



## Major studies and research projects

**The Development of Individualised Medicine.** Research in this field is conducted within the scientific consortium of the Faculty and the Institute of Pharmacology of the Polish Academy of Sciences, which received the status of the Leading National Research Centre (KNOW). The main objective of the research work is to create treatment tailored for individual patients, taking into account genetic and environmental factors as well as the patient's lifestyle. The main research interests of the scientists who participate in this project are civilisation diseases: tumours, cardiovascular diseases, and nervous system diseases. They are often difficult to treat and, in spite of medical and technological progress, therapeutic interventions often end in failure or only partial recovery of the patient.

**New Lines of Research in Various Medical Fields.** The Development of Individualised Medicine. New strategies of medical development are outlined as a part of the Faculty's top priority initiative, "Omicron," involving five units of the Faculty of Medicine: the Metabolic Disease Department, the Pharmacology Department, the Department of Transplantation, the Internal Medicine and Rural Health Department, and the 3rd Department of Surgery. The project allows for laboratories to be equipped with modern high quality armamentarium. It is innovative at a national level and at the same time can compete with centres around the globe, which strengthens the global prestige of the Medical Faculty and, therefore, of the Jagiellonian University. It provides new possibilities for collaboration due to the status of the scientific excellence centre.

Establishing a modern breast cancer diagnostic centre promotes new research in oncology, based on digital and conventional mammography, ultrasound examinations, and biopsy systems. Organisational guidelines for the registration of the centre in the European Breast Cancer Units system have already been developed.

## Collaboration

The Faculty of Medicine participates in a joint initiative of KNOW (Leading National Research Centre) with the Institute of Pharmacology of the Polish Academy Of Sciences in Kraków and co-creates a scientific consortium with the Faculty of Chemistry at Jagiellonian University which offers Mol-Med doctoral studies.

Studies on differential diagnostics of diabetes types, evaluation of the quality of ageing populations as well as health determinants and life quality of the elderly are conducted in partnership with scientific centres from the United States, Great Britain, Germany, Sweden, Belgium and Spain. This collaboration also involves research on new endocrine peptides and radiopharmaceuticals, as well as on the genetic background of hypertension and organ damage due to this disease.





## Scholars

From 2009 to 2014, four active scholars from the Faculty of Medicine were awarded "Jagiellonian Laurel" prize for outstanding scientific achievement: Prof. Ryszard Korbuc, Prof. Marek Sanak, Prof. Tomasz Brzozowski and Prof. Maciej T. Małecki.

**Prof. Ryszard Korbuc** – Chair of the Department of Pharmacology. His reputation as a scientist is recognised both domestically and internationally; he has authored more than 300 original publications and is a co-editor of pharmacology course books. His research includes the pharmacology of cardiovascular drugs, antithrombotic and antiplatelet drugs. He is a codiscoverer of prostacyclin and thromboxane synthase inhibitors.

**Prof. Marek Sanak** – Chair of the Department of Molecular Biology and Clinical Genetics of the 2nd Department of Internal Diseases. He has developed new non-invasive methods of measuring the levels of several substances, and is a renowned expert on internal diseases and clinical diagnosis. He is principal investigator of the program run in cooperation with Swiss scientists on genetics in asthma and the immunological background of viral diseases. In 1999 Prof. Sanak has received an award by Ministry of Health Care for the highly distinguished achievements in molecular biology. He has been nominated by students of Jagiellonian University Medical School for Foreigners as beneficiary of recognition as one of the best teachers among medical educators.

**Prof. Tomasz Brzozowski** – Chair of the Department of Physiology. Prof. Brzozowski specialises in research on the mucosal barrier of the alimentary tract in the context of the pathogenesis of gastric ulcers and the influence of various factors in the mechanisms of damage and protection of the mucous membranes of the stomach and intestines. He is the author of more than 300 original works, a co-author of course books on experimental and clinical physiology and gastroenterology, the editor-in-chief of the *Journal of Physiology and Pharmacology*, and an honorary Professor of the University of California, Irvine.

**Prof. Maciej T. Małecki** – Chair of the Metabolic Diseases Department and Clinic. His scientific interests revolve around problems associated with diabetes, particularly its monogenic forms, and metabolic diseases. He is a co-discoverer of one of the genes responsible for the MODY forms of diabetes. His papers have been published in the journal *Nature Genetics*, the *New England Journal of Medicine*, the journal *Diabetes Care*, and other recognised scientific periodicals. His works have been cited approximately 3,500 times.

## Achievements

One of the greatest achievements of the Medical Faculty is the development of a minimally invasive procedure for transcutaneous access to the hearts of patients with cardiovascular diseases, as well as developing and implementing (as a part of the European EuroNet-PHL-C1 network) the first international programme for the treatment of the classic form of cancer, known as Hodgkin's lymphoma, in children and adolescents.

The Faculty conducts studies that have detected new angiotensin metabolites, including angiotensin-(1-7), which has physiologically and pharmacologically proven vessel-dilating effects. This discovery is a breakthrough in the understanding of many diseases, including the pathogenesis and treatment of hypertension and atherosclerosis.

During the Second European Economic Congress (2010), the Faculty of Medicine was awarded the Crystal Brussels Prize in the category of the best research centers in Poland.

## Specialisation

- Medicine
- Cardiology • Metabolic Disorders • Physiology
- Pharmacology • Neurology
- Internal Diseases • Molecular Biology • Gastroenterology
- Paediatrics

## FACULTY OF MEDICINE

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