SFB 1078

Protonation Dynamics in Protein Function

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via WebEx

Colloquium

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The problem of orientation during membrane protein reconstitution

Membrane proteins are the windows and doors of living cells, responsible e.g. for the controlled influx and efflux of substrates across biological membranes. To reduce the complexity of native membranes, the proteins are extracted and purified and reconstituted back into liposomes to allow investigations of the molecular mechanism. An important, but relatively unaddressed problem during reconstitution is the orientation of the protein, as its incorporation into vesicles is not aided by cellular chaperones but driven by unknown mechanisms. Orientation however can be of crucial impact for the outcome of measurements, especially when several membrane proteins are embedded in the same membrane as in the respiratory chain to produce the cellular energy currency ATP.

In my talk, I would like to introduce you to currents projects in the lab that aim to incorporate an entire respiratory chain into liposomal membranes. I will also present a simple fluorescence-based assay to measure membrane protein reconstitution and recent progress to actively influence the orientation during reconstitution using synthetic biology tools.

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