface and the hydrophobic selectivity of a bonded C18 chain. The result is a USP classified L1 column, that provides both a unique polar selectivity and is 100 % aqueous stable. In addition, the Kinetex solid support is a superficially porous (core-shell) particle morphology that provides ultra-high column efficiency on any HPLC/UHPLC system.¹



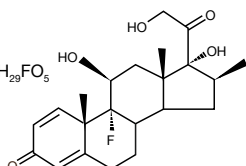
Column: Kinetex 2.6 µm Polar C18
Dimensions: 150 x 4.6 mm
Part No.: 00F-4759-E0
Mobile Phase: A: Water with 30 mM Potassium Phosphate (pH 3.0)
 B: Acetonitrile

Gradient:	Time (min)	% B
	0	50
	8	80

Flow Rate: 1.0 mL/min
Injection Volume: 10 µL
Temperature: Ambient
Detection: UV @ 254 nm
Sample: 1. Gentamicin (2.0 min)
 2. Clotrimazole (3.1 min)
 3. Betamethasone (5.9 min)

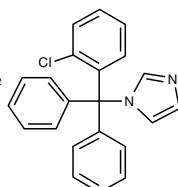
Betamethasone

Molecular Formula: C₂₂H₂₉FO₅
 Acidic pKa: 12.42
 LogD: 1.68 (@ pH 3.0)



Clotrimazole

Molecular Formula: C₂₂H₁₇ClN₂
 Acidic pKa: 6.26
 LogD: 5.2 (@ pH 3.0)



Gentamicin

Molecular Formula: C₂₁H₄₃N₅O₇
 Acidic pKa: 12.55, 10.12 (strongest basic)
 logD: -18.7 (@ pH 3.0)

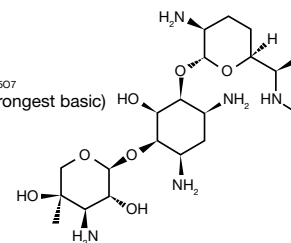
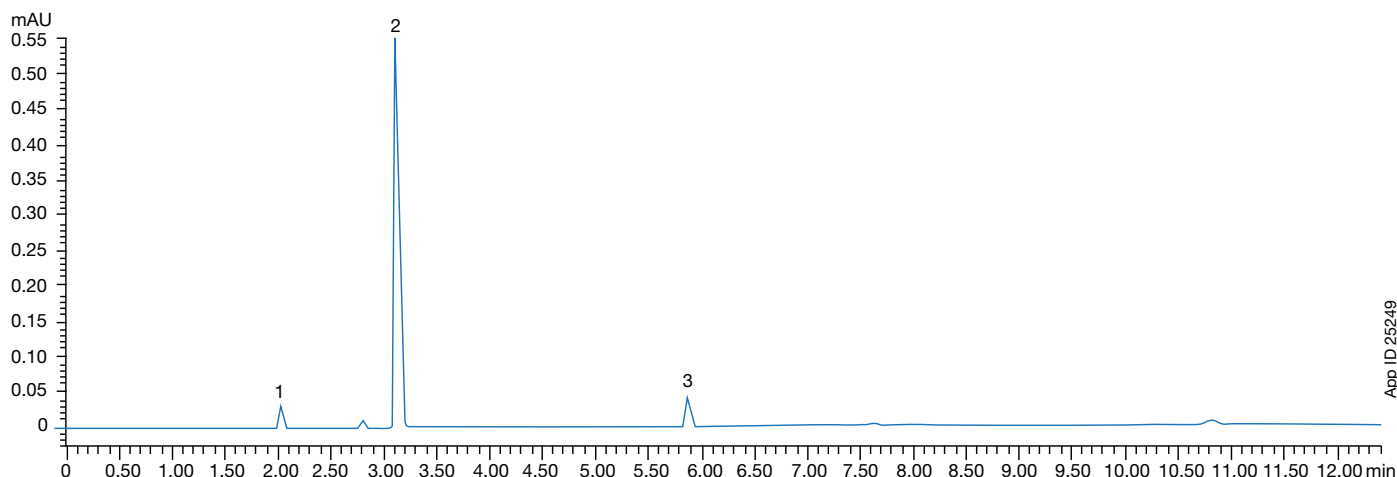


Figure 1.
Representative Chromatogram of Betamethasone, Clotrimazole, and Gentamicin



App ID 25249

APPLICATIONS

Kinetex® Ordering Information

2.6 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges†
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4759-AN	00B-4759-AN	00D-4759-AN	00F-4759-AN	AJ0-9532 for 2.1 mm ID

2.6 µm MidBore™ Columns (mm)				SecurityGuard ULTRA Cartridges†
Phases	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
Polar C18	00B-4759-Y0	00D-4759-Y0	00F-4759-Y0	AJ0-9531 for 3.0 mm ID

2.6 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges†
Phases	50 x 4.6	100 x 4.6	150 x 4.6	3/pk
Polar C18	00B-4759-E0	00D-4759-E0	00F-4759-E0	AJ0-9530 for 4.6 mm ID

† SecurityGuard ULTRA Cartridges require holder, Part No.: AJ0-9000.

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References

1. Fabrice Gritti, Georges Guiochon. Facts and Legends About Columns Packed with sub-3-µm Core Shell Particles. *LC-GC North America*. 2012, 30(7), 586-595.



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