

**Conditions**

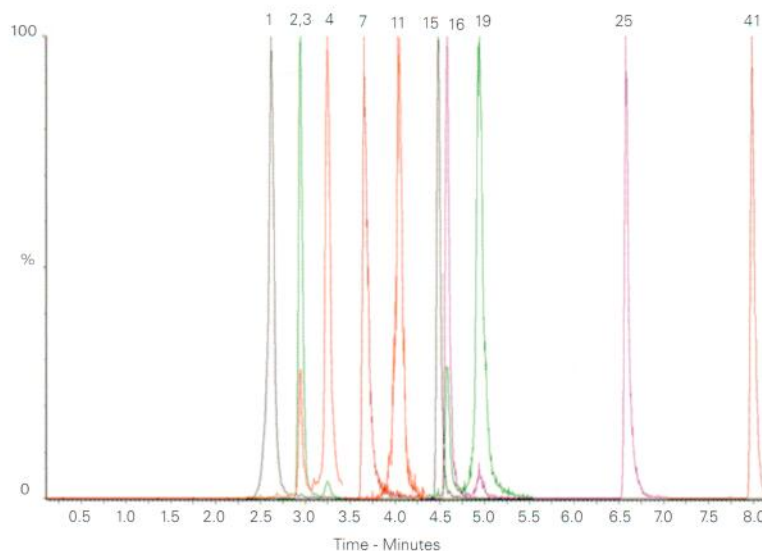
**Column:** ACE Excel 1.7 C18  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-171-1002U  
**Mobile Phase:** A: 5 mM ammonium acetate in H<sub>2</sub>O  
 B: 5 mM ammonium acetate in MeOH  
**Gradient:**

Time (mins)	%B
0.0	10
10.0	90
11.9	90
13.4	10
15.5	10

**Flow Rate:** 0.3 mL/min  
**Injection:** 10 µL  
**Temperature:** 40 °C  
**Detection:** MS Quattro Premier XE triple quad  
 MRM, positive and negative ESI mode  
 Desolvation temperature: 450 °C  
 IonSource temperature: 150 °C  
 Collision gas pressure: 3.5 x 10<sup>-3</sup> mbar

**Analytes**

- |   |  |  |
|---|--|--|
| 1. Oxycodone<br>(m/z 302.2 → 198.1)     | 7. Dihydrocodeine<br>(m/z 302.2 → 199.1) | 19. Hydrocodone<br>(m/z 300.2 → 199.1) |
| 2. Morphine-d3<br>(m/z 289.2 → 201.0)   | 11. Oxycodone<br>(m/z 316.2 → 241.2)     | 25. EDDP<br>(m/z 278.2 → 234.2)        |
| 3. Morphine<br>(m/z 286.2 → 201.0)      | 15. 6-MAM<br>(m/z 328.2 → 165.1)         | 41. Methadone<br>(m/z 310.2 → 265.2)   |
| 4. Hydromorphone<br>(m/z 286.2 → 185.1) | 16. Codeine<br>(m/z 300.3 → 215.1)       |  |



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Opiates in Urine by LC-MS/MS

**Conditions**

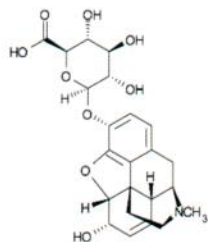
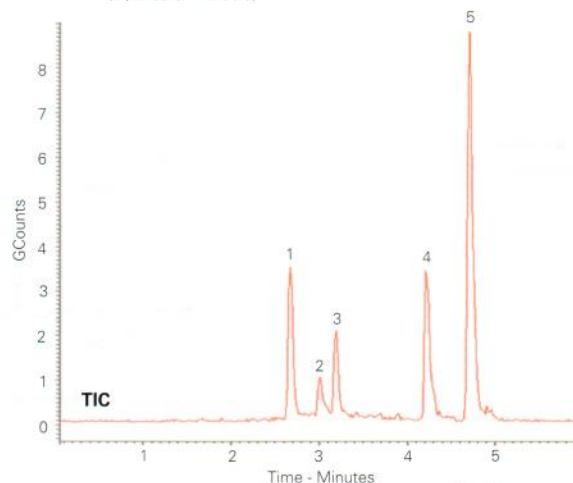
**Column:** ACE Excel 3 SuperC18  
**Dimensions:** 75 x 2.1 mm  
**Part Number:** EXL-1111-7502U  
**Mobile Phase:** A: 5 mM ammonium hydroxide pH 10.8 in H<sub>2</sub>O  
 B: 5 mM ammonium hydroxide pH 10.8 in MeOH/H<sub>2</sub>O (90:10 v/v)  
**Gradient:**

Time (mins)	%B
0	30
5	95

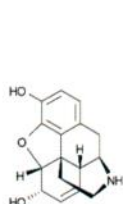
**Flow Rate:** 0.6 mL/min  
**Injection:** 2 µL  
**Temperature:** 60 °C  
**Detection:** Varian 320 Triple Quadrupole MS  
 Electrospray voltage: +5 kV  
 Inlet capillary voltage: 30 V  
 CID with argon at 1.5 mTorr  
 Collision cell potential ranges from 5 to 17 V  
 Drying gas (nitrogen) temperature: 325 °C  
 Nebulizing gas (nitrogen) pressure: 35 psi  
 Extended Dynamic Range

**Analytes**

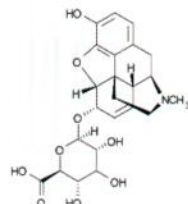
- |  |   |  |
|--|---|--|
| 1. Oxycodone 3-β-D-glucuronide<br>LOD (est) 100 ppb<br>(m/z 462.0 → 285.9) | 3. Morphine 6-β-D-glucuronide<br>LOD (est) 100 ppb<br>(m/z 462.0 → 285.9) | 5. 6-Acetylmorphine<br>LOD (est) 10 ppb<br>(m/z 328.0 → 164.9) |
| 2. Normorphine<br>LOD (est) 100 ppb<br>(m/z 272.0 → 165.0)                 | 4. Morphine<br>LOD (est) 20 ppb<br>(m/z 286.0 → 200.9)                    |  |



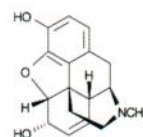
Morphine 3-β-D-glucuronide



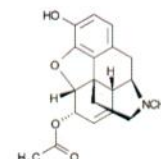
Normorphine



Morphine 6-β-D-glucuronide



Morphine



6-Acetylmorphine