

응용 자료

## Gradient Separation of Morphine and Metabolites on ACQUITY UPLC BEH HILIC

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Waters Corporation



*For forensic toxicology use only.*

This is an Application Brief and does not contain a detailed Experimental section.

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## Abstract

This application brief demonstrates the gradient separation of morphine and metabolites on ACQUITY UPLC BEH HILIC Columns.

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## Introduction

The compounds used in this study are:

1. 10-Hydroxymorphine
  2. Morphine-3 $\beta$ -D-glucuronide
  3. Morphine-6 $\beta$ -D-glucuronide
  4. Morphine
  5. Morphine N-oxide
  6. 6-Acetylmorphine
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## Experimental

### Test Conditions

|                 |   |
|-----------------|---|
| Column:         | ACQUITY UPLC BEH HILIC, 2.1 x 100 mm,<br>1.7 $\mu$ m  |
| Part Number:    | 186003461   |
| Mobile Phase A: | 10 mM NH <sub>4</sub> COOH in H <sub>2</sub> O, 0.125% HCOOH<br>in 50:50 ACN:H <sub>2</sub> O |

Mobile Phase B: 10 mM NH<sub>4</sub>COOH in H<sub>2</sub>O, 0.125% HCOOH  
in 90:10 ACN:H<sub>2</sub>O

Flow Rate: 0.5 mL/min

Injection Volume: 15 µL

Sample Concentration: 50 ng/mL each

Sample Diluent: 75:25 ACN:MeOH

Column Temperature: 30 °C

Instrument: Waters ACQUITY UPLC with TQD

MRM:

- Morphine 286 > 201
- Morphine-3β-D-glucuronide 462 > 286
- Morphine-6β-D-glucuronide 462 > 286
- Morphine N-oxide 302 > 162
- 6-acetylmorphine 328 > 165
- 10-hydroxymorphine 302 > 58

Dwell Time: 25 ms

ISD: 10 ms

ICD: 10 ms

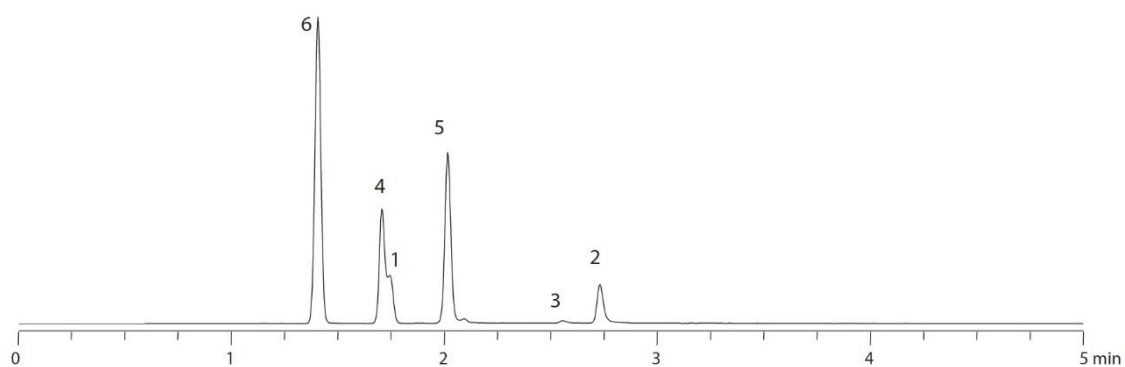
## Gradient

| Time (min) | Profile |
|------------|---------|
|            | %A      |

| Time (min) | Profile |
|------------|---------|
| 0.00       | 0.1     |
| 5.00       | 99.9    |
| 7.00       | 99.9    |
| 7.10       | 0.1     |
| 10.00      | 0.1     |

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## Results and Discussion



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ACQUITY UPLC System <<https://www.waters.com/514207>>

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