CURRICULUM VITAE

Jakub Gemperle

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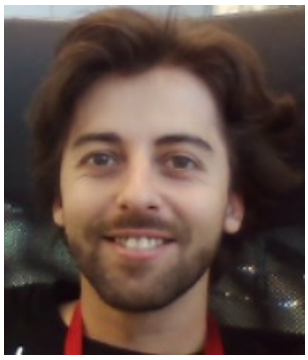

Date of Birth: 05-06-1988

Address: Cell biology, Biotechnology and Biomedicine Center of the Academy of Sciences (BIOCEV), Charles University, Vestec, Czech Republic

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Researcher ID is: J-8175-2017

Main scientific achievements of my PhD project

During my PhD in Prague I initiated several collaborations, resolved p130Cas SH3 domain binding motif and developed a workflow to identify novel p130Cas direct binding partners that led to identification of DOK7, GLIS2 and PKN3 followed by validation studies. Furthermore, it helped to validate direct binding to Vinculin. In case of PKN3, I experimentally demonstrated that this Ser/Thr kinase colocalizes with p130Cas in cell structures with pro-invasive functions and that PKN3-p130Cas interaction is important for mouse embryonic fibroblast growth and invasiveness independent of Src transformation, indicating a mechanism distinct from that previously characterized for p130Cas. Furthermore, I prepared purified chimeras of p130Cas SH3 domain with its ligands for structural NMR analysis supporting structure-based drug design of inhibitors of p130Cas-ligand interaction. In addition, my work expanded our knowledge of p130Cas SH3 ligand binding regulation (effect of Tyr12 phosphorylation) and led to novel model of Src-p130Cas-FAK binding. Finally, I contributed to development of a FRET-based Src biosensor that reflects not only Src kinase activity, but also monitors Src kinase conformation.

Work Experience

21/02/2016 – present research fellow/Scientist at Biotechnology and Biomedicine Center of the Academy of Sciences (BIOCEV), Vestec, CZ, PhD research, Laboratory of Cancer cell invasion, Prof. Jan Brábek and Daniel Rösel

25/09/2012 – 20/02/2016 research fellow/Scientist at Dpt. of Cell and developmental biology Faculty of Science, Charles University, Prague, CZ, PhD research, Laboratory of Cancer cell invasion, Prof. Jan Brábek and Daniel Rösel

Education and projects

25/09/2012 – (expected 10/12/2018) **PhD in Developmental and Cell biology**, program *STARS* supporting talented PhD students, BIOCEV institution/ Charles University in Prague, Faculty of Science, Laboratory of cancer cell invasion; PhD Thesis: *Analyzing the role of the p130Cas SH3 domain in p130Cas-mediated signaling* (supervisor: Doc. Daniel Rösel, PhD)

29/9/2010 – 06/06/2012 MSc in Developmental and Cell biology (*Diploma with Honours*), Charles University in Prague, Faculty of Science, Laboratory of cancer cell invasion

01/10/2007 – 16/09/2010 BSc in Biology (*Diploma with Honours*), Charles University in Prague, Faculty of Science, Laboratory of cancer cell invasion

Grant project participation

Principal investigator:

10/10/2012 – 31/12/2014 GA UK[1] 642012 - Determination of p130Cas mechanoreceptor binding to adhesive complexes

10/04/2015 GA UK[1] 164215 - Crosstalk of CAS/BCAR1 and PKN3 signaling in invasiveness and metastasis of cancer cells – awarded, but not received

Member of the team:

10/04/2013 – 31/12/2015 GA UK[1] 674612 - The identification and analysis of novel interacting partners of an adaptor protein p130CAS

01/12/2015 – 29/12/2017 GACR[2] 15-17419S - Crosstalk of CAS/BCAR1 and PKN3 signaling in invasiveness and metastasis of cancer cells

11/04/2017 – (2019) GA UK[1] 224217 - Role of PKN3 in Cancer Signalling - Searching for the Novel Substrates

01/12/2017 – (2019) GACR[2] 18-15684J - The role of matrix metalloproteinases and vimentin cooperation in cancer cell invadopodia function

Awards

17/05/2011 Poster competition award in M.Sc. study at the Department of Cell and developmental biology (Charles University in Prague)

Publications

4 scientific papers (including papers in revisions/preprints), **10** abstracts presented at international conferences (**1** selected short talk)

Journal Articles

Gemperle, J., Dibus, M., Koudelková, L., Rosel, D., Brábek, J. (**2018**). The interaction of PKN3 with p130Cas promotes malignant growth. *bioRxiv*. https://doi.org/10.1101/334425 (Preprint posted June 29, 2018).

Koudelkova, L., Pataki, C., Tolde, O., Pavlik, V., Nobis, M., **Gemperle, J.**, Anderson, K., Brábek, J., Rosel, D., (**2018**). Novel FRET-Based Src Biosensor Reveals Mechanisms of Src Activation and Its Dynamics in Focal Adhesions. *SSRN*. https://ssrn.com/abstract=3206266 (Preprint posted July 2, 2018).

[1] Grant Agency of The Charles University

[2] Czech Science Foundation

Gemperle, J., Hexnerová, R., Lepšík, M., Tesina, P., Dibus, M., Novotný, M., Brábek, J., Veverka, V., and Rosel, D. (**2017**). Structural characterization of CAS SH3 domain selectivity and regulation reveals new CAS interaction partners. Sci. Rep. 1–18.

Janoštiak, R., Brábek, J., Auernheimer, V., Tatárová, Z., Lautscham, L., Dey, T., **Gemperle, J.**, Merkel, R., Goldmann, W., Fabry, B., Rösel, D. (**2014**). CAS directly interacts with vinculin to control mechanosensing and focal adhesion dynamics. Cell Mol Life Sci.

Practical Courses and certificates

14/06/2018 C4Sys HTS course for Amplicon data analysis (Charles University, Faculty of Science - Prague)

11/04/2018 – 18/04/2018 1st Cell Biology and Cancer course (Marie Curie Institute, Paris) + certificate

24/04/2017 – 28/04/2017 Processing and analysis of microscopic images in biomedicine (Institute of Molecular Genetics, Prague 2017) + certificate

21/09/2015 – 25/09/2015 Certificate of professional competence to design experiments and experimental project under Section 15d (3) of Act No 246/1992 Coll., on the Protection of Animals against Cruelty, as amended (valid until 2022)

19/02/2015 – BioNMR workshop (UOCHB - Structural Biology, Institute of Organic Chemistry and Biochemistry – Prague)

13/11/2014 – BioNMR workshop (UOCHB - Structural Biology, Institute of Organic Chemistry and Biochemistry – Prague)

07/10/2013 – 11/10/2013 – Course on fundamentals of the scientific work (Academy of Science AV ČR – Prague)

29/11/2012 – 1/12/2012 Advanced fluorescence microscopy techniques (Institute of Molecular Genetics of the ASCR – Prague) + certificate

19/11/2012 and 26/11/2012 – Scientific Workshops: Presentations, Writing 1 (Charles University, Faculty of Science - Prague)

02/9/2012 – 08/9/2012 Computational analysis of protein-protein interactions for bench biologists (EMBO, Max Delbrück Center for Molecular Medicine – Germany) + certificate