

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

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

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Form of Study: **Combined**

Admission Requirements: Undergraduate (Master) degree

Assets: Practice: 5 points
Abstract: 5 points
Education 30 points (*bonus for those who graduated in medicine, natural science, pharmacology*)

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

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Place of Study: Department of Physiology

Tutors: Jana Langrová, M.D., Ph.D., langrovaj@lfhk.cuni.cz
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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