

Research project IZSve 08/14

Targeted proteomics as alternative method to screen for illegal pharmacological treatments with corticosteroids in bovines

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The aim of this project is the development and validation of a targeted proteomics approach to provide scientific data for the identification of diagnostic protein markers of illegal anabolic treatments with corticosteroids in bovine, particularly in veal calves. Thanks to previous research projects that allowed us identifying a set of potential protein markers of treatments of adult bovines and veal calves with corticosteroids, the present research project will focus on the following three main objectives:

1. to define a fast and robust sample preparation protocol for protein extraction, digestion and purification compatible with analytical procedures applied for surveillance of drug residues
2. to develop of a microHPLC-MSMS screening method based on selected reaction monitoring (SRM), for the analysis of proteotypic peptides
3. application of the developed SRM method to analyze tissue samples deriving from previous research projects conducted on bovines, mainly veal calves treated with different corticosteroids (dexamethasone and prednisolone)
4. application of multivariate statistics to setup a prediction model based on an identified subset of protein markers to separate treated and non treated animals