

PROJECT REVIEW

“Markers of erythropoiesis stimulating agents use and hypoxia”

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This project is aimed at identifying markers of rHuEPO misuse and separate these from markers of natural hypoxic exposure by metabolomics. Male (n=20) and female (n=20) non-competing athletes are exposed to 4 weeks sea-level investigation and after a full washout period, participants are exposed to hypobaric hypoxia at 2.320 m for four weeks. Four groups are formed in a blinded randomized and gender balanced fashion: One group (n=20) receives EPO during the sea-level period and placebo during the stay at altitude. Another group (n=8) receives EPO both at sea-level and altitude. A third group (n=8) receives placebo both at sea-level and altitude and the fourth group (n=4) receives placebo at sea-level and EPO at altitude. The design facilitates identification of markers of EPO misuse at sea-level (n=28) as well as markers of natural altitude exposure (n=28). Each participant's treatment response is analyzed in relation to a 4 week baseline period. Moreover, the design includes an intra-individual possibility to verify identified targets expected to be unique to rHuEPO misuse, since 8 participants are treated with rHuEPO both at sea-level and altitude. Runners are enrolled due to the good possibility of recruitment and conduction of training at altitude. The project results in a highly valuable biobank for identification of markers sensitive to initiation and termination of rHuEPO injections. Metabolomics discovery is carried out in collaboration with a world-leading research group as well as the experts at University of Cologne, Germany. Importantly, the project is a joint effort between world-leading University research, Anti-doping organizations and WADA laboratories.