Poster 1 Food Safety

Highly sensitive and rapid simultaneous method for 45 mycotoxins in baby food samples by HPLC-MS/MS using fast polarity switching

Mycotoxins are toxic metabolites produced by fungal molds on food crops. Depending on the potency of the mycotoxin and the use of the food, the maximum allowed level is defined by legislation. Baby food is particularly critical. Therefore, a sensitive method to assay mycotoxins in complex matrices is mandatory. In this study, we tested three kinds of samples: baby milk powder, milk thickening cereals (flour, rice and tapioca) and a vegetable purée mixed with cereals.

Poster 2 Forensics

Quantitative analysis of anabolic steroids in control samples from food-producing animals using a column-switching LC-HESI-MS/MS assay

The use of natural and synthetic hormones to increase the weight of food-producing animals is prohibited in the European Union. In order to protect consumers from the harmful effects of doping hormone residues and their metabolites, we strongly advise the use of a column-switching LC-HESI-MS/MS method for the analysis of anabolic steroids in serum without sample pre-treatment (except dilution with water).

Poster 3 Food

Δ9-tetrahydrocannabinol and two of its metabolites in whole blood, plasma and urine by UHPLC-HESI-MS/MS

Cannabis is the most widely used illicit drug. Δ9-tetrahydrocannabinol (THC) and two of its metabolites are regularly investigated in biological fluids. Historically, the concentrations of these compounds were determined using a time-consuming extraction procedure. In this study, we present an ultra-fast UHPLC-HESI-MS/MS method for the analysis of Δ9-tetrahydrocannabinol (THC) and its two metabolites in whole blood, plasma and urine without sample pre-treatment except dilution with water.

Poster 4 Forensics

Comprehensive Analysis of Naphthoylindole-type Synthetic Cannabinoids by GC-MS/MS

Recent years have witnessed an increased abuse of so-called herbal smoking powders which contain Naphthoylindole-type Synthetic Cannabinoids (NISCs). In this study, we developed a GC-MS/MS method for the identification of NISCs using simultaneous scan, MRM and precursor ion scanning simultaneous scan, MRM and precursor ion scanning was evaluated.

Poster 5 Pharmaceutical

Highly sensitive quantitative estimation of genotoxic impurities from API and drug formulation using LC/MS/MS

The toxicological assessment of Genotoxic Impurities (GTI) and the determination of acceptable limits for such impurities in Active Pharmaceutical Ingredients (API) are critical issues. Dronedarone is a drug mainly used for indications of atrial fibrillation. DLTs of this drug have been quantitated here. A method was optimized for simultaneous analysis of DNLH, DNLF and DNBH.
The following posters were presented at recent international conferences in 2014, such as ASMS 2014, ICC 2014 and TIAFT 2014. Click the title links to download the posters of interest.

**Poster 1: Food Safety**
**Highly sensitive and rapid simultaneous method for 45 mycotoxins in baby food samples by HPLC-MS/MS using fast polarity switching**

Mycotoxins are toxic metabolites produced by fungal molds on food crops. Depending on the potency of the mycotoxin and the use of the food, the permissible level is defined by legislation. Baby food is particularly critical. Therefore, a sensitive method to assay mycotoxins in complex matrices is mandatory. In this study, we tested three kinds of samples: baby milk powder, milk thickening cereals (flour, rice and tapioca) and a vegetable puree mixed with cereals.

**Poster 2: Forensics**
**Development and Validation of Direct Analysis Method for Screening and Quantitation of Amphetamines in Urine by LC-MS/MS**

The new guidelines of SAMHSA under U.S. Department of Health and Human Services, effective as of Oct. 2010, allowed the use of LC/MS for screening, confirmation and quantitation of illicit drugs, including amphetamines. The objective of this study was to develop a fast LC-MS/MS method for direct analysis of amphetamines in urine without sample pre-treatment except dilution with water.

**Poster 3: Forensics**
**Quantitative analysis of anabolic steroids in control samples from food-producing animals using a column-switching LC-HRMS method**

The use of natural and synthetic hormones to increase the weight of food-producing animals is prohibited in the European Union to protect consumers from the harmful effects of doping hormone residues and their metabolites. In this project, we present an entire LC method that was developed to considerably shorten the pre-treatment time. In addition to optimization of the extraction method, chromatographic separation was optimised to decrease ion-suppression and isobaric interference.

