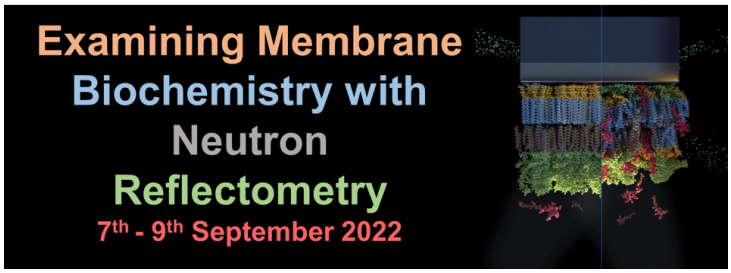

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Cryo Electron Microscopy of Small Membrane Proteins

Friday, 9 September 2022 12:40 (20 minutes)

The resolution revolution in cryo electron microscopy, led by the introduction of direct electron detectors, has let to unprecedent gains in structural biology. However, despite advances in data collection and image processing, single particle cryoEM of small proteins, in particular small membrane proteins remains a challenge. The Membrane Protein Laboratory at Diamond Light Source is funded by Wellcome to assist the user community in the study of membrane proteins. Working closely with beamlines and the electron bio-imaging centre at Diamond, we optimise sample preparation for experiments (from cloning/expression through to experimental set-up), assist in data collection and data processing.
We have been working closely with eBIC to develop optimised workflows for the study of small membrane proteins (<100 kDa). This includes the development of high-throughput assays and screening to assess protein quality before vitrification, and optimised methods for data processing. Our aim is that these optimised parameters will feed into the eBIC pipeline to assist users to the facility. We demonstrate the benefit of these pipelines with data from two proteins which have been studies in house in the MPL.

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