



TECHNISCHE  
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# IAP-SEMINAR

## ANNOUNCEMENT

Date: **Tuesday, 20.1.2015**  
Time: **16:00 p.m.**  
Location: **Technische Universität Wien, Institut für Angewandte Physik, E134**  
yellow tower „B“, 5<sup>th</sup> floor, Seminarraum 134A (room number DB05L03)  
1040 Wien, Wiedner Hauptstraße 8-10

Lecturer: **PhD Florian Baumgart**  
IAP, TU Wien

Subject: **Lck cluster dynamics in live cells**

Abstract: During the instigation of an adaptive immune response, TCR-pMHC (T cell receptor-peptide major histocompatibility complex) binding results in the phosphorylation of intracellular tyrosine residues on the  $\zeta$ -chains of the TCR, recruitment of adapter molecules and downstream signaling. Initial TCR phosphorylation is primarily carried out by lymphocyte specific kinase (Lck) making it a key molecule for T-cell signaling. Lck has been shown to form nano-scale clusters that can be visualized by super-resolution microscopy techniques. However, neither the molecular determinants nor the function of Lck clustering are clearly understood.

We carried out single molecule microscopy of fluorescent protein-tagged Lck expressed in JCaM1.6 cells to elucidate the mechanisms that lead to Lck clustering in the plasma membrane. Our single molecule tracking data show transient immobilization of Lck molecules in clusters of about 150 nm. We also used pharmacological perturbation of the actin cytoskeleton and the cholesterol content of the plasma membrane, as well as different truncation and point mutants of Lck to find molecular determinants that control Lck clusters on the T cell plasma membrane.

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*All interested colleagues are welcome to this seminar lecture  
(45 minutes presentation followed by discussion).*

*G. Schütz e.h.  
(Seminar-Chairperson)*

*H. Störi e.h.  
(LVA-Leiter)*