

Information about Admission Requirements for Doctoral Study Programme (Ph.D.):

**Physiology and Pathological Physiology
in English Language for Academic Year 2024/2025**

Contact to the Board: Assoc. Prof. Otto Kučera, M.D. Ph.D., email: kucerao@lfhk.cuni.cz

Form of Study: **Full-Time**

Admission Requirements: Undergraduate (Master) degree

Assets:

Practice:	5 points
Abstract:	5 points
Education	30 points (<i>bonus for those who graduated in medicine, natural science, pharmacology</i>)

Additional Requirements:

Knowledge of English language is required (CEFRL B2 or higher): 5 points
Computer skills (at least ECDL Start Certificate): 5 points

Tutor:

Prof. Michaela Adamcová, M.D., Ph.D., adamcova@lfhk.cuni.cz
Moustafa Elkalaf, M.B.B.Ch., Ph.D., elkalafm@lfhk.cuni.cz
Assoc. Prof. Otto Kučera, M.D., Ph.D., kucerao@lfhk.cuni.cz
Assoc. Prof. Halka Lotková, M.D., Ph.D., lotko@lfhk.cuni.cz
Pavla Staňková, MSc., Ph.D., stankovap@lfhk.cuni.cz

Place of Rstudy: Department of Physiology

Tutors:

Jana Langrová, M.D., Ph.D., langrovaj@lfhk.cuni.cz
Jana Szanyi, M.D., Ph.D., szanyi@lfhk.cuni.cz

Place of Study: Department of Pathological Physiology

Themes of Thesis:

A. Department of Physiology

- Translational biomarkers of cardiotoxic damage research
- Pathophysiological mechanisms in the development of non-alcoholic fatty liver disease (NAFLD) with emphasis on mitochondrial functions
- Study of factors leading to regression of non-alcoholic steatohepatitis
- Study of toxic liver damage
- Effect of lipolysis inhibitors on intermediate and energy metabolism
- Changes in lipid and cell metabolism in cells exposed to hypoxia
- The effect of nuclear receptor agonists on the liver and hepatocytes *in vivo* and *in vitro* under different conditions
- Interaction of skeletal muscles and liver in non-alcoholic fatty liver disease (NAFLD)
- New mitochondrial targeting agents to treat errors of metabolism)

B. Department of Pathological Physiology

- Testing the use of the portable device "VEPpeak" for the investigation of visually evoked potentials outside the laboratory (which specific applications will be agreed with the applicant in more detail)
- Development of new visual stimulations for diagnostic purposes in neuro-ophthalmology and psychiatry
- Monitoring changes in parameters of evoked potentials for objective detection of fatigue/changes in CNS functions

<i>Terms of Examinations:</i>	According to the announcement of admission process
<i>Way of Examination:</i>	Oral exam. Basics of medical physiology and pathophysiology at the level of Undergraduate studies of General Medicine. And according to the theme of thesis: a) intermediate and energy metabolism and the physiology and pathophysiology of the gastrointestinal tract; b) on the physiology and pathophysiology of the cardiovascular system; c) on electrophysiology of the CNS, principles of bioelectrical signal analysis, basics of mathematical and statistical data analysis.
<i>Criteria for Evaluation:</i>	<i>(maximum points = 100, minimum points for admission 70)</i>
Oral Exam:	up to 50 points
Assets:	up to 40 points
Additional Requirements:	up to 10 points

Maximal number of admitted students: 2