Cell systems biology

ECTS
3 crédits

Composante
UFR Pharmacie

Période de l'année
Automne (sept. à dec./janv.)

Diplômes intégrant cet élément

- Master Ingénierie de la santé

Langue(s) d'enseignement: Anglais

Ouvert aux étudiants en échange: Non

Présentation

Description

This course is aimed to provide students with an in-depth understanding of the ways in which membranes and cells are utilized in biotechnology systems. The teachers are experts in their respective fields, and will discuss the biotechnology of membrane transport proteins in cellular functions, and the modelling and simulation of larger-scale cell systems. During the tutorial sessions students will be guided through practical implementation of developing and analyzing models of cell systems using the R software package.

Exemples of topics:

- Role of membrane transport proteins in cellular functions
- Biotechnology tools to measure cell membrane transport functions (e.g. patchclamp electrophysiology)
- Why is the cardiac action potential longer than the nerve action potential ?
- Membrane transport proteins linked to cell functions and to disease
- Introduction to Systems Biology and biochemical networks
- Metabolic network modelling at the genome scale
- Integration of omics data into genome-scale metabolic network models
- Kinetic modelling of biochemical networks
- Reconstruction of gene expression networks

Informations non contractuelles.
Dernière mise à jour le 30 juin 2026

- Simulation of genome-scale metabolic networks
- Simulation of genome-scale metabolic networks and integration of omics data
- Simulation of the circadian clock rhythm
- Projects

Infos pratiques

Campus

Grenoble - La Tronche domaine de la Merci

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