

Open PhD position for the Academic Year 2024/2025

Laboratory: Laboratory of Molecular Therapy

Group Leader: prof. Ing. Jiří Neužil, CSc.

Website: <https://www.ibt.cas.cz/en/research/laboratory-of-molecular-therapy/>

Project summary

Project title: Targeting mitochondrial metabolism in glioblastoma

Supervisor: Renata Zobalová, Ph.D.

Project description:

Cancer cell proliferation and tumour formation require robust cellular metabolism and energy production to support the anabolic demands for fast generation of cells. Mitochondria, semiautonomous, dynamic organelles with essential function in cell bioenergetics, serve as a hub of vital catabolic and anabolic pathways, necessary for tumour growth. This project will focus on changes in mitochondrial metabolism, respiration and de novo nucleotide synthesis in glioblastoma (GBM), one of the most difficult-to-treat cancers. We will focus on several important enzymes such as dihydroorotate dehydrogenase and glutamine synthetase, which play a crucial role in cellular proliferation and have been linked to tumour formation and progression. Experiments will be performed both on in vitro and in vivo levels using cellular and mouse models. We will also use patient-derived orthotopic models (PDOXs). This project should reveal plausible targets for GBM therapy, which can be potentially used in other various types of cancer, since mitochondrial metabolism is necessary for nucleotide synthesis, which is a pre-requisite for cancer cell proliferation and tumour growth.

Requirements:

We are looking for a highly motivated person who is interested in cancer biology and cellular and mitochondrial metabolism. The applicant should have solid bases in cellular biology methods, be able to work within an international team and be willing to learn a wide spectrum of new/advanced research methods. Great advantage is experience with mouse models.

What we offer:

- Position in a friendly and dynamic research group within BIOCEV, a state-of-the-art research centre with world-class core resources and equipment
- Established international collaborations
- Participation at international conferences and workshops
- Competitive part time salary in addition to a regular Ph.D. stipend
- Career growth within biomedical sciences

Suggested reading(s):

Dong LF et al., (2023) J CellBiol 222, e202211044.

Hubackova SS et al., (2022) Clin Transl Med 12:e645.

Bajzikova M et al., (2019) Cell Metab 29, 399-416.

Spinelli J and Haigis MC (2018) Nat Cell Biol 20, 745-754.