

# APPLICATIONS

## Identification and Quantification of Designer Drugs in Urine by LC-MS/MS

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### Overview

Novel compounds that, while they may be similar in structure to current drugs of abuse, can pose analytical challenges as unknown structural differences can affect how they perform under LC-MS/MS analysis. As the number of new designer drugs rises, methods which can be easily expanded and have a non-selective sample preparation procedure are needed. This method uses a simple dilute and shoot sample preparation followed by LC-MS/MS using a Kinetex® 2.6 µm C18 LC column and a SCIEX® QTRAP® 4500 MS/MS system.

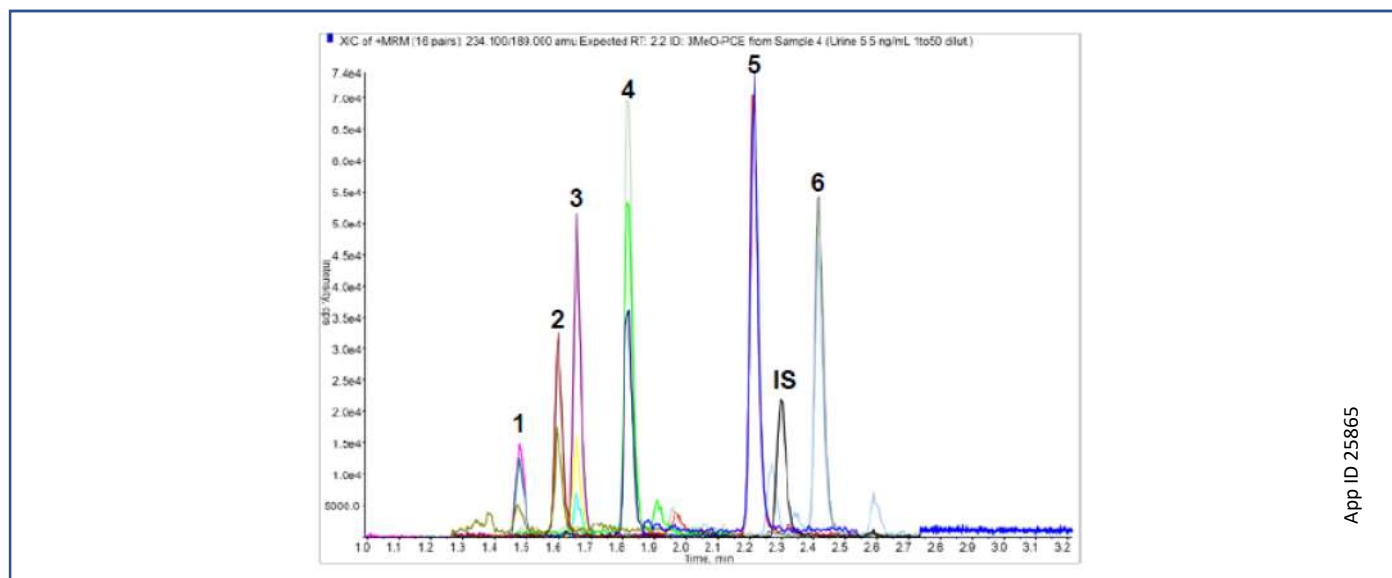
### Sample Preparation

1. To 20 µL urine, add 50 µL internal standard (D5-PCP in acetonitrile). Vortex then centrifuge for 10 min at 15,000 rpm.
2. Dilute supernatant with 930 µL Mobile Phase A. Mix and transfer to an autosampler vial for injection.

### LC-MS/MS Conditions

- Column:** Kinetex® 2.6 µm C18  
**Dimension:** 150 x 3.0 mm  
**Part No.:** [00F-4462-Y0](#)  
**Guard:** KrudKatcher™ Ultra In-Line Filter  
**Guard Part No.:** [AF0-8497\\*](#)  
**Mobile Phase:** A: Ammonium formate and 0.1 % Formic acid in water  
 B: Acetonitrile
- | Gradient: | Time (min) | %B |
|-----------|------------|----|
|           | 0.0        | 5  |
|           | 5.0        | 95 |
|           | 6.0        | 95 |
|           | 6.2        | 5  |
|           | 8.0        | 5  |
- Flow Rate:** 0.45 mL/min  
**Temperature:** 50 °C  
**Injection:** 10 µL  
**Detection:** MS/MS (SCIEX® [QTRAP®](#) 4500)  
**Sample:** 1. Dehydronorketamine  
 2. Norketamine  
 3. Ketamine  
 4. Methoxetamine  
 5. 3-MeO-PCE  
 6. 3-MeO-PCP

\*KrudKatcher Ultra requires 5/16 in. wrench, part no. [AQ0-8903](#).



App ID 25865

### Key Features of Kinetex<sup>®</sup> Core-Shell Technology Paired with QTRAP<sup>®</sup> Technology

- Using this method it was possible to analyze the compounds ketamine, norketamine, dehydronorketamine, 3-methoxyeti-cyclidine, 3-methoxyphencyclidine and methoxetamine with an injection - injection time of 8 minutes. Kinetex core-shell technology allows for superior chromatographic performance seen by increased separation, sharper peaks and reduced runtimes.
- Targeted MRM workflow allows sensitive detection with high selectivity, reduced matrix effects and higher confidence in results.
- *Scheduled* MRM<sup>™</sup> Algorithm enables the use of fast chromatography without loss of data integrity, maintaining sufficient data points across the peak for reliable quantification and allowing for faster throughput and turnaround times.
- Additional QTRAP technology allows for enhanced scan functions that further improve confidence in results, by generating high sensitivity MS/MS spectra to enhance confidence of identification of analytes, enabling spectral identification and library searching.



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## Need a different column size or sample preparation format?

No problem! We have a majority of our available dimensions up on [www.phenomenex.com](http://www.phenomenex.com), but if you can't find what you need right away, our super helpful Technical Specialists can guide you to the solution via our online chat portal [www.phenomenex.com/ChatNow](http://www.phenomenex.com/ChatNow).

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