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Profiling or urinary formestane and confirmation by isotope ratio mass spectrometry

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Abstract

A simple urine pretreatment procedure, leading to extracts free of interferences and permitting a precise and accurate IRMS analysis of formestane was developed, validated and employed in doping control. A combinatorial approach of GC-MS/MS and GC-C-IRMS provides specific detection of endogenous steroid misuse for improved doping analysis. The main aim of this study was to propose a threshold of 25 ng/mL beneath which the detected formestane is considered as being endogenous and no further investigation on GC-C-IRMS is required. Samples with urinary formestane concentrations above 25 ng/mL and beneath the WADA 150 ng/mL MRPL are forwarded to IRMS.

Data collected from the testosterone and androstenedione excretion studies together with the results from the endogenous population suggests that this 25 ng/mL threshold provides a good balance between a sufficiently large detection window and not having to perform unnecessary IRMS analyses on negative urine samples.

References

Polet M, Van Renterghem P, Van Gansbeke W, Van Eenoo P. (2013) Profiling of urinary formestane and confirmation by isotope ratio mass spectrometry. *Steroids* **78(11)**, 1103-1109