Open PhD positions for the Academic Year 2021/2022

Faculty of Science BIOCEV

Laboratory:	Laboratory of Cancer Cell Invasion
Group Leader:	Doc. Jan Brábek + Doc. Daniel Rosel
Website:	http://web.natur.cuni.cz/cellbiol/invalab/

Project summary	**Supervisor:**	Doc. Daniel Rosel
Project title:	Plasticity of cancer cells invasiveness and its targeting by migrastatic drugs.	

Project description:

The malignancy of solid cancer is mainly caused by the ability of tumor cells to form metastases. The crucial step during metastasis is the invasion of the cancer cells through the ECM. To achieve this, cancer cells can utilize the protease-dependent mesenchymal invasion mode or more recently discover the amoeboid mode that relies on enhanced cell contractility. All modes of cancer cell invasiveness are interconvertible and could be employed by cancer cells in combination. A great deal of effort of the worldwide scientific community has been devoted to studying various aspects of cell invasion and migration. However, despite all the effort, the so far incomplete understanding of the plasticity of cancer cells' invasiveness precluded successful development of clinically usable anti-metastatic treatment strategies. The project aims to analyze various aspect of cancer cell invasiveness and in collaboration with 1st Faculty of Medicine to test migrastatic potential of newly developed anti-cancer drugs.

Candidate profile:

The PGS candidate should have experience in mammalian cell cultivation techniques and basic fluorescence microscopy. Experience with live-cell microscopy and molecular cloning are of further advantage.

Suggested reading:

Gandalovičová A, Šůchová AM, Čermák V, Merta L, Rösel D, Brábek J. Sustained Inflammatory Signalling through Stat1/Stat2/IRF9 Is Associated with Amoeboid Phenotype of Melanoma Cells. Cancers (Basel). 2020 Aug 28;12(9):2450.

Gandalovičová A, Rosel D, Fernandes M, Veselý P, Heneberg P, Čermák V, Petruželka L, Kumar S, Sanz-Moreno V, Brábek J. Migrastatics-Anti-metastatic and Anti-invasion Drugs: Promises and Challenges. Trends Cancer. 2017 Jun;3(6):391-406.

Panková K, Rösel D, Novotný M, Brábek J. The molecular mechanisms of transition between mesenchymal and amoeboid invasiveness in tumor cells. Cell Mol Life Sci. 2010 Jan;67(1):63-71.