K11 Simultaneous Screening and Confirmation of Drugs in Biological Fluids Utilizing LC/MS/MS

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After attending this presentation, attendees will understand a simple method used to detect and confirm the presence of drugs of abuse and their metabolites in various biological matrices. This method has very simple sample preparation and can detect and identify drugs across several different compound classes.

This presentation will impact the forensic community and/or humanity by demonstrating the ability of toxicologists to screen samples in a simpler and quicker manner. They also will have the capability to screen across several drug classes in a single experiment.

Rapid detection, identification, and quantification of drugs in biological matrices are important aspects of forensic toxicology. Typically, GCMS, HPLC, immunoassays, TLC, and various other methods are used to screen for drugs and GC/MS is used confirmation of drugs in Forensic analysis. The use of LC/MS/MS for screening, confirmation, and quantitation of drugs in toxicological assays is becoming increasingly common due to the simplicity, selectivity, and sensitivity of the technique.

A simple LC/MS/MS method was developed to analyze biological fluids (urine, blood, and oral fluids) for hundreds of common drugs of abuse and/or their metabolites, including opioids (including Fentanyl), sympathomemetic amines, antidepressants, benzodiazepines, cocaine, and THC. A hybrid triple quadrupole/linear ion trap mass spectrometer was used for detection, which allowed confirmation using full scan MS/MS spectra and quantitation using multiple reaction monitoring (MRM). Detection limits for all analytes can be as low as pg/mL range. Sample preparation was eliminated or greatly simplified versus analogous experiments using other chromatographic techniques and experimental run times were on the order of 10 - 15 minutes.

Toxicology, Drug Screening, LC/MS/MS

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