



TECHNISCHE  
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# IAP-SEMINAR

## EINLADUNG

Termin: **Dienstag, 15.1.2013 um 16:00 Uhr**  
Ort: **Technische Universität Wien,  
Institut für Angewandte Physik,  
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG  
1040 Wien, Wiedner Hauptstraße 8-10**

Vortragender: **Dipl.-Ing. Stefan Sunzenauer**  
TU Wien, IAP

Thema: **Micropatterned surfaces and single molecule microscopy for  
characterization of the cellular plasma membrane structure**

### Kurzfassung

In 2008 we introduced an assay for quantitative analysis of the interaction between a fluorescently marked protein (prey) and a membrane protein (bait) using microstructured surfaces, produced by  $\mu$ -contact printing, covered with ligands (antibodies) targeted against the bait. The proof-of-concept was demonstrated for the interaction between CD4, a major co-receptor in T cell signalling, and Lck, a protein tyrosine kinase essential for early T cell signalling (Schwarzenbacher, et al., Nat Methods, 2008). Since then we worked on technical advances of the assay which are presented here. A whole binding curve of secondary antibodies binding to immobilized mouse antibodies was recorded, demonstrating that our assay allows for determination of dissociation constants. The interaction between CD4 and Lck was quantitatively analyzed using this approach (Sunzenauer S, et al., Cytometry A, in press). We also extended the assay to fixed cells allowing for multicolor staining. By the use of a bi-polymer stamp we were able to reduce the feature size of our patterns by a factor of 10. Furthermore we show that our method is a powerful tool to study membrane micro domains or lipid rafts: Via patterning of GPI-anchored GFPs the structure of cells membrane was some kind of sorted and the behaviour of various proteins in these regions have been analyzed by single molecule tracking.

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*Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar  
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.*

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

H. Störi e.h.  
(LVA-Leiter)