PROJECT REVIEW

"Detection and characterization of new long term steroid metabolites by MRM GC-CI-MS/MS."

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The identification of anabolic androgenic steroids (AAS) is a vital issue in doping control. Due to the performance enhancing properties of AAS, the World Anti-Doping Association (WADA) banned their use but according to the annual report of WADA, steroids are still very popular amongst athletes and are responsible for half of all adverse analytical findings. The search for metabolites with longer detection times remains an important task and the introduction of new long term metabolites for exogenous AAS such as for example stanozolol, methanedione and dehydrochloromethyltestosterone, led to a 4 - 80-fold increase of adverse analytical findings due to the prolonged detection time.

This project aims at finding new long term metabolites for a number of AAS by application of our newly developed gas chromatography chemical ionization triple quadrupole mass spectrometry (GC-CI-MS/MS) protocol for metabolite detection and identification. Chemical ionization in combination with triple quadruple technology has proven to significantly increase the sensitivity for a wide range of compounds in comparison with electron impact (EI). In addition, GC-CI-MS/MS is characterized by AAS structure correlated fragmentation pathways. The combination of both factors allows the set up of a sensitive MRM method, designed to find previously unknown but expected metabolites by selection of theoretical transitions for expected metabolites.