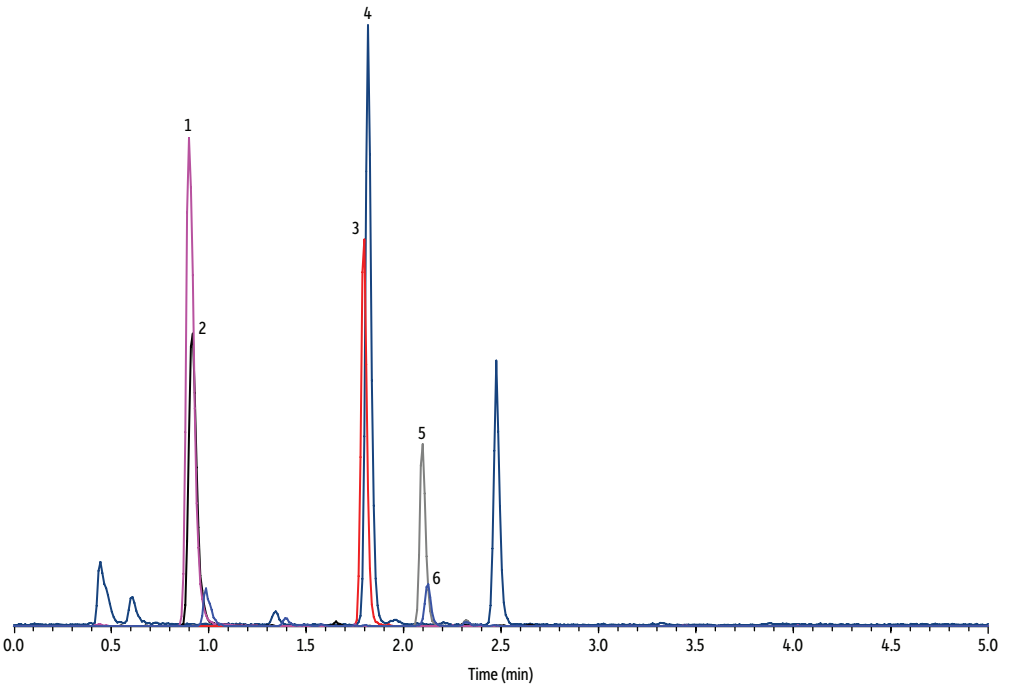
## Vanillylmandelic Acid, Homovanillic Acid, and 5-Hydroxyindoleacetic Acid in Human Urine (Quantitative Control Level 1) on Raptor™ Biphenyl




| Peaks | $t_R$ (min) | Conc. (µg/mL) | Precursor Ion | Product Ion |
|---|---|---|---|---|
| 1. 4-Hydroxy-3-methoxymandelic acid-D3 (VMA-D3) | 0.90 | 0.83 | 200.1 | 139.9 |
| 2. Vanillylmandelic acid (VMA) | 0.92 | 2.12–3.90* | 197.0 | 137.9 |
| 3. 5-Hydroxyindole-4,6,7-D3-3-acetic-D2 acid (5-HIAA-D5) | 1.80 | 0.83 | 195.1 | 148.0 |
| 4. 5-Hydroxyindole-3-acetic acid (5-HIAA) | 1.82 | 2.69–4.49* | 190.0 | 145.9 |
| 5. 4-Hydroxy-3-methoxyphenyl-D3-acetic-D2 acid (HVA-D5) | 2.10 | 0.83 | 186.1 | 127.0 |
| 6. Homovanillic acid (HVA) | 2.12 | 1.33–2.46* | 181.0 | 121.9 |

*These concentration ranges were supplied by the vendor (see notes).

**Column** Raptor™ Biphenyl (cat.# 9309512)
Dimensions: 100 mm x 2.1 mm ID
Particle Size: 5 µm
Pore Size: 90 Å
Guard Column: Raptor™ Biphenyl guard column cartridge 5 mm, 2.1 mm ID, 5 µm (cat.# 930950252)
Temp.: 30 °C
**Sample**
Diluent: Water
Inj. Vol.: 5 µL
**Mobile Phase**
A: 0.1% Formic acid, 5 mM ammonium formate in water
B: Methanol

| Time (min) | Flow (mL/min) | %A | %B |
|---|---|---|---|
| 0.00 | 0.5 | 85 | 15 |
| 3.00 | 0.5 | 20 | 80 |
| 3.01 | 0.5 | 85 | 15 |
| 5.00 | 0.5 | 85 | 15 |

**Detector** MS/MS
Ion Mode: ESI-
Mode: MRM
**Instrument** UHPLC
**Notes** The human urine sample is the Bio-Rad Lyphochek® quantitative urine control, level 1. A 40 µL aliquot of urine was mixed with 360 µL of water and 10 µL of internal standard solution (33.3 µg/mL in methanol) in a Thomson 0.45 µm PVDF filter vial and injected for analysis after filtration.
Mode: MRM
**Instrument** UHPLC

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