

BIO-603(BP)

Practical - Barth Lab

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Cursus	Sem.	Type
Molecular Life Sciences		Obl.

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

Frequency

Every year

Remark

3-day Block course, every year in January. To register, contact EDMS Administration

Summary

This course will convey the concepts and experimental techniques for studying the signal transduction mediated by receptors across biological membranes.

Content

The course will introduce the concepts and technical approaches for studying signal transduction pathways mediated by receptors across biological membranes.

On the conceptual side, we will cover the molecular and mechanistic underpinnings of:

receptor ligand sensing and binding selectivity
 receptor allostery and signal transmission
 receptor coupling to intracellular signaling proteins
 intracellular signaling cascades and associated protein networks.

On the practical side, the following techniques will be introduced:

mammalian cell culture, transfections
 quantitative measurements of receptor and downstream signaling pathway activations using specific reporters of secondary messenger production and gene expression
 Fluorescence, Bioluminescence measurements using plate readers and microscopy.

Note

Open to max. 4 students. Please note that you are not allowed to inscribe in your own group!

Keywords

cell signaling; bioluminescence, fluorescence, biosensors

Learning Outcomes

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

- measure and understand the signaling properties of a membrane receptor

Assessment methods

Oral