

PROJECT REVIEW

"hGH antibodies and kit development and production"

A. Ernst (SphingoTec GmbH, Borgsdorf, Germany)

The research group of M. Bidlingmaier, C. Strasburger and Z. Wu has demonstrated the detection of administered recombinant growth hormone (hGH) based on the "differential immunoassay approach". This approach is based on the measurement of the GH concentration in human serum samples by 2 different assays employing specific monoclonal antibodies. This test has been implemented in WADA accredited laboratories as research test system based on ELISA technique.

The aim of this project is to adapt this test to the chemiluminescence technique which is much more sensitive and robust than other detection systems, to optimize the functional assay sensitivity and to determine the technical assay characteristics.

The successful development is of crucial importance for the availability of commercial test kits.

"hGH antibodies and kit development and production"

A. Ernst (SphingoTec GmbH, Borgsdorf, Germany)

Results and Conclusions

1. The assay technical characteristics (Sensitivity, intra- and inter-assay variability, accuracy, etc) are significantly improved with respect to the previous assay platform. This allows for quantification of almost all samples analysed.
2. Four different reference populations were considered for the determination of assay cut-off ratios. These populations included i) samples from a demographic study on elite athletes (5 major ethnic groups, i.e. Caucasians, East Asians, Australian aborigines, Africans and other ethnicities; from 12 different countries and 10 major sports disciplines); ii) samples from baseline measurements of a GH-administration study on recreational athletes; iii) samples from a blood bank (all Caucasians) and iv) samples from elite athletes (ethnicity unknown).