Project name (part of Charles University "JUNIOR Fund (Post-Doc)" projects)

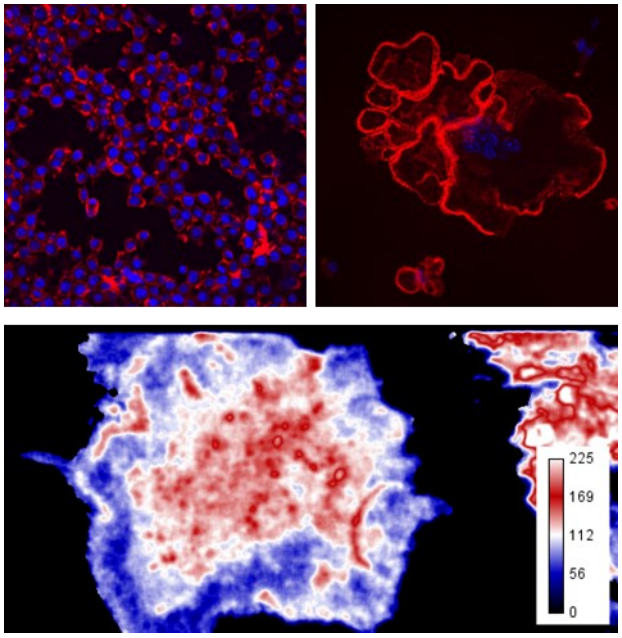
Analysis and comparison of the importance of Src in bone formation of higher vertebrates

Project proposal and aims

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. Bones of mammals and birds differ in their inner structure and the role of Src in bird bone formation has not yet been described.

The main research objective of this project is the elucidation of the role of Src in osteoclasts and the comparison of the specific role of Src in bone formation and osteoclast physiology between mammals and birds. The research will focus on description of the role of Src in bone formation *in vivo* and on osteoclasts physiology *in vitro*. The *in vivo* experiments will include comparison of *src* -/- phenotype between murine and chicken. The *in vitro* experiments will focus on analyses of Src activation dynamics in correlation to bone resorbing activity of isolated osteoclasts. Src FRET biosensor technology developed in our lab will be used. The main focus will be on specific osteoclasts structures called sealing zones.



Candidate profile:

The candidate should have a strong background in molecular cloning, biochemical analyses, cell-based assays and experience with live-cell fluorescence microscopy. Experience with FRET imaging is of further advantage.

Deadline for application: **July 25, 2022**
Application forms and project description:
https://cuni.cz/UKEN-178.html#3

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