**Poster 4: Forensics**
**The application of UHPLC and Ultrafast-LC-MS/MS to the analysis of small volume biological samples for drug residues**

The analysis of specimens such as blood spots, hair and saliva for the presence of drug residues is limited by the sample-size and the need to perform both screening and confirmatory analyses. Sample preparation techniques for such samples benefit from micro-scaled approaches that minimize the exposure of the sample to diisultane and possible contaminants, poor recovery and the increased processing time associated with each sample. We couple NLRU cards for the isolation of small molecules from highly-watered urine, with UHPLC and Ultrafast-LC-MS/MS, to detect low-level drug residues and metabolites in small-volume biological specimens with subsequent identification of unknowns using NMR and MS data.

**Poster 5: Pharmaceutical**
**Highly sensitive quantitative estimation of genotoxic impurities from API and drug formulation using LC/MS/MS**

The toxicological assessment of Genotoxic Impurities (GTI) and the determination of acceptable limits for such impurities in Active Pharmaceutical Ingredients (API) are difficult issues. Drugelosen is a drug mainly used for indications of cardiac arrhythmia. DLT of this drug have been quantitated here. A method was optimized for simultaneous analysis of DNAA, DNB and DNIB.

**Poster 6: Forensics**
**Characterization of metabolites in microsomal metabolism of aconitine by high-performance liquid chromatography/tandem quadrupole ion trap/mass spectrometry**

Aconitine (AC) is a bioactive alkaloid from plants of the genus Aconitum, some of which have been widely used as medicinal herbs for thousands of years. AC is also well known for its high toxicity, which induces severe arrhythmias leading to death. The study of metabolic pathways is very important for efficacy of therapy and evaluation of toxicity for those with narrow therapy windows. The aim of our work was to obtain the metabolic pathways of AC by the human liver microsomes.

**Poster 7: Forensics**
**Simultaneous Screening and Quantitation of Amphetamines in Urine by On-line SPE-LCMS Method**

The new SAMHSA guidelines, implemented in Oct 2010, allow the use of LCMS and LC/MS for the screening, confirmation and quantitation of illicit drugs, including amphetamines. The objective of this study was to develop an on-line SPE-LCMS method for analysis of five amphetamines in urine without sample pre-treatment except dilution with water.

**Poster 8: Forensics**
**Simultaneous analysis for forensic drugs in human blood and urine using ultra-high speed LC-MS/MS**

The simultaneous analysis of drugs of abuse in clinical and forensic laboratories requires highly specific system. Conventional procedures to analyze drugs in complex matrices like whole blood involve tedious, time-consuming, expensive, and complex steps, and possible sample loss and contamination problems are not unusual. The developed system in this study combined not only optimized MRM transition parameters with product ion scanning, which is automatically triggered once an MRM exceeds a specified threshold, but also sample preparation utilizing modified QuEChERS extraction.

**Poster 9: Forensics**
**Determination of Δ9-tetrahydrocannabinol and two of its metabolites in whole blood, plasma and urine by UHPLC-MS/MS using QuEChERS sample preparation**

Cannabis is the most widely used illicit drug. Δ9-tetrahydrocannabinol (THC) and two of its metabolites are regularly investigated in biological fluids. Historically, the concentrations of these compounds were determined using a time-consuming extraction procedure and GC-MS. We propose here a highly sensitive UHPLC-MS/MS method with straightforward QuEChERS sample preparation.

**Poster 10: Forensics**
**Comprehensive Analysis of Naphthoylindole-type Synthetic Cannabinoids by GC-MS/MS**

The advantage of ultrafast LC-MS/MS with scheduled MRM in the analysis of specimens such as blood spots, hair and saliva for the presence of drug residues is limited by the sample-size and the need to perform both screening and confirmatory analyses. Sample preparation techniques for such samples benefit from micro-scaled approaches that minimize the exposure of the sample to diisultane and possible contaminants, poor recovery and the increased processing time associated with each sample. We couple NLRU cards for the isolation of small molecules from highly-watered urine, with UHPLC and Ultrafast-LC-MS/MS, to detect low-level drug residues and metabolites in small-volume biological specimens with subsequent identification of unknowns using NMR and MS data.

**Poster 11: Forensics**
**Analysis of doping agents using ultrafast LC-MS/MS with scheduled MRM**

In home testing, for example, terms such as negative doping, which is doping to defeat, are an issue. In the past, the attitude “Allowed is, what is to be found” predominated. Nowadays, improved analytical methods allow the detection of even the slightest traces of doping agents in blood and urine. Thus, the analytical possibilities of the different labs are crucial for the detection of a substance. Here we show the advantage of an ultrafast LC-MS/MS method with scheduled MRM technique for monitoring home-doping agents.