Universität Basel

Research Project

Electron Microscopy of Membrane Proteins

Third-party funded project

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Department
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Membrane proteins in our human body are among the most important molecular machines for human health. A detailed mechanistic understanding of their function requires not only a high-resolution structure as usually obtained by X-ray diffraction methods, but also information about the structure of these membrane proteins under life-like conditions. Here, we will study the 3D structure of membrane proteins, while they are embedded in biological lipidic membranes. Importantly, we will seek to study the structure of these proteins under life-like environmental conditions, by placing the membrane proteins into the membrane of lipid vesicles (tiny bags) that have different buffer solutions on the inside than on the outside. This should allow studying the reaction of the membrane proteins to gradients in the buffer solutions on both sides of the membranes.ă Systems to study are potassium channels, sodium-citrate symporters, and a complex from a bacterial protein with a virus docking protein.

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