

## **PROJECT REVIEW**

### ***"Implementation of a high performance strategy for the detection and identification of small peptide hormones"***

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The use of small peptides as growth hormones releasing factors has become increasingly popular in the last few years. As described in the literature, a whole set of small peptides emerged these last decades representing today a more and more attractive class of performance-enhancing drugs for amateur and professional athletes. Several studies have reported the presence of these compounds in recent seized products confirming the illegal circulation of this class of substances.

The best analytical tool to detect these small peptides and also their analogs or discover unknown similar compounds is the high resolution / high accuracy mass spectrometry (LC-HRMS).

The aim of this study is to implement a high performance screening method by LC-HRMS in order to detect this new drug class. This project will focus on the available matrix from anti-doping tests: urine and blood (serum and plasma) but also on the seized products or internet-based drugs, which are the awareness keys of doping trends. Moreover, this project will also focus on the computer assisted method available with the LC-HRMS equipments. All the acquisition mode will be tested on the two technologies available in our laboratory (Q-Orbitrap and QqTOF) and an assessment of software helping to characterize metabolites without the reference material will be performed. The best strategy will be validated and applied to real samples from anti-doping controls.