SFB 1078

Protonation Dynamics in Protein Function

Colloquium

Mon, **April 23**, 2018

15:15 – 16:30

Freie Universität Berlin
Physics Department
Lecture Hall B

(Arnimallee 14, 14195 Berlin-Dahlem)

Dr. Frank Bernhard – Goethe-Universität Frankfurt, Germany

Folding of cell-free synthesized membrane proteins in defined lipid environments

Multiple directions for the production of membrane proteins and other difficult targets by cell-free synthesis platforms have been developed. The still continuously increasing diversity of modifications already offers a highly versatile production pipeline for structural and functional approaches. In recent times, the co-translational insertion of membrane proteins into defined lipid bilayers is emerging as promising tool for their detergent-free production and characterization in native-like environments. However, this strategy poses new challenges as membrane insertion follows artificial pathways and cannot be assisted by translocons or chaperones. Different membrane topologies, e.g. vesicles or planar membranes in nanoparticles, can be provided as insertion and folding environment for cell-free synthesized membrane proteins. I will give an overview on our recent work on the co-translational insertion and functional folding of diverse membrane proteins including, enzymes, G-protein coupled receptors or ion channels, into nanodiscs. Parameters critical for membrane insertion and protein folding will be discussed and new perspectives for using membrane protein/nanoparticles as vectors for structural characterization and in vivo analysis will be highlighted.

Coffee and tea are ready at 15:00 and after the Colloquium from 16:15 – 16:30.

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