

## Research program IZS VE 03/16

**Untargeted metabolomics for indirect screening of animals under illicit treatments: applications to corticosteroids and  $\beta$ -agonists.**

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“Omics” science have been tested also in the veterinary field, as a new tool for the potential discrimination of animals undergoing treatments mainly based on growth promoters. Within this framework, in the last three years, our laboratory started the development of an analytical approach for untargeted metabolomic studies to screen the potential use of some growth promoters in bovines.

In this new project we intend to take advantage of these previous experiences to:

- 1) Optimize analytical strategies for the untargeted analysis of the metabolome from biological samples.
- 2) Apply these methods on specific sets of samples derived from controlled animal treatments:
  - 2a) liver samples of bovines treated with corticosteroids
  - 2b) liver samples of bovines treated with  $\beta$ -agonists
- 3) Apply and verify different statistical multivariate models to classify treated animals from non-treated ones (control) based on properly designed predictive models.
- 4) Detect the unknown compounds most determinant for their capacity to discriminate treated from non-treated animals and, whenever possible, try to identify the putative biomarkers.