SFB 1078

Protonation Dynamics in Protein Function

Mon, **Jan. 29, 2024**

**15:15 – 16:30**

Freie Universität Berlin
SupraFAB

(Altensteinstr. 23a, 14195 Berlin-Dahlem)

# Colloquium

**Dr. Lena Bögeholz –** MPI for Multidisciplinary Sciences, Göttingen, DE

***Cotranslational folding and insertion of bacterial membrane proteins***

When a new inner membrane protein is synthesized on the bacterial ribosome, it is inserted into the phospholipid bilayer with the help of the translocon. The translocon facilitates the insertion of hydrophobic transmembrane helices (TMs) via a lateral gate, which opens to allow TMs to partition into the membrane. TMs attain their helical secondary structure within the ribosome but only fold into the native tertiary structure during insertion into the lipid bilayer. To understand how membrane proteins are inserted and fold while they are still being synthesized, we performed cotranslational FRET experiments. Using fluorescence labels on the nascent protein chain and on the translocon, we were able to monitor the approach of TMs to the translocon and consecutive folding events. As a model protein, the multidrug resistance transporter EmrD was used that was labeled at TMs 1-4. Our results provide first insights into cotranslational folding of membrane proteins in real time.

*Coffee and tea are available after the talk from 16:15 – 16:30.*

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