UE2 Option A - Biomolecular Interactions

Niveau d'étude
BAC +4

ECTS
15 crédits

Composante
UFR Sciences
Vie Terre
Environnement

Présentation

Description

Les enseignements de cette UE sont délivrés à l'Université de Mayence en Allemagne

In this module, comprehensive knowledge of biomolecular interactions is imparted. Biomolecular interactions play a central role in almost every cellular process. These can be interactions from protein to protein, but also from protein to DNA, antibody antigen, lipid to protein or protein to low molecular weight substances such as secondary messengers, hormones or drugs. It is therefore of crucial importance in biology, medicine and biotechnology to analyse and quantify these processes. The aim of this module is therefore to give an overview of the different methods used in modern biology to study and quantify various biomolecular interactions. The functioning as well as the application possibilities of the methods will be explained in an eLecture using video clips, animation films and software applications. The learning success can be checked by the students in small quizzes. In an accompanying seminar, in which the students prepare and present a scientific lecture, selected techniques that have been successfully applied in current research are then discussed. Finally, the module contains an exercise in which a selection of techniques are trained, including the high-end technique of surface plasmon resonance spectroscopy.

Programm :

Lectures (21h)

Biomolecular interactions of protein/protein; protein-DNA, protein-lower molecular substances; quantification of interactions.

Tutorials (10,5h)

Seminar "Biomolecular interactions".

Practice (84h)

Laboratory work on biomolecular interactions of protein/protein; protein-DNA, protein-lower molecular substances; quantification of interactions.

Objectifs

Applying theoretical concepts of biomolecular interactions.

Conceiving and preparing state-of-the art experiments on biomolecular interactions.

Handling and following a protocol with respect to health, safety and sterility rules.

Obtaining, analyzing and validating experimental results to draw conclusions.

Analyzing, interpreting and reporting scientific data on biomolecular interactions in the context of current research, presenting them in English to a scientific audience.

Heures d'enseignement

CM	Cours Magistral	21h
TD	Travaux Dirigés	10,5h
TP	Travaux Pratiques	84h

Pré-requis obligatoires

Basic knowledge and skills in microbiology and molecular biology (UE1).