Waters™

Application Note

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

Waters Corporation

*For forensic toxicology use only.*

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

## Abstract

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


## Introduction

The compounds used in this study are:

1. 10-Hydroxymorphine
2. Morphine-3β-D-glucuronide
3. Morphine-6β-D-glucuronide
4. Morphine
5. Morphine N-oxide
6. 6-Acetylmorphine

## Experimental

### Test Conditions

| | |
|---|---|
| Column: | ACQUITY UPLC BEH HILIC, 2.1 x 100 mm, 1.7 µm |
| Part Number: | 186003461 |
| Mobile Phase A: | 10 mM $NH_4COOH$ in $H_2O$, 0.125% HCOOH in 50:50 ACN:$H_2O$ |

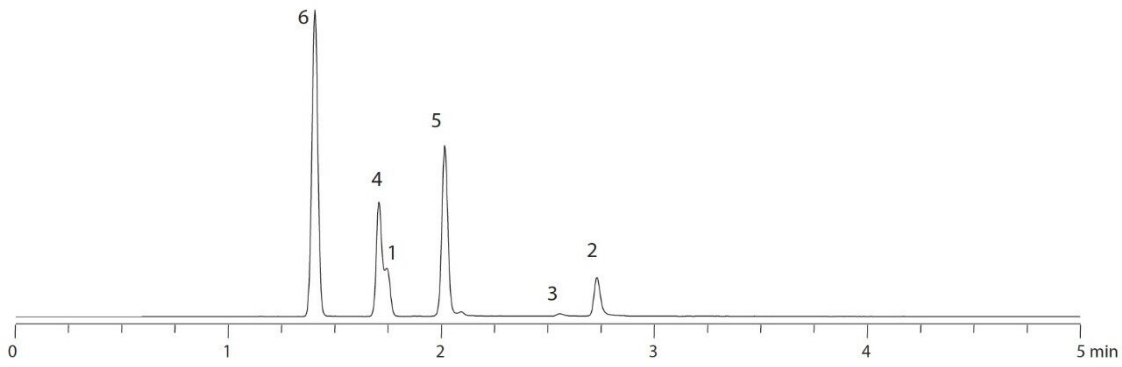
| | |
|---|---|
| Mobile Phase B: | 10 mM $NH_4COOH$ in $H_2O$, 0.125% HCOOH in 90:10 ACN:$H_2O$ |
| Flow Rate: | 0.5 mL/min |
| Injection Volume: | 15 µL |
| Sample Concentration: | 50 ng/mL each |
| Sample Diluent: | 75:25 ACN:MeOH |
| Column Temperature: | 30 °C |
| Instrument: | Waters ACQUITY UPLC with TQD |
| MRM: | Morphine 286 > 201<br>Morphine-3β-D-glucuronide 462 > 286<br>Morphine-6β-D-glucuronide 462 > 286<br>Morphine N-oxide 302 > 162<br>6-acetylmorphine 328 > 165<br>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 |

## Results and Discussion




## Featured Products

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

WA60130, August 2009