

# The Analysis of Morphine & Metabolites in Urine without Hydrolysis on Force Biphenyl

Peaks	t <sub>R</sub> (min)	Precursor Ion	Product Ion	Product Ion
1. Morphine-3-β-D-glucuronide	0.61	462.1	286.0	152.1
2. Morphine	1.06	286.1	152.0	164.9
3. Morphine-6-β-D-glucuronide	1.17	462.1	286.0	152.1
4. Morphine-N-oxide	1.30	302.1	284.9	161.9
5. 6-Monoacetylmorphine	1.81	328.1	211.1	165.0
6. Hydrocodone	1.91	300.3	199.2	128.3

**Column** Force Biphenyl (cat.# 9629252)  
**Dimensions:** 50 mm x 2.1 mm ID  
**Particle Size:** 1.8 μm  
**Guard Column:** UltraShield UHPLC precolumn filter, 0.2 μm frit (cat.# 25809)  
**Temp.:** 40 °C

**Sample**  
**Conc.:** A 750 ng/mL standard was prepared in 1 mL of urine. 100 μL of the fortified urine standard was diluted with 900 μL of 0.1% formic acid in water prior to analysis.

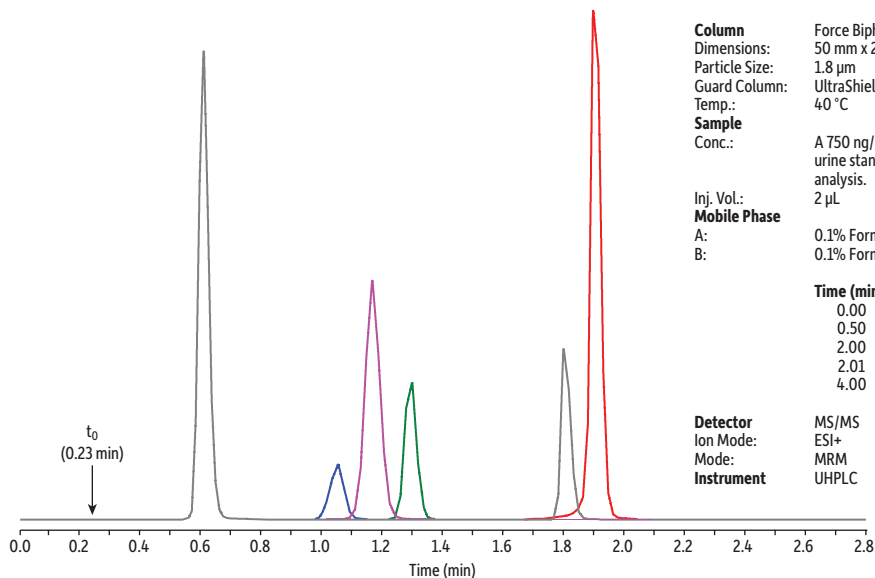
**Inj. Vol.:** 2 μL

**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	85	15
0.50	0.5	85	15
2.00	0.5	30	70
2.01	0.5	85	15
4.00	0.5	85	15

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



LC\_CF0680