COURSE DETAIL

ADVANCED BIOCHEMISTRY
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Chemistry Biochemistry
UCEAP Course Number 154
UCEAP Course Suffix
UCEAP Official Title ADVANCED BIOCHEMISTRY
UCEAP Transcript Title ADVANCED BIOCHEM
UCEAP Quarter Units 12.00
UCEAP Semester Units 8.00

Course Description

This course covers the different types of membrane proteins, how they can be overexpressed and purified from a host cell, and how different methods can be used to analyze their structure and function. The course includes predictions and practical investigations of protein folding in a membrane, as well as a shorter project where you under guidance plan and carry out cloning and overexpression of a membrane protein of your choice. Course lectures address the three different main types of membrane proteins and associated cellular processes: transport and transporters, signal transduction and receptors, bioenergetics, and photosynthetic and respiratory proteins. Lectures dealing with methods for theoretical modeling of membrane protein structure, fusion protein techniques, X-ray crystallography, heterologous expression, solubilization, and purification of membrane proteins are also included in the course. Laboratory sessions, exercises, and project work are used to determine the transmembrane topology of a protein starting with a model of the protein based on sequence information and theoretical methods. This is followed by experimental determination using genetic construction and expression of a fusion protein of the membrane protein and a marker protein in a bacterial system which is subsequently analyzed. An individually planned and executed project on protein expression provides practice in literature searching, project planning, and documentation. The project is to be concluded with a poster presentation.

Language(s) of Instruction
English

Host Institution Course Number
KEMM23

Host Institution Course Title
ADVANCED BIOCHEMISTRY

Host Institution Campus
Lund

Host Institution Faculty Science
Host Institution Degree
Host Institution Department Chemistry

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