

Screening of forensic and clinical samples: from immunoassay tests to SWATH acquisition

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Fast and accurate screening of forensic and clinical samples is an important step for further decisions regarding the treatment of the patients or possible quantification of the detected compounds in body fluids. Up to date, immunoassays are still the most common techniques for screening, even if these biochemical tests exhibit some significant disadvantages such as cross reactivities or lack of sensitivity for specific compounds. Based on the latest generation of QqTof mass spectrometers – which are capable of acquiring complete MS and MS/MS spectra at a rate of 20 Hz and high mass accuracy – a new screening methodology was implemented in our typical workflow. Our methodology is based on Swath acquisition and high resolution/high accuracy reference spectra which are used for data processing. Several forensic cases will be presented and the impact of this mass spectrometry based technique in the field of forensic toxicology will be discussed.