

4th International Conference on **Proteomics & Bioinformatics** August 04-06, 2014 Hilton-Chicago/Northbrook, Chicago, USA

Investigation of phosphorylation-dependent interactions in T cells

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Signaling pathways in eukaryotic cells largely depend on phosphorylation/dephosphorylation events that govern a wide range of downstream events such as ubiquitination, nucleo-cytoplasmic shuttling of transcription factors or membrane-proximal signaling. We are especially interested in the hierarchy of events that govern T cell signaling and have identified critical phopsho-proteomic changes that accompany T cell stimulation. These modifications have a large impact on the interactome of the phosphorylated proteins and reveal novel links between kinases, scaffolding proteins and membrane receptors. In particular we have identified phosphorylation sites that affect actin polymerization upon phosphorylation of transiently membrane bound effector molecules. Our approach which can also be applied to primary cells of healthy or immune-compromised individuals constitutes a basis for translating basic research findings into clinically relevant settings.

Biography

Christian Freund has completed his PhD at the Max-Planck-Institute of Biochemistry in Martinsried/Germany. After two post-docs in the labs of Andreas Plückthun (Zuerich University) and Gerhard Wagner and Ellis Reinherz (Harvard Medical School) he became independent group leader at the FMP and now holds a position as Professor of Biochemistry at Freie Universitate Berlin, Germany.

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