



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, 17th of July 2018 at 05.00 p.m. (s.t.)

Steven Lavington
(University of Oxford)

“Elucidating the conformational dynamics of the 8th helix in a class A GPCR”

G protein-coupled receptors (GPCRs) are of considerable biological significance, since they account for ~1% of genome-encoded proteins and are implicated in a variety of biological processes and pathologies. GPCRs are characterized by a 7-transmembrane helix architecture, with most structures also demonstrating an eight non-transmembrane helix, helix 8. This structural element has been implicated in GPCR expression, trafficking and G protein coupling. It is therefore of note that crystal structures of thermostabilised neurotensin receptor 1 (NTS₁) constructs are inconsistent on the presence and extent of helix 8, with at least 4 different conformations observed to date. Here, we make use of a non-thermostabilised NTS₁ construct reconstituted in a lipid environment to explore the conformational dynamics of the helix 8 region.

Continuous-wave electron paramagnetic resonance (CW-EPR) is used alongside molecular dynamics simulations and circular dichroism spectroscopy to demonstrate that NTS₁ possesses a dynamic helix 8 with a conformation that is dependent on both membrane lipids and the binding of intracellular signalling partners.

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