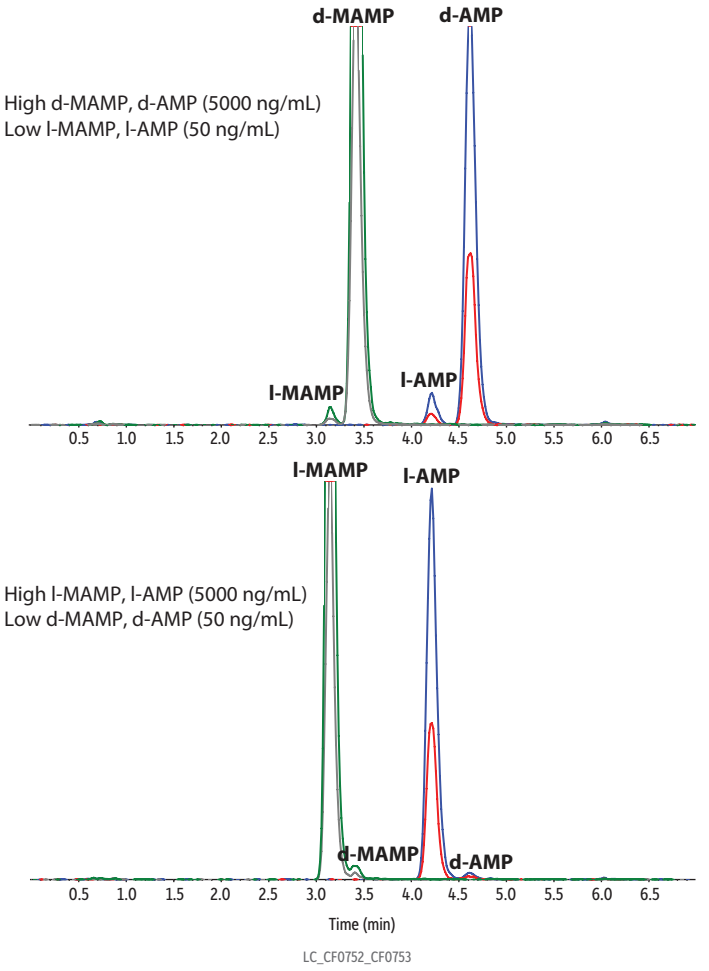
# Selectivity of d- and l-AMP & MAMP Enantiomers in Urine on Raptor C18 by LC-MS/MS

- **Excellent separation of d & l amphetamines (chiral compounds) in human urine.**
- **Compatible with typical reversed-phase method conditions at extreme concentrations.**
- **Simplified workflow: easy precolumn derivatization and dilution.**
- **Accurately identify/quantify licit vs. illicit methamphetamine.**




LC_CF0752_CF0753

| Peaks | Precursor Ion | Product Ion | Product Ion |
|---|---|---|---|
| 1. l-Methamphetamine (l-MAMP) | 400.3 | 339.0 | 323.8 |
| 2. d-Methamphetamine (d-MAMP) | 400.3 | 339.0 | 323.8 |
| 3. l-Amphetamine (l-AMP) | 386.1 | 325.0 | 308.0 |
| 4. d-Amphetamine (d-AMP) | 386.1 | 325.0 | 308.0 |

All analytes are DNPA derivatives.

**Column**
Dimensions: 100 mm x 2.1 mm ID
Particle Size: 2.7 µm
Pore Size: 90 Å
Guard Column: Raptor C18 EXP guard column cartridge 5 mm, 2.1 mm ID, 2.7 µm (cat.# 9304A0252)
Temp.: 35 °C

**Standard/Sample**
Diluent: 40:60 Water:methanol (v/v)
Conc.: 50-5000 ng/mL in urine
Inj. Vol.: 10 µL

**Mobile Phase**
A: 0.1% Formic acid in water
B: 0.1% Formic acid in methanol

| Time (min) | Flow (mL/min) | %A | %B |
|---|---|---|---|
| 0.00 | 0.5 | 40 | 60 |
| 5.00 | 0.5 | 40 | 60 |
| 5.01 | 0.5 | 10 | 90 |
| 5.50 | 0.5 | 10 | 90 |
| 5.51 | 0.5 | 40 | 60 |
| 7.00 | 0.5 | 40 | 60 |

**Detector** MS/MS
Ion Source: Electrospray
Ion Mode: ESI-

**Sample Preparation**
Two multi-analyte standards were prepared in pooled human urine: one at 5000 ng/mL d-MAMP-d-AMP + 50 ng/mL l-MAMP-l-AMP, and the other at 5000 ng/mL l-MAMP-l-AMP + 50 ng/mL d-MAMP-d-AMP. 50 µL from each of the standards was aliquoted into two separate microcentrifuge tubes. 10 µL of a working internal standard (20 µg/mL (±)-amphetamine-D11 and (±)-methamphetamine-D11 in water) and 20 µL of 1M $NaHCO_3$ were added and vortexed at 3000 rpm for 10 seconds, respectively. After vortexing, 100 µL of 0.1% (w/v) Marfey's Reagent (1-fluoro-2-4-dinitrophenyl-5-L-alanine amide) in acetone was added to both the tubes, vortexed, and heated at 45 °C for 1 hour. Samples were allowed to cool to room temperature before the addition of 40 µL of 1M HCl in water. The samples were then vortexed and evaporated to dryness under nitrogen at 45 °C. Samples were reconstituted in 1 mL of 40:60 water:methanol (v/v) and filtered using Thomson SINGLE StEP standard filter vials (cat.# 25893) prior to analysis.