

Structural studies of membrane proteins using X-ray crystallography

Description	The objective of the course is to introduce participants into the intricacies of structural studies on membrane proteins using X-ray crystallography. Besides giving an introduction into the over-expression, solubilization and purification of membrane proteins, the course will focus on the 3D-crystallization of membrane proteins and discuss the basics of X-ray data collection, phasing, and model building.
Eligibility	Participants must have a Master degree in biology/chemistry/physics with an interest in membrane protein structure determination.
Course structure	Practical, lectures, demonstrations, experimental work
Assessment	Participation to all activities and a quiz test at the end of the course.
Dates	18. - 20. August 2015
Credits	1.5 ECTS
Facilitators	Prof. Kaspar Locher (ETH Zurich, Institute of Molecular Biology and Biophysics) Prof. Raimund Dutzler (University of Zurich, Department of Biochemistry)
Location	University of Zurich, Irchel Campus and ETH Zurich, Hönggerberg campus (details to follow).
Registration	send an Email to martin.weisstanner@dkf.unibe.ch
No of places	Maximum # of accepted students: 16. Priority will be given to researchers (PhD students and postdocs) from NCCR TransCure laboratories and with little experience in membrane protein expression, purification, or crystallization.

Day/ Time	Tuesday, August 18, 2015	Wednesday, August 19, 2015	Thursday, August 20, 2015
9:00 - 11:45	Irchel campus UZH: Lectures and discussion of experimental setup	Irchel campus UZH: Discussion of experimental results. Lecture: Structure determination using X-ray crystallography Visit ZCSB crystallization facility at UZH	Students split in two groups: 1/2 Irchel campus UZH, the other 1/2 Hoenggerberg campus ETHZ. Practical part: <ul style="list-style-type: none"> • Phasing • Electron density and model building Reconvene at UZH Irchel campus
11:45- 13:00	Lunch @ Lecture hall	Lunch @ Lecture hall	Quiz, Course evaluation, concluding remarks
13:00- 18:00	Practical part: Detergent screening, FSEC, membrane protein purification Experiments may take until 19:00 h	Students split in two groups: 1/2 Irchel campus UZH, the other 1/2 Hoenggerberg campus ETHZ. Practical part: <ul style="list-style-type: none"> • Crystallization setups • Crystal mounting, X- ray diffraction data collection • Data processing Experiments may take until 19:00 h	Lunch @ Lecture hall 14:00 h End of course
19:00		Pizza dinner	