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Administration study of growth factors

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Abstract

The isoform differential immunoassay for detecting growth hormone (GH) doping is currently approved by the World Anti-Doping Agency (WADA). Anti-doping laboratories often may face challenges by athletes' lawyers and need to have various types of scientific evidence against the claim that the adverse analytical finding result was caused by excess ectopic or abnormal excretion. In this presentation, a population study of Japanese athletes (255 male and 256 female) and administration studies of recombinant human GH (rhGH) in Japanese females were conducted to confirm the applicability of isoform differential immunoassay. Moreover, the present paper describes the effectiveness of the isoform differential immunoassay under abnormal excretion of endogenous GH as determined by administration studies of GH releasing hormone (GHRH(1-44)) and insulin-like growth factor-1 (IGF-1). No false positive findings were found in Japanese athletes. The GH isoform differential immunoassay could detect application of rhGH for approximately 12-24 hours. The administration of GHRH(1-44) and IGF-1 as well as GHRP-2 did not affect the isoform ratio (no false positives). It is concluded that the isoform differential immunoassay is a highly sensitive and specific method for detecting rhGH doping.

For the complete paper, please refer to:

Okano M, Nishitani Y, Sato M, Kageyama S: Effectiveness of GH isoform differential immunoassay for detecting rhGH doping on application of various growth factors. *Drug Test. Anal* **2012**, 4, 692-700.