

BIO-618

**Practical - Schuhmacher Lab**

Schuhmacher Milena Maria

Cursus	Sem.	Type
Molecular Life Sciences		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Oral
Workload	30h
<b>Hours</b>	<b>28</b>
Courses	4
TP	24
<b>Number of positions</b>	<b>4</b>

**Frequency**

Every year

**Remark**

Open to max. 4 students. 3-day block course, every year in January. To register, contact EDMS Administration

**Summary**

It's all about the lipids: We use a chemical biology approach to answer outstanding questions in membrane biology. We show you how to use our lipid tools that allow you to manipulate lipid concentrations and visualize them in cells.

**Content**

Lipids are essential for cellular functions and signaling processes. Yet, they are understudied compared to other biological molecules such as proteins, mainly due to a lack of appropriate methodology.

Compared to proteins, it is very difficult to introduce perturbations such as concentration changes and it is further very challenging to visualize lipids especially in a cellular context. This has mainly to do with both the size and also the chemical diversity of lipids. Chemical biology approaches such as the introduction of photolabile moieties, photocrosslinking and click chemistry groups offer the possibility to fill this methodological gap and in particular to address biological questions on the level of individual lipid species.

In this course, we will show the students the different methods we use to modulate and visualize lipids in the cell.

**Note**

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

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**

Chemical biology, signaling lipids, biological membranes, cell biology, fluorescence microscopy

**Learning Outcomes**

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

- understand the fundamental concept of the performed experiments and to communicate their outcome.

**Assessment methods**

Oral exam

**Resources**

**Websites**

- <https://www.epfl.ch/labs/gr-schuhmacher/>

**Moodle Link**

- <https://go.epfl.ch/BIO-618>