

"Biobank will help to treat cancer and rare diseases"

Establishment of a systemic public research infrastructure for biobanking at Jessenius Faculty of Medicine in Martin, Comenius University

"Biobanking of human samples is becoming increasingly important in the field of preventive health care and represents a key tool for improving the effectiveness of medical research on a global scale, according to Prof. Andrea Čalkovská, Dean at the Jessenius Faculty of Medicine in Martin.

The national biobank project, installed as a hub-and spike model operating with multiple biobank operations in Slovakia, was advocated for several years by an expert team at the Ministry of Health of the Slovak Republic, Comenius University, Slovak Academy of Sciences (SAS) and Slovak pioneers. With the financial support of app. 18 Mio Euro by the European Structural and Investment Funds a systemic repository for biological samples (tissues, cells, blood and other body fluids) derived from patients and healthy people will be established. Human biological samples represent a limited source for medical research applications.

The newly built biobanking facility in Martin will store previously diagnosed biospecimens of patients across Slovakia in state-of-the-art robotic systems applying all required legal and ethical standards. The program is complemented by a digital biobank component providing bioinformatic solutions as well as archiving digital records and the use of artificial intelligence algorithms to connect and find connections between results of analyzes and clinical data. Funding in the amount of app. 11,6 M Euro is provided by the Operational Program Integrated Infrastructure (OPPII 2014-2020). Experts from the University of Žilina provide their know-how in the field of information technologies for the generation and analysis of data packages, including "omics" solutions.

The synergistic use of both resources will make it possible to carry out comprehensive research activities including verification of basic research outcome, e.g. novel biomarkers with clinical samples, development of new models for investigating the mechanisms of cancer and rare diseases, while the conditions for the participation of Slovak science in large international projects can be significantly improved. Ultimately, the establishment of this biobank infrastructure leads to the expansion of knowledge concerning health, diseases and their development, wherein the implementation into the practice will help to maintain and improve health or successfully treat serious diseases.

This infrastructure project, which has been long lacking in Slovakia as one of the few EU countries, will help scientists to identify the context of the emergence of diseases and to prevent them more effectively. Further allow Slovakia to join the European or global network of biobanks, and thus increase the success of research and development in the field of new preventive measures, diagnostics or treatment options. Biobanking as a source of data, expertise and clinical context can also strengthen and foster innovations of researchers and start-up companies in Slovakia. In addition to develop unique and novel methods and drugs, that will make Slovakia more visible on the innovation map for health applications.

The biobank infrastructure program is a comprehensive consortium led by the Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, together with the Biomedical Center of the Slovak Academy of Sciences in Bratislava, the Center of Social and Psychological

Sciences of the Slovak Academy of Sciences in Bratislava, the Medical Faculty of Comenius University in Bratislava, the Ministry of Health of the Slovak Republic, the National Institute of Rheumatic Diseases in Piešťany and the University of Žilina in Žilina.

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