Scientific research groups

Transmission Electron Microscopy Laboratory

Head: doc. doc. MUDr. Dana Čížková, Ph.D. , in collaboration with doc. RNDr. Alešem Bezroukem, Ph.D. from the Institute of Medical Biophysics

She is engaged in the study of ultrastructure of samples from the field of life and material sciences. He performs ultrastructure examination of animal tissues from experimental studies and human tissues in the framework of research in human medicine. The ultrastructure of cultured cells from in vitro experiments is also studied. More recently, research has focused on myocardium, liver and skeletal muscle. Among the materials investigated are graphene and titanium dioxide nanoparticles and quantum dots.

Cultivation of dental pulp stem cells

Leader: MUDr. Tomáš Soukup, Ph.D. , in collaboration with prof. Jakubem Suchánkem, Ph.D. , and collaborators from the Dental Clinic of the Faculty of Dentistry of the National Hospital of the Czech Republic

The laboratory focuses on stem cell research in dental pulp, where we systematically cultivate cells, develop innovative cryopreservation methods and investigate cell behaviour in different environments, including nanofibrous carriers. We are involved in research on the development of novel carriers for drugs that have the potential to improve therapeutic effects in the treatment of various diseases while minimizing side effects.

Controlled differentiation and reprogramming of cells

MSc. Rishikaysh Pisal, Ph.D. , prof. MUDr. Jaroslav Mokrý, Ph.D.

The laboratory is dedicated to monitoring the effect of small molecules on stem and progenitor cell behavior, phenotype changes, alteration of the internal structure of cells, including aging and rejuvenation. Other activities include microscopic investigation of organoids generated by pluripotent cells.