

## **Advice 05-2018 on the assessment of the aptitude of the GC-MS/C/IRMS method for the detection of natural synthetic hormones with androgenic or estrogenic activity in cattle**

### **Summary**

#### **Terms of reference**

The Scientific Committee is asked to assess the suitability of the method used by the FASFC for the detection of natural synthetic hormones with androgenic or estrogenic activity in cattle.

#### **Methodology**

The method used by the FASFC laboratory is based on an LC-MS/MS-analysis (liquid chromatography linked to tandem mass spectrometry) followed by a GC-MS/C/IRMS analysis (gas chromatography linked to a combustion isotope ratio mass spectrometry). The suitability of this method for the detection of abuse of natural synthetic hormones with androgenic or estrogenic activity in cattle was assessed using validation reports of the method, audit reports from the ISO 17025 accreditation and scientific literature.

#### **Result**

The Scientific Committee has based its assessment on several elements in the dossier to assess the suitability of the applied method:

- the use of the GC-MS/C/IRMS method for the detection of the administration of synthetic homologues of naturally occurring hormones is mentioned in the technical documents of WADA (2015) and is indicated by the European reference laboratory as the only effective method for urine (EURL, 2014).
- the validation reports which show that the results meet the established criteria.
- the analysis reports of samples that were declared non-compliant in 2007 by an official French laboratory (LABERCA) and which were re-examined 10 years later by the FASFC laboratory: they were all confirmed as non-compliant.
- the comparable results obtained by the FASFC laboratory and by LABERCA in proficiency tests organized by the European Reference Laboratory (RIKILT) and the lack of "false positive" results during the comparison period.
- publications in peer-reviewed scientific journals confirming the suitability and performance of the methodology (Janssens et al., 2013a, 2013b, Janssens et al., 2015, Piper et al., 2017).

#### **Conclusion**

The Scientific Committee is of the opinion that the method applied by the laboratory of the FASFC and which is based on gas chromatography coupled with combustion-isotope ratio mass spectrometry (GC-MS/C/IRMS) is suitable to detect the presence of natural synthetic hormones with androgenic or estrogenic activity in bovine urine.

The full text is available on this website in dutch and in french.