

CON-PRA-048

## CONFIRMATORY METHODS

### The special case of Growth Hormone

#### • Context

Growth hormone (GH), also called somatotropin, is a forbidden growth promoter within the EU according to the 94/936/EC and 99/879/EC directives. In order to check whether the regulation is fulfilled or not analytical methods have to be set up. Due to the extremely low levels of this protein residue in biological fluids, confirmatory methods, based on mass spectrometry coupled to liquid chromatography have only recently been developed.

#### • General objective(s)

The objectives of this practical training are double. 1- To present the Growth Hormone problematic and the associated confirmatory strategy. 2- To illustrate the particular case of protein analysis by mass spectrometry through an analysis of GH on a latest generation mass spectrometer equipped with an electrospray source combined with both a linear ion trap and an orbital trap allowing high resolution mass measurements (LC-MS<sup>n</sup>-HRMS).

#### • Main items

Growth Hormone / Protein MS analysis / ESI / Linear trap / MS<sup>n</sup> / Orbital trap / HRMS

#### • Pedagogical objectives

- ✓ To identify key parameters in the electrospray source
- ✓ To explain the principle on which a linear trap works
- ✓ To explain the principle on which an orbital trap Works
- ✓ To illustrate protein MS analysis

#### • Pedagogical tools

- ✓ Demonstration on an LC-HRMS instrument (LTQ-Obitrap)
- ✓ Slide show

#### • Duration

- ✓ 1 hour

#### • Pre-requisite

- ✓ Theoretical lectures on confirmatory methods (CON-THE-010, CON-THE-020)