

PROJECT REVIEW

“Identificaiton of new metabolites of peptide-derived drugs using a novel Isotope-labeled Reporter Ion Detection strategy”

Prof. M. Thevis (German Sport University Cologne)

Compared to the metabolism of low molecular mass drugs (such as anabolic agents, stimulants etc.), the biotransformation of peptide-based drugs after (subcutaneous) administration is largely unknown. Especially for larger peptides and proteins, dedicated in-vitro models simulating the parenteral administration have been missing. Since mass spectrometric methods commonly rely on detailed information about the active drug and particular its metabolites existing in the circulation, studies providing these data are critical. In the present project it is planned to apply a sophisticated in-vitro model using skin tissue microsomes for prohibited peptides such as synacthen, insulin like growth factor, growth hormone releasing hormone and others. Selected amino acids of the utilized reference peptides will be isotopically labeled, which facilitates and accelerates the identification of formed metabolites by means of diagnostic reporter ions but does not affect the metabolic reactions of the substance of interest. High resolution mass spectrometry enables finally to identify the molecular mass and the amino acid sequence of the formed metabolites, which eventually can serve as target peptides for efficient doping controls using this Isotope-labeled Reporter Ion Detection strategy.