

## **100<sup>th</sup> Anniversary of the Institute of Medical Biology, Genetics, and Clinical Genetics**

### **EDITORIAL**

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Dear readers,

allow us to present a supplementary issue of the journal *Physiological Research* dedicated to the 100<sup>th</sup> Anniversary of the Institute of Medical Biology, Genetics, and Clinical Genetics established at the Faculty of Medicine of Comenius University in Bratislava.

The establishment of the institute dates back to 1923, and due to the lack of experts, the first general biology lecturer was Prof. Zdeněk Frankenberger, MD (1892-1996) who at that time was also the head of the Department of Histology and Embryology. In 1924, the doctor and polymath Jozef Florián Babor (1872-1951) took over the management of the institute and, in 1928 became a professor of general biology. He worked at the faculty until 1947, and from 1933 to 1934 he also served as a very successful dean. In 1944, the institute was taken over by Vladimír Vršanský (1914-1985), who served as head of the institute until his retirement in 1980. He formed the profile of the institute with optimal consideration of personnel- and premises-related issues. His work was beneficial, despite the fact that he led the institute during difficult conditions of political and academic development. In the 1960s, despite various problems, he contributed to the development of modern medical genetics. At that time, research priorities included the first diagnostic sampling of amniotic fluid. Subsequently, the Department of Biology carried out the cultivation of amniotic fluid cells and established fetal karyotypes. Prof. Vršanský also served as dean and vice-rector as well as long-term chairman of the Slovak Society for Medical Genetics. He also chaired the Slovak Society for Biology under the Slovak Academy of Sciences. In 1980, Prof. Gustáv Čatár, MD (1927-2017) became the next head of the institute, who contributed to the expansion of the research focus in the field of human parasitology. Under his leadership, the staff of the institute solved serious scientific questions and challenges in the fields of

medical genetics, teratology, and medical parasitology. Prof. Čatár also served as a successful dean, vice-dean, and vice-rector. In 1992, he was replaced by Ján Vojtaššák, PhD. (1949), who completed his habilitation in the field of medical biology in 1996 and was later appointed a professor in the field of Laboratory Diagnostic Methods in Health Care. During his leadership, the institute focused primarily on the further development of medical genetics, the study of reproductive losses, and, last but not least, tissue engineering. In 2007, Assoc. Prof. Daniel Böhmer, MD, PhD. (1954) was appointed the head of the institute. The aforementioned change also brought the expansion of the workplace to the University Hospital in Bratislava, which includes two departments - the Department of Clinical Genetics and the Department of Biochemical and Molecular Genetics, which provide their services to more than 7,000 patients a year.

Recently, the diagnostic and research staff of the Institute of Medical Biology, Genetics, and Clinical Genetics deals with morphological analysis of human reproductive losses in the context of congenital anomalies detection, as well as the analysis of chromosomal aberrations in these fetuses and embryos. Additionally, the institute focuses on the analysis of DNA by standard molecular biology methods. The institute is also an important part of the Center for Trophoblastic Disease in Slovakia which provides differential diagnosis of gestational trophoblastic disease. The institute records achievements in several areas of regenerative medicine and tissue engineering, such as in vitro preparation of autologous implants, cell therapy, somatic stem cells, and screening of the synthetic extracellular matrix. Institute researchers are also engaged in the long-term cultivation of different types of cell lines, molecular analysis of gene expression of genes involved in cell cycle regulation,

pluripotency, apoptosis regulation, and malignant transformation of cells, and the testing of cytotoxicity and genotoxicity of various substances and materials under in vitro conditions. Great attention is focused on the pleiotropic effects of statins, monitoring their effect on cancer and non-cancer cell lines cultured in vitro in the form of 3D formations to monitor the effect of statins on cells within and on the surface of 3D formations. Furthermore, our institute deals with the identification of selected single-nucleotide polymorphisms (SNPs) in candidate genes which may be associated with preeclampsia and could serve as a marker for differential diagnosis of preeclampsia. We are also focused on pharmacogenetics and the effects of many SNPs on the effectiveness of different types of drugs.

This special supplement to *Physiological Research* is dedicated to the 100th anniversary of the Institute of Medical Biology, Genetics, and Clinical Genetics at the Faculty of Medicine, Comenius University in Bratislava, Slovakia. Most of the articles were created on the basis of the scientific cooperation of the institute's employees with other researchers from various fields of biomedical research.

Last but not least we would like to mention that our papers were prepared thanks to the support of several research grants, e.g. Operational Program Integrated Infrastructure for the Project: Increasing the Capacities and Competences of the Comenius University in Research, Development, and Innovation 313021BUZ3, co-financed from the

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Guest Editor

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