



Katedry genetiky a biochémie PriF UK
a občianske združenie *NATURA*



Vás pozývajú na 91. prednášku v rámci Kuželových seminárov:

Prof. Václav Hořejší
Institute of Molecular Genetics AS CR, Praha

Immunoreceptor signaling and membrane rafts

ktorá sa uskutoční **15. mája 2013** (streda) o **14:00**

v miestnosti **AMOS** Prírodovedeckej fakulty UK

Prof. Václav Hořejší

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Professional Background:

1977 PhD (CSc) in Biochemistry, Charles University, Prague
1977 Research Scientist at the IMG AS CR ,Prague (since 2005 - Director of the Institute).
2000 Professor of Immunology, Charles University, Prague
1985 – 1986: Visiting scientist, Dept. of Biochemistry and Molecular Biology, Harvard University, Cambridge, MA



Synopsis of the lecture:

Detergent-resistant membrane microdomains enriched in sphingolipids, cholesterol and specific proteins play essential roles in immunoreceptor signaling. These “membrane rafts” accumulate several cytoplasmic lipid-modified molecules, e.g. Src-family kinases, co-receptors CD4 and CD8 and several transmembrane adaptors essential either for initiation or regulation of signaling processes, while most other abundant transmembrane proteins are excluded from these structures. Membrane rafts appear to be involved also in many other aspects of cell biology, such as functioning of several cytokine and chemokine receptors, adhesion molecules, antigen presentation, establishing of cell polarity or interaction with important pathogens. Although the concept of membrane rafts explains a number of diverse biological phenomena, many basic issues, e.g. composition, size and heterogeneity under native conditions, as well as dynamics of their interactions with receptors remain unclear. Our laboratory identified several functionally important raft resident proteins. Recently we discovered a new type of membrane rafts potentially involved in additional aspects of immunoreceptor signaling

Publications relevant to the lecture:

1. Horejsi V, Zhang W, Schraven B. Transmembrane adaptor proteins: organizers of immunoreceptor signalling. **Nat Rev Immunol**. 2004;4:603-16.
2. Otáhal, P., Angelisová, P., Hrdinka, M., Brdicka, T., Novák, P., Drbal, K. Horejsi, V. A new type of membrane raft-like microdomains and their possible involvement in TCR signaling. **J. Immunol**. 2010;184:3689-96.
3. Otáhal P, Pata S, Angelisová P, Horejsi V, Brdicka T. The effects of membrane compartmentalization of csk on TCR signaling. **Biochim Biophys Acta – Mol Cell Res**. 2011;1813:367-76.
4. Draber P, Vonkova I, Stepanek O, Hrdinka M, Kucova M, Skopцова T, Otahal P, Angelisova P, Horejsi V, Yeung M, Weiss A, Brdicka T. SCIMP, a Transmembrane Adaptor Protein Involved in Major Histocompatibility Complex Class II Signaling. **Mol Cell Biol**. 2011;31:4550-62.
5. Draber P, Stepanek O, Hrdinka M, Drobek A, Chmatal L, Mala L, Ormsby T, Angelisova P, Horejsi V, Brdicka T. LST1/A Is a Myeloid Leukocyte-specific Transmembrane Adaptor Protein Recruiting Protein Tyrosine Phosphatases SHP-1 and SHP-2 to the Plasma Membrane. **J Biol Chem**. 2012;287:22812-21.