

LENKA KOUDELKOVÁ

CURRICULUM VITAE

Born: 22. 9. 1988, Svitavy, Czech Republic
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RESEARCH EXPERIENCE

2010 – present

Trainee research fellow

Laboratory of Cancer Cell Invasion, Department of Cell Biology, Faculty of Science (BIOCEV), Charles University in Prague

- Developing and testing of FRET-based sensor of Src kinase activity, analysing Src conformational changes following kinase activation/inactivation and Src spatiotemporal dynamics in cells
- Studying the role of Src SH3 domain phosphorylation on regulation of kinase activity, signalling, conformation, transformational potential and cellular motility
- Characterising the mechanistic role of substrate domain of focal adhesion protein p130Cas in cell-ECM mechanotransduction; design, development and testing of p130Cas substrate domain phosphorylation sensor, construction and testing of FRET-based tension sensor
- Participating on other projects, e.g. the importance of p130Cas interaction with PKN3 kinase for malignant growth, the role of ARHGAP42 in cellular motility
- Training and mentoring students

TEACHING

2013 – present

Faculty of Science, Charles University in Prague, Biochemical practical course

EDUCATION

2013 - present

PhD study

Faculty of Science, Charles University in Prague

Specialization: Cellular and Developmental Biology

2011 – 2013

Mgr. (equivalent of M.Sc.) with honours in Cellular and Developmental Biology

Faculty of Science, Charles University in Prague

Thesis: Biological relevance of tyrosine 90 phosphorylation in SH3 domain of Src kinase

2008 – 2011

Bc. (equivalent of B.Sc.) in Molecular Biology and Biochemistry

Faculty of Science, Charles University in Prague

Thesis: The role of tyrosine phosphorylation in hnRNA splicing

AREA OF EXPERTISE

Molecular biology:

- molecular cloning, mutagenesis, DNA electrophoresis, primer and DNA string design
- PCR, qPCR

Protein biochemistry:

- preparation of cell lysates (2D, 3D collagen), protein purification
- SDS-PAGE electrophoresis, immunoblotting
- immunoprecipitation, pull-downs, kinase reactions

Cell culture and cell biology:

- cultivation, transfection (DNA, retroviral infection), preparation of stable cell lines
- 2D and 3D migration and invasion assays, preparation of collagen from rat tails
- gelatin zymography, gelatin degradation assay
- immunostaining
- cell stretching, preparation of PAA matrices with varying stiffness

Microscopic and spectroscopic techniques:

- fluorescence confocal microscopy, TIRF, FRAP
- FRET measurements, FLIM-FRET

Cultivation and work with yeasts (*S. pombe*):

- cultivation, transformation, growth curves, lysates, microscopy

GRANTS AND SCHOLARSHIPS:

- Cell Biology and Cancer Course travel grant. Institut Curie, Paris, France. 2018
- GAUK grant (Grant Agency of Charles University): The search for novel interaction partners of SH3 domain of the adaptor protein p130Cas. 2012 – 2014
- Scholarship for excellent academic results. 2010, 2012

PUBLICATIONS

- Koudelková L., Pataki A., Tolde O., Pavlík V., Nobis M., Gemperle J., Anderson K., Brábek J., Rösel D. Novel FRET-Based Src Biosensor Reveals Mechanisms of Src Activation and Its Dynamics in Focal Adhesions. *Cell Chemical Biology*, 2019, vol. 26, s. 255-268.
- Gemperle J., Dibus M., Koudelková L., Rösel D., Brábek J. The interaction of p130Cas with PKN3 promotes malignant growth. *Molecular Oncology*, 2019, vol. 13, s. 264-289.
- Luo W., Janostiak R., Tolde O., Ryzhova L., Koudelkova L., Dibus M., Brabek J., Hanks S., Rosel D. ARHGAP42 is activated by Src-mediated tyrosine phosphorylation to promote cell motility. *Journal of Cell Science*, 2017, vol. 130, s. 2382-2393.
- In preparation:
Koudelková L., Brůhová Z., Sztacho M., Gemperle J., Rösel D., Brábek J. Tyrosine 90 within SH3 domain – a novel site of Src kinase regulation.