

Article: Screening for Forensically Relevant Drugs Using Data-Independent High-Resolution Mass Spectrometry

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Key Points:

- Toxicology labs use a variety of tests to screen blood samples for different drugs of abuse.
- Many of these tests can only detect a few drugs at a time, which creates more work for analysts.
- New instruments can screen for many drugs at one time but have limitations.

Glossary:

Screening = tests used to look for drugs in a person's blood

Drugs classes = a group of drugs with similar structures and/or properties

Analyte = the substance that is being studied

Why this article matters: Toxicology labs need fast and accurate tests to screen for many different drugs of abuse, but there is a lack of one screening method that can detect them all.

Description of the Study: This work sought to evaluate the performance of a new screening method. To do this, a list of frequently encountered drugs was generated and used as target analytes for this study. The analytes were added to blood (that is free of any drugs) and put through the screening method. Results from the screen were compiled according to drug class. This method was then evaluate using authentic blood samples to mimic real-world application.

Research Questions: Can the outlined screening method detect multiple drugs of abuse simultaneously? How does the screening method perform across different drug classes? Can this method be applied to authentic samples?

Important Results: The screening method performed well, nearly all target analytes were detected reliably. Cannabinoids (chemicals in cannabis) were difficult to analyze, but variability in the results across drug classes was expected. Authentic samples showed that this screening method could be used in routine toxicology testing.

How the results will be used: Results from this work will be used to aid toxicology laboratories and further develop tools for broad screening of drugs of abuse.