A unique opportunity for Cyprus to prepare its national Biobank

The clinical and genetic investigations of diseases of the Cypriot population as well as eHealth are a priority of the Smart Specialization Strategy of the Cyprus government. This strategy can best be served by creating a Centre of Excellence (CoE) with two main spear heads: a) A contemporary disease-oriented Biobank for the rare monogenic and the common multifactorial conditions and b) a state-of-the-art research facility.

Recently, the Molecular Medicine Research Centre (MMRC) of the University of Cyprus succeeded in receiving the significant amount of €460,638 for the implementation of the “Biobanking and the Cyprus Human Genome project” (CY-Biobank). The proposal was submitted under the Horizon 2020 framework program for research and development (H2020-WIDESPREAD-2014-1-FPA / TEAMING).

The project will be implemented in two phases. The most important deliverable of the first phase of the project (lasting 12 months) is to prepare a Business Plan, describing the researchers’ ambitious and high standard goals for research in Cyprus. These goals are going to be implemented if the proposal succeeds through Stage 2 (for a duration of 5-7 years).

At this stage it is proposed that the existing infrastructure of MMRC is upgraded to a Center of Excellence (CoE). The ultimate aim of the new CoE is to create new opportunities for innovative ground-breaking medical research and promote Cyprus to the European Research Area. Great progress has been achieved in Biobanking in Cyprus, especially in the field of inherited kidney disorders, but a lot more needs to be done in order to better serve the Cypriot and European community.

Biobanks are organized collections of biological material of all types (including whole blood, DNA/RNA, plasma, serum, urine, tissue biopsies), accompanied by detailed demographic and medical records, serving as repositories and distribution centers. The purpose of a Biobank is to support and promote research on genetic diseases intending to improve the prevention, diagnosis and treatment of a wide range of serious and life-threatening illnesses. At the same time, the facilities and the tools acquired will empower the development of international research aiming to produce new medicine and treatments for several modern time illnesses.

Cyprus, as a Low Performing Member State of the European Union, was the last country that started a Biobank, when 4 years ago the University of Cyprus received funding from the European Regional Development Fund & the Republic of Cyprus through the Cyprus Research Promotion Foundation. That was a Strategic Infrastructure Project which provided €2m for creating a seed infrastructure for a genetic disease-oriented Biobank and for research in inherited kidney diseases, at the newly established Molecular Medicine Research Center (MMRC).

Previous research and biobanking activities of the MMRC center, have contributed to preventing premature renal failure in cases of hereditary kidney diseases while assisting doctors of the public and private sector and saving public resources. Within the framework of previous research programs, more than 5000 samples and more than 300 families from Cyprus and Greece, with hereditary kidney diseases have been recruited. Continuous enrichment of biobanked material and records will constitute a unique national wealth for future research, strengthening the international presence of our country in the global research map.
The project leader in this endeavor is Professor Constantinos Deltas. The Advanced Partners are the Medical University of Graz, represented by Prof. Kurt Zatloukal and the Biobanking & BioMolecular Resources Research Infrastructure-European Research Infrastructure Consortium (BBMRI-ERIC), represented by its Coordinator Prof. Jan-Eric Litton. A close collaborator in Cyprus is the Development Organization TALOS, headed by Dr Alexandros Michaelides, while at the University of Cyprus there are two additional collaborators, Prof. Christos Schizas and Prof. Constantinos Pattichis, experts on issues of electronic Health (eHealth).

In addition to the Advanced Partners and several external collaborators, several local organizations have already expressed their interest and support, including the Cyprus Directorate General for European Programmes, Coordination & Development, the Ministry of Health, the Cyprus Kidney Association, the Technological University of Cyprus, the Bank of Cyprus Oncology Center, the Cyprus Alliance for Rare Disorders, and the Cyprus Federation of Associations for Patients and Friends.

Briefly, the goals of CY-BIOBANK for Stage 2, are the following:

1. To create the appropriate Biobanking infrastructure for serving and enrolling patients and healthy volunteers who wish to participate in the Biobank and ongoing or future projects, by contributing their biological material and medical record;

2. To develop the appropriate infrastructure for genomic, bioinformatics and histological research with the aim to serve as an incubator for new ideas;

3. To use the Biobanking & research facility for identifying the genetic causes of rare monogenic disorders that remain unknown;

4. In a patient-oriented approach, MMRC aims to develop the Cypriot 1000 whole genome project with the aim to study and complete the Genetic Map of Cypriots. This unique database will form the basis for research aimed at personalised medicine, better treatment and therapy.

5. To collaborate with the Advanced Partners in Graz, Austria, in developing new research and educational projects of common interest.

For more information, suggestions and questions, please visit: www.ucy.ac.cy/cybiobank

One of the actions during Business Plan Preparation is the Euro-BioCy Competition for the best research proposals to be submitted to MMRC, in two separate categories: a) for holders of a MD and/or PhD and b) for students who would pursue a PhD program of studies at the University of Cyprus. MMRC invites post-graduate students or early-stage postdoctoral researchers in the fields of biological and biomedical sciences to submit innovative research proposals. The announcement of the Euro-BioCy Competition with the terms and conditions for the applicants is available at https://ucy.ac.cy/cybiobank.