

BIO-603(BP)

Practical - Barth Lab

Barth Patrick, Oggier Aurélien

| Cursus | Sem. | Type |
|-------------------------|------|------|
| Molecular Life Sciences | | Obl. |

| | |
|----------------------------|-----------|
| Language of teaching | English |
| Credits | 1 |
| Session | |
| Exam | Oral |
| Workload | 30h |
| Hours | 24 |
| Lecture | 6 |
| Practical work | 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

Please note that you are not allowed to inscribe in your own group!

Note that 3 practical courses are mandatory for all EDMS students and that they have the priority; each course has between 2 to 4 possible slots.

Therefore, please do not register by yourself to this course, this will be done by the EDMS program administrator!

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