BIO-624

Practical - Thomä Lab

Invited lecturers (see below), Thomä Nicolas

Cursus	Sem.	Type
Molecular Life Sciences		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Oral presentation
Workload	30h
Hours	**24**
Courses	6
TP	18
Number of positions	**4**

Frequency

Every year

Remark

Open to max. 4 students. 3-day Block course, every year in January. Registration ONLY by EDMS administration.

Summary

Expression and purification of recombinant proteins are key methods in our lab studying protein machines on a structural level and ways in which they can be reprogrammed by small molecules. In the course, we will express and purify proteins and biophysically characterise them.

Content

The following topics are anticipated to be covered in class:

- Expression systems
- Chromatography techniques to purify recombinant proteins
- Biophysical assays

The objective of the course is to equip students with practical, hands-on knowledge on protein expression and purification techniques, particularly in relation to automated systems like the ÄKTA equipment, as well as binding assays. The curriculum will cover both theoretical concepts and practical skills, such as chromatographic methods, the operation and maintenance of automated ÄKTA systems, the monitoring and verification of purification results using SDS-PAGE, protein concentration and dialysis techniques, as well as cleaning chromatographic columns. We will also characterise binding of proteins using biophysical assays.

Note

Please note that you cannot register in your own group Practical.

Keywords

Protein Expression, Protein Purification, Biophyscial Assays

Learning Outcomes

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

- conduct and analyze an SDS-PAGE and handle a recombinant protein. Knowledge about different purification techniques and purification tags.

Assessment methods

Oral presentation

Resources

Bibliography

https://www.epfl.ch/labs/upthomae/

Websites

- https://www.technologynetworks.com/analysis/articles/an-introduction-to-protein-purification-methods-technologies-and-applications-388443

Moodle Link

- https://go.epfl.ch/BIO-624