



**Institute
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EU Centre of Excellence

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REGENERATIVE MEDICINE AND TISSUE ENGINEERING

Stem cell research and tissue repair provides great hope for the treatment of patients following brain and spinal cord injury, Alzheimer's disease, Parkinson's disease, diabetes, skin burns, damaged joints and arthritis, bone repair, loss of vision and hearing, as well as other incurable diseases.

The use of stem cells together with tissue engineering has brought about revolutionary possibilities for finding cures to such conditions. Studies of animal models and initial clinical studies using stem cells have demonstrated their huge potential in medicine, bringing hope to an aging population and countless patients suffering from a wide range of devastating diseases.

The core research carried out at the institute is directed towards the study of all the currently known types of multipotent cells. We now know that both autologous and allogeneic mesenchymal cells as well as embryonic, fetal, and induced pluripotent cells all have promising therapeutic effects.

Very often cell therapies need to be combined with either a natural or synthetic carrier. With this in mind fundamental multidisciplinary research in this area is necessary for the progression of future treatment.

Cooperating institutions AV CR

Institute of Physics AS CR, v.v.i. • Institute of Physiology AS CR, v.v.i. • Institute of Molecular Genetics AS CR, v.v.i. • Institute of Macromolecular Chemistry AS CR, v.v.i. • Institute of Organic Chemistry and Biochemistry AS CR, v.v.i. • Institute of Animal Physiology and Genetics of the AS CR, v.v.i.

Other cooperating partners

1st, 2nd, and 3rd Faculty of Charles University in Prague • Charles University, Faculty of Medicine in Hradec Karlove • Charles University, Faculty of Medicine in Pilsen • Regional Health Corporation, OJSC - Masaryk Hospital in Ústí nad Labem, o.z. • Institute of Clinical and Experiment Medicine (IKEM) • Institute of Hematology and Blood Transfusion (UHKT) • INSERM and the University of Evry Val d' Essonne, France • The James Black Centre, Department of Neuroscience, King's College London, UK • Cambridge Centre for Brain Repair, University of Cambridge, UK • University Hospital Aachen, Kreisfreie Stadt Aachen Area, Germany • Department of Neuroscience and Physiology, NYU Langone Medical Center, New York, USA • McGowan Institute for Regenerative Medicine, Pittsburgh, USA • Norwegian University of Science and Technology, Trondheim, Norway

“ Science and
Research for
a healthy society! ”





RESEARCH FOR HEALTH / EU CENTRE OF EXCELLENCE

IEM AS CR, v.v.i. is a recognized center of fundamental biomedical research in the Czech Republic focusing on applications in clinical medicine. It excels in the fields of neurobiology, neurophysiology, neuropathology, developmental toxicology and teratology, molecular epidemiology, molecular pharmacology, immunopharmacology, and in the research of cancer, stem cells and tissue repair.

The results of the research institute find application in areas such as protecting natural environments, neuroscience, regenerative medicine, pharmacology, and diagnostic methods. In the field of biotechnology, innovation of the institute focuses on technology transfer and promoting cooperation between the institute and business communities in the field of regenerative medicine.

“Even today there are many diseases that have no cure, resulting in death or severe disability. Their treatment requires concerted biomedical research leading to the development of new drugs, uses of stem cells and methods of tissue engineering. Our main priority is to introduce new methods of treatment into clinical practice.”

Prof. Eva Syková, MD, DSc, FCMA
Institute Director, Senator



BIOINOVA / INNOVATION BIOMEDICAL CENTRE IEM AS CR

The company Bioinova Ltd. is a certified manufacturer of medicinal products for clinical trials. It was established in 2008 as a „spin-off“ of the institute in order to increase innovation potential and efficiently transfer innovations of the research institution into clinical practice. The vision of Bioinova is to develop and implement their own innovative products in the field of cell therapy and tissue engineering and place them into the global healthcare market. Bioinova has a production capacity for aseptic processes (class A / B) and an international team of qualified experts specializing in the preparation of manufacturing processes, clinical trials and registration management/control for products of stem cell therapy.

Since 2010 Bioinova has obtained permission from SÚKL for the aseptic manufacture of medicinal products based on mesenchymal stem cells for use in phases I, II and III of clinical trials. Production takes place in a clean environment, class A/B, in accordance with the rules of Good Manufacturing Practice laid down in Directive 2003/94/EC.

