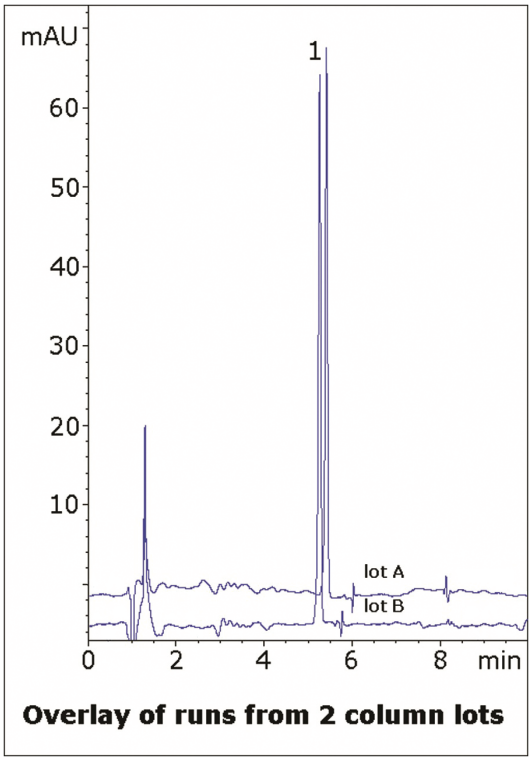
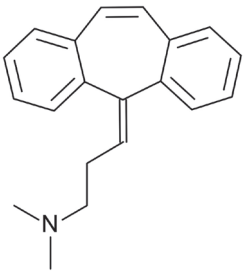
Cyclobenzaprine Tablet

ANP retention of hydrophobic compound



Overlay of runs from 2 column lots



Cyclobenzaprine

Note: Cyclobenzaprine is a muscle relaxant and used to treat fibromyalgia. Cyclobenzaprine is structurally related to first-generation tricyclic antidepressants. It is marketed under the trade name Flexeril®.

Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å

Catalog No.: 70000-7.5P

Dimensions: 4.6 x 75 mm

Mobile Phase: A: DI H_2O / 0.1% formic acid (v/v)
B: Acetonitrile / 0.1% formic acid (v/v)

Gradient:

time (min.)	%B
0	95
1	95
6	40
7	95

Injection vol.: 1µL

Flow rate: 1.0 mL/min

Detection: UV 224 nm

Sample: 10mg strength cyclobenzaprine tablet was ground and added to a 25mL volumetric flask. A diluent of 50:50 solvent A:B was added and the flask was sonicated 30 min. It was then diluted to mark, mixed, and filtered with a 0.45µm nylon syringe filter (MicroSolv Tech Corp.). A portion of the filtrate was diluted 1:10 for HPLC injections.

Peak: 1. Cyclobenzaprine

t_0: 0.9 min

Discussion

One of the advantages of Aqueous Normal Phase (ANP) chromatography is that both hydrophobic and hydrophilic compounds can be retained. This application note shows an excellent example of hydrophobic analyte retention. Although cyclobenzaprine has a log P of approximately 4.6–4.9, it is readily retained with a symmetrical peak shape using the Cogent Diamond Hydride column. In this case, the tertiary amine is thought to significantly contribute to the ANP retention.

Data from two lots is shown to illustrate the reproducibility of the stationary phase production.

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