BIO-701

Recombinant protein expression in animal cells for appli-cations in medicine and structural biology

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Cursus	Sem.	Type
Computational and Quantitative Biology		Opt.
Molecular Life Sciences		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Oral presentation
Workload	60h
Hours	**28**
Lecture	28
Number of positions	**15**

Frequency

Every year

Remark

Every year

Summary

Cultivated animal cells are important hosts for the production of recombinant proteins for biochemical and structural studies and for use as therapeutics. The course will provide an overview of the methods for the production and characterization of recombinant proteins.

Content

Subjects discussed in class are expected to include:

- Transient gene expression
- Stable gene expression
- Cell-free protein synthesis
- Production of therapeutic antibodies
- Production of transmembrane proteins
- X-ray structure determination
- Cryogenic electron microscopy
- Bio-NMR
- Biophysical techniques for protein characterization

Other topics may be included as needed. Lectures will be presented by the instructors and other experts at the EPFL and in the Lémanic region. Each doctoral student will present a 45-minute talk on a specific subject within the field.

Note

Every 1.5 year (last time was from Sept. to Dec. 2023)! This course should take place in spring 2025, exact dates and place to be confirmed.
Max. 20 participants. To register, please send an email to edms@epfl.ch

Keywords

recombinant protein, mammalian cells, cell culture, gene expression, transfection. protein structure

Learning Prerequisites

Required courses

Basic cell biology

Learning Outcomes

By the end of the course, the student must be able to:

- Explain (i.e. comprehend) technologies discussed in course
- Interpret in a critical way data generated with these technologies

Assessment methods

Oral presentation

Resources

Moodle Link

- https://go.epfl.ch/BIO-701