

Open PhD positions for the Academic Year 2022/2023

Faculty of Science BIOCEV

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

Project summary		Supervisor:	Doc. Daniel Rosel
Project title:	Investigating the role of Src in osteoclasts.		

Project description:

The product of the c-src proto-oncogene, tyrosine kinase Src, is an essential regulator of cellular physiological processes ranging from cell adhesion, migration to mitogenic and anti-apoptotic signaling. Although Src is ubiquitously expressed, targeted disruption of c-src in mice leads to only one major phenotype, osteopetrosis. This results in the excessive accumulation of bone matrix caused by defective osteoclast functions.

The project aims to analyze the role of Src kinase in the physiology of osteoclasts, especially in the formation of sealing zones. Src activity and dynamics in the osteoclast sealing zone will be analyzed in living osteoclasts using our Src-FRET biosensor. CRISPR/Cas9 knock-in strategies will be used to prepare monocytes expressing the Src-FRET biosensor under an endogenous promoter.



Candidate profile:

The PGS candidate should have experience in mammalian cell cultivation techniques and basic fluorescence microscopy. Experience with live-cell microscopy, FRET and/or CRISPR/Cas9 are of further advantage.

Suggested reading:

Koudelková L, Pataki AC, Tolde O, Pavlik V, Nobis M, Gemperle J, Anderson K, Brábek J, Rosel D. Novel FRET-Based Src Biosensor Reveals Mechanisms of Src Activation and Its Dynamics in Focal Adhesions. Cell Chem Biol. 2019 Feb 21;26(2):255-268.e4. doi: 10.1016/j.chembiol.2018.10.024.

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