

## **REQUEST FOR APPLICATIONS**

### **Dried Blood Spot Testing**

#### **1. Background**

Established in 1999, the World Anti-Doping Agency (WADA) is an international, independent agency composed and funded equally by the Sport Movement and Governments of the world. Its key activities include scientific research, education, development of anti-doping capacity, investigations, and monitoring compliance with the World Anti-Doping Code — the document harmonizing anti-doping policies across all sports and all countries. WADA’s mission is to lead a collaborative worldwide movement for doping-free sport.

Science is an important driver of advances in the fight against doping. Innovative research leads to the identification of new doping trends, new substances, new doping methods and new detection approaches. WADA funds [scientific research](#) projects to develop and optimize analytical tools for the detection of use of prohibited substances and doping methods within sport populations.

WADA is therefore collaborating with several anti-doping stakeholders, including the China Anti-Doping Agency (CHINADA), the International Olympic Committee (IOC), the International Testing Agency (ITA) and the US Anti-Doping Agency (USADA), to coordinate efforts to develop dried blood spot (DBS) testing for routine implementation. The main expected outcome of the DBS initiative is the development of guidelines for the collection, transport, analysis and storage of DBS; as well as, to carry out research that may be required to achieve harmonization of practice in the anti-doping context.

#### **2. Research Topics and Eligibility of Research Proposals**

In this context, and for the further development of DBS testing, this Request for Applications for targeted research projects identifies the following relevant areas of research in the development of DBS as a new sample type for anti-doping testing:

1. Discovery and/or validation of new discriminant biomarkers or biomarkers of confounding factors of the haematological module of the **Athlete Biological Passport** (ABP) in DBS.

The types of studies that would be eligible include, but are not limited to, the following:

- Correlation of new protein (e.g. transferrin receptor [TFRC/TFR1/CD71], band 3 anion transport protein [SLC4A1/band 3]) and RNA (e.g. ALAS2) markers in DBS with established blood ABP markers (e.g. hemoglobin, reticulocytes) over time (longitudinal approach) and their respective capability to detect erythropoiesis stimulating agents (ESAs) and blood transfusion or manipulation.

- Development of biomarkers in DBS to mitigate the effects of confounding factors on the haematological ABP (e.g. plasma volume markers, iron metabolism markers).
2. Study of the potential advantages of turning to **dried plasma spots** instead of DBS for testing for prohibited substances.

The proposed research plan should allow to evaluate the usefulness and advantages (e.g. longer window of detection, increased sensitivity, etc.) of dried plasma/serum spots over DBS for anti-doping testing.

3. Development and validation of a new analytical method for the detection and quantification of **human chorionic gonadotrophin** (hCG) in DBS.

The suggested approach is the following:

- Review of available literature on free beta hCG or other hCG fragments detection on DBS to learn from fields other than anti-doping and establish whether free beta hCG or any other hCG fragment in blood is suitable for detecting hCG administration in male athletes.
- Method development and validation for the detection and stability of hCG in DBS.

Proposed projects should have a term of up to **15 months**, and therefore aim to attain concrete deliverables by the end of the funding period, i.e. **31 March 2022**. Moreover, they should have the potential to be subsequently translated into new analytical methods to detect the use of prohibited substances or methods within a short timeframe.

Studies requiring human samples would be expected to have access to existing samples or have a feasible plan for generating such samples.

### 3. Applicants

All applicants are encouraged to collaborate with other research groups and to contact WADA as follows for assistance with composition of their research team if needed, as well as for any technical aspects of this project:

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All projects should also demonstrate engagement of [anti-doping laboratories](#) (e.g. WADA-accredited Laboratories) and/or [Anti-Doping Organizations](#) in the development of the research plan to help ensure practical applicability of the research. Teams are also encouraged to include anti-doping laboratory scientists with expertise in methods for sample collection, test development, test validation, and ongoing test performance in compliance with the [International Standard for Laboratories](#).

#### **4. Application and decision process**

Research teams interested in submitting proposals for the above-noted topics are invited to submit their applications by **31 August 2020** (24:00 GMT) using the [WADA Grants platform](#).

As described in the [WADA Research Ethics Policy](#), all documents for ethics review need to be submitted along with the application and will be reviewed in parallel with the rest of your application. Applicants will receive a reply by mid-December 2020.