



TECHNISCHE  
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# IAP-SEMINAR

## EINLADUNG

Termin: **Dienstag, 6.11.2012 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**

Vortragende: **Dr. Birgit Plochberger**  
TU Wien, IAP

Thema: **Direct observation of lipid flux from single HDL particles into biomembranes**

### Kurzfassung

The High Density Lipoprotein (HDL) is one of the smallest and densest lipoproteins and carries besides their protein parts various lipids. Hitherto, the mechanisms how lipids flow from lipoproteins into the cellular plasma-membrane are far from being understood: it remains elusive whether receptors directly influence lipid efflux or keeps the lipoprotein particle attached to the plasma-membrane, thereby enhancing the probability for lipid transfer.

In this study we provide a mechanistic understanding of the cargo exchange process between HDL and biomembranes. The interaction between HDL and synthetic lipid membranes was investigated with force spectroscopy and high speed atomic force microscopy; the transfer of single cargo molecules was directly visualized using a combined and simultaneously operating fluorescence and force microscope. In particular, we compared the transfer of the fluorescently labelled lipids Dil, and Bodipy-labelled cholesterol and cholesteryl-ester. Experimental evidence points to the fact that i) cargo transfer requires contact; ii) only amphiphilic cargo is transferred; iii) upon contact the particle incorporates into the hydrophobic core of the bilayer where it can diffuse. Live cell experiments confirmed the data obtained on the synthetic systems. The experiments indicate that the fusion of the particle's outer lipid monolayer with biomembranes leads to the integration of the particle into the hydrophobic core of the membrane, which facilitates cargo transfer.

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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)