Opened Ph.D. position 2020/2021

Study program: Biomedical Sciences
Specialization: Cell and Tissue Morphology
Supervisor: Ing. Josef Jaroš, Ph.D. | Department of Histology and Embryology
Research topic: Creating 3D tissue models for studies of lung and neural diseases

Abstract
The recent focus of our group includes the development of: (i) tissue models; (ii) engineered 3D cell culture platforms; (iii) tools to study stem cell differentiation and how cells communicate; (iv) microfluidic systems for long-term 3D cultivation and studies of tissue morphogenesis; (v) 3D bioprinting of materials and stem cells. As excellent developmental model we utilize human embryonic stem cells and their derivatives as well as pluripotent stem cells induced from primary cells of patients.

The aim of this PhD work is to perform molecular analysis and characterization of lung and neural tissue models created by 3D bioprinting and microfluidic systems. Moreover to modify and/or develop methodology for creating of lung and neural tissue models. We plan to apply these models to gain of knowledge for studies of diseases such as pulmonary fibrosis, COPD, Alzheimer disease, etc.

Methods include 3D cell culture (organoids), advanced microscopy (time-lapse, confocal, superresolution, electron), microfluidic systems, 3D bioprinting, molecular biology techniques (qPCR, WB, FACS, IHC, ..), gene manipulation.

The lab is composed of an interdisciplinary team of motivated researchers and we are cooperating with international collaborators. (https://www.med.muni.cz/histology/josef-jaros/)

We are looking for PhD candidate(s):
• fascinated by how cells form tissues and how this process is regulated
• familiar with basic methods of molecular biology and/or cell culture
• able to work independently and help others when needed
• friendly and interested in learning new methods.

We offer to gain experiences in:
• culture of stem cells (e.g. hESC, iPSC, ADSC, and their differentiation)
• basic and advanced molecular biology techniques and modern biotechnologies
• grant proposal and manuscript writing
• we also offer competitive salary based on skills and performance
• research environment of young enthusiastic group with international collaborations

How to apply
Send a letter of interest and CV to Josef Jaros, PhD jaros@med.muni.cz.