**BACKGROUND/OVERVIEW** The Nissen group investigates molecular mechanisms of membrane transport processes and biomembrane structure of importance in neuroscience.

**Methods:** mainly focused on cryo-electron microscopy (Cryo-EM), biochemistry and biophysics of protein interactions and dynamics, and molecular cell biology using fluorescence microscopy and cryo-electron tomography. **Key topics:** membrane transporters and receptors in brain that are affected in neurological and psychiatric disorders, including P-type ATPases, Na⁺ dependent neurotransmitter and chloride transporters (SLCs), insulin and sortilin receptors. We study structure, function and mechanisms of regulation, effects of disease causing mutations, and aim also for structure based drug discovery and protein engineering. We also engage in mathematical modelling of molecular networks in brain.

**Research Areas:** Structural neurobiology, Membrane transport and signalling, Cryo-EM, biochemistry-biophysics, drug discovery, network modelling.