Research area: Cell signaling pathways

Research topic: Deciphering roles of cell signaling modulators through advanced tools of genetic manipulation

Summary: Receptor tyrosine kinase (RTK) signaling participates in numerous cellular processes like proliferation, differentiation, survival, migration and metabolism. In addition, aberrant RTK signaling is often linked to development and progression of multiple types of cancer. Individual RTKs from e.g. EGFR, FGFR, Trk or Eph families are activated by their specific ligands but virtually all of them eventually activate ERK Map kinase pathway. Although ERK is activated by most of the RTKs, it remains a mystery how cells know which RTK was triggered and how to respond to this stimulus. Key to the specific cell response are intracellular components of a signaling pathways.

We are using modern tools of genetic manipulation (gene engineering, tagging of endogenous proteins, Crispr/Cas9 mediated complete and conditional gene disruption) in order to determine a specific role of particular protein in certain type of cell signaling. Detailed knowledge of intracellular signaling cascade improves development of therapeutics and helps to understand and overcome a resistance to cancer targeting drugs.

Requirements on applicants: MSc degree in cellular and molecular biology, biochemistry or similar field
- Basic training in modern molecular biology techniques
- Well-organized, motivated and passionate about research
- Speaks English

Short info on the supervisor: Dr. Bohumil Fafilek is currently developing his line of research as a pos-doc in the group of Dr. Pavel Krejčí.

Publications:

