PROJECT REVIEW

"Optimization of SAR-PAGE for inclusion of peginesatide (Omontys, Hematide) in comprehensive electrophoretic ESA doping testing”

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Currently, comprehensive initial testing for erythropoiesis stimulating agents (ESAs) is done by electrophoretic methods (IEF-, SDS-, SAR-PAGE) according to WADA TD2013EPO and the forthcoming TD2014EPO. However, these protocols only comprise endogenous and recombinant erythropoietins and their analogues (e.g. darbepoetin alfa). ESAs, which lack the primary structure of EPO and in particular the first 26 amino acids of the N-terminus, cannot be detected due to non-interaction with the monoclonal anti-EPO antibody used for Western blotting (clone AE7A5). Peginesatide (Omontys; formerly known as Hematide) is a so-called EPO-mimetic peptide, which is structurally unrelated to the amino acid sequence of EPO. Two methods (SDS-PAGE, electrospray mass spectrometry) were developed and published in 2011 in order to overcome this situation. However, both methods are unable to simultaneously detect epoetins (EPOs) - the majority of misused ESAs. By modifying Sarcosyl (SAR)-PAGE - one of the main electrophoretic methods used in EPO anti-doping testing - peginesatide will now also become part of routine ESA doping testing with SAR-PAGE. Despite Omontys was recalled in 2013, misuse by athletes cannot be excluded.