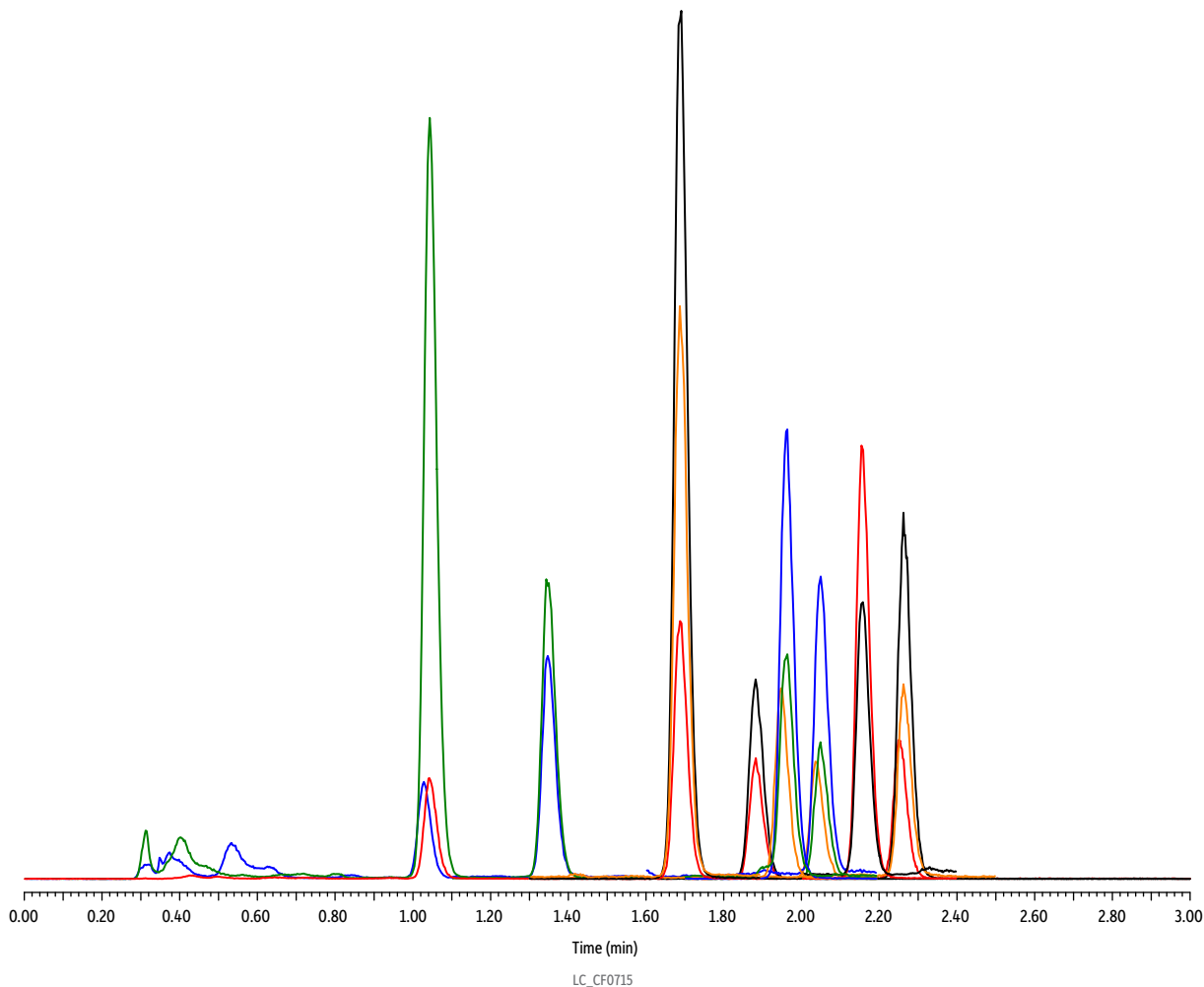


Fentanyl and Analogues in Urine on Raptor Biphenyl by LC-MS/MS



Peaks	Retention Time (min)	Concentration (ng/mL)	Precursor Ion	Product Ion	Product Ion
1. Norfentanyl-d5	1.03	1	238.30	84.15	-
2. Norfentanyl	1.04	10	233.27	84.15	56.06
3. Remifentanyl	1.34	10	377.37	113.15	317.30
4. Acetyl fentanyl-13C6	1.69	1	329.37	188.25	-
5. Acetyl fentanyl	1.69	10	323.37	188.25	105.15
6. Alfentanil	1.88	10	417.47	268.31	197.23
7. Fentanyl-d5	1.95	1	342.47	188.27	-
8. Fentanyl	1.96	10	337.37	188.26	105.08
9. Carfentanyl-d5	2.04	1	400.40	340.41	-
10. Carfentanyl	2.05	10	395.40	113.14	335.35
11. Butyryl fentanyl	2.15	10	351.43	188.20	105.15
12. Sufentanil-d5	2.25	1	392.40	238.25	-
13. Sufentanil	2.26	10	387.40	238.19	111.06

Column: Raptor Biphenyl (cat.# 9309552)
 Dimensions: 50 mm x 2.1 mm ID
 Particle Size: 5 µm
 Pore Size: 90 Å
 Guard Column: Raptor Biphenyl EXP guard cartridge 5 mm, 2.1 mm ID, 5 µm (cat.# 930950252)
 Temp.: 40 °C
Standard/Sample:
 Diluent: 70:30 Water:methanol
 Inj. Vol.: 5 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	0.4	70	30
2.50	0.4	30	70
2.51	0.4	70	30
3.50	0.4	70	30

Detector: MS/MS
 Ion Mode: ESI+
 Mode: MRM
Instrument: UHPLC

Sample Preparation: Human urine was fortified at 10 ng/mL with target analytes. An 80 µL urine aliquot was mixed with 320 µL of 70:30 water:methanol solution (5-fold dilution) and 10 µL of internal standard solution (40 ng/mL in methanol) in a Thomson SINGLE STEP filter vial (Restek cat.# 25895). After filtering through the 0.2 µm PVDF membrane, 5 µL was injected for analysis.