



REQUEST FOR APPLICATIONS - TARGETED RESEARCH

MARKERS OF ERYTHROPOIESIS STIMULATING AGENTS (ESA) USE AND HYPOXIA

OVERVIEW

The World Anti-Doping Agency (WADA) is pleased to announce a Special Request for Applications for Targeted Research projects aimed at identifying blood-based markers able to differentiate the effects of hypoxia (i.e. altitude) from the use of erythropoiesis stimulating agents (ESA).

This RFA aims at funding the initial discovery phase only. Proposals should include the collection of samples during a prospective clinical trial including ESA administration and altitude exposure to be analyzed using specific omics technologies (metabolomics and proteomics) for biomarker discovery.

APPLICANTS

Applicants should have expertise in the fields of blood doping, altitude research and biomarker discovery in order to carry out the proposed research. Applicants should have the ability to carry out clinical trials for ESA administration (ex. Erythropoietin) and controlled altitude exposure.

Applicants should have proficiency in the quantitative analysis of small molecules (metabolomics) by mass spectrometry, laboratory haematology, common methods of clinical chemistry, and the measurement of haemoglobin mass by CO rebreathing.

Collaboration between research groups is encouraged. Applicants are encouraged to contact WADA for assistance with regard to the composition of the groups as well as any technical aspects of this project.

PROJECT DESCRIPTION

Proposals must be based on samples collected during a clinical trial that include the following arms:

- 1) Placebo control at sea level
- 2) Altitude exposure
- 3) EPO administration

4) Combination of altitude and EPO administration

The study should be sufficiently powered, with at least 3 baseline samples prior to treatment, to enable biomarker discovery using metabolomics and proteomics. The ability to run a cross-over design will be viewed favorably.

Subjects should be healthy, amateur athletes (non-competing), males or females, with normal clinical parameters (iron and full blood count), and no recent exposure to altitude.

The dose and duration of ESA treatment should be sufficient to favor biomarker discovery but remain relevant to reflect current doping practices using lower doses and higher frequency (ex. 20 IU/kg every other day, by IV, for 3 weeks, with iron supplementation).

Altitude exposure should be significant enough to stimulate erythropoiesis (ex. >2000m for at least 3 weeks), where the ability to run trials at higher altitudes will be looked upon favorably.

SAMPLE COLLECTION AND ANALYSIS

Serum and blood EDTA samples should be collected according to Annexes E and K of the International Standard for Testing and Investigations.

Sufficient sample quantity should be collected to allow biomarker discovery by metabolomics and proteomics methods. Omics results will be correlated with the following analyses:

- 1) Measurements of haemoglobin mass by CO rebreathing.
- 2) Full blood count in accordance with the Technical Document on Blood Analytical Requirements for the Athlete Biological Passport, including all red blood cell, platelet and leukocyte parameters.
- 3) Chemical lab panel, including markers of inflammation and iron metabolism such as ferritin, hepcidin and erythroferrone.

High priority will be given to applications including metabolomic analysis of samples by high resolution mass spectrometry, such as with the use of the latest generation of Orbitrap analyzers. Based on ongoing, WADA-sponsored proteomics projects, WADA reserves the right to discuss with the applicants the coordination of the proteomic analysis based on aptamer technology.



FUNDING

Funding will be provided through WADA's Research Program. The Agency anticipates funding **one or two** projects lasting up to **2 years** for this RFA.

Proposals should include only the costs for the initial markers discovery phase. Depending on the results, additional funding will be made available for markers validation and implementation in accredited laboratories.

PROCESS AND TIMELINES

The deadline for proposal submission is **1 March 2017.**

The review process will involve independent experts and expert members of WADA's Science and Medical Committees with a final decision by the WADA Executive Committee in May 2017, with funds to be released shortly thereafter.

For application forms, to submit applications or for any other information and/or assistance, please contact:

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