

BIO-625

**Practical - Zenk Lab**

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<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Molecular Life Sciences		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Oral
Workload	30h
<b>Hours</b>	<b>28</b>
Courses	4
Exercises	6
Project	18
<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**

You will learn to prepare single nuclei suspensions from organoid and use them to generate chromatin accessibility (ATAC) or CUT&Tag sequencing libraries to probe the epigenetic landscape during development. You will also learn how to perform basic analysis and compare between samples.

**Content**

This three-day course will provide doctoral students with a comprehensive introduction to cutting-edge techniques for studying chromatin dynamics in developmental biology. Participants will gain hands-on experience in preparing single-nucleus suspensions from organoids and using these suspensions to generate sequencing libraries for chromatin accessibility (ATAC-seq) or CUT&Tag analysis. These techniques are powerful tools for investigating the epigenetic mechanisms underlying development.

In addition to practical lab work, the course will include sessions on data analysis, where participants will learn basic bioinformatics approaches for processing and comparing epigenetic datasets between samples. By the end of the course, participants will be equipped with both the technical skills and theoretical knowledge needed to apply these methods in their own research and map epigenetic changes in organoid development.

**Note**

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

**Keywords**

ATAC, CUT&amp;Tag, Chromatin Biology, Neurodevelopment, Brain Organoids

**Learning Prerequisites****Required courses**

Molecular Biology

**Learning Outcomes**

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

- explain the principles CUT&Tag and ATAC sequencing.
- prepare single nuclei suspensions.

### **Assessment methods**

Oral

### **Resources**

#### **Moodle Link**

- <https://go.epfl.ch/BIO-625>