



Research Training Group 1962

Dynamic Interactions at Biological Membranes from Single Molecules to Tissue

Speaker: Prof. Dr. Rainer Böckmann, Computational Biology

Invitation to RTG 1962 – Guest Talk

Tuesday, 10th December 2019 at 17.00 (s.t.)

Prof. Dr. Daniel Huster

(University of Leipzig)

“Small Molecules Modulate the Properties of Cholesterol-Containing Membranes”

Cholesterol has been known to play a decisive role in biological membranes. In the talk, I shall be discussing specific molecular properties of cholesterol with regard to its specific function in the maintenance of the membrane's barrier function. Especially, the length of cholesterol's side chain will be addressed [1]. I will continue presenting data on the specific interaction of cholesterol with lipids in mixed membranes [2] and raft mixtures [3,4]. Next, I will be presenting unpublished data on the modulation of the lateral organization of raft mixtures by small neurotransmitters. Finally, an example of the modulation of the structural dynamics of a membrane protein by membrane cholesterol will be given. In our group, we use solid-state NMR techniques to study membranes of mixed complexity on a molecular level.

[1] H. A. Scheidt, T. Meyer, J. Nikolaus, D. J. Baek, I. Haralampiev, L. Thomas, R. Bittman, P. Müller, A. Herrmann, D. Huster. Cholesterol's aliphatic side chain structure modulates membrane properties. *Angew. Chemie Int. Ed.* 52 (2013) 12848-12851.

[2] D. Huster, K. Arnold, K. Gawrisch. Influence of docosahexaenoic acid and cholesterol on lateral lipid organization in phospholipid membranes. *Biochemistry* 37 (1998) 17299-17308.

[3] A. Bunge, P. Müller, M. Stöckl, A. Herrmann, D. Huster. Characterization of the ternary mixture of sphingomyelin, POPC, and cholesterol. Support for an inhomogeneous lipid distribution at high temperature. *Biophys. J.*, 94 (2008) 2680-2690.

[4] O. Engberg, H. A. Scheidt, J. P. Slotte, D. Huster. Membrane localization and lipid interactions of common lipid-conjugated fluorescence probes. *Langmuir* 35 (2019) 11902-11911.

Guests are welcome!

gez. Prof. Dr. R. Böckmann

→ Venue: Department Biology, Seminar Room Cell Biology (00.581),
Building B1, Floor 00, Staudtstraße 5, 91058 Erlangen