

**Title of module**

Advanced Practical in the Focal Point Program:  
"Molecular Medicine" VZ: 185881  
**"Regulation of ion channels in cardiac myocytes"**

**Credit points**

7.5  
(of 15)

**Available in semester(s)**

2

**Hours per week**

9

**Compact course**



**Lecturer(s)**

Rinne, Kienitz

**Teaching methods**

A five-week all-day practical lab course with a compulsory seminar presentation.  
**Please note:** A second Advanced Practical will have to be performed in the same semester to earn the full complement of 15 credits

**Evaluation of learning progress**

Active participation, feedback during independently performed experiments, project discussions with the supervisor

**Mode of examination**

Assessment of experimental skills during the practical (50%), a written project report (40%), and a literature seminar (10%).

**Learning objectives**

Gene transfer into primary cells  
  
Electrophysiological and pharmacological characterization of cardiac ion channels

**Soft skills**

## ***Contents of module***

The students will conduct a small scientific project to analyze cardiac ion channels in adult myocytes. The module includes the following techniques:

Molecular cloning of plasmids encoding for signaling molecules.

Expression of recombinant proteins in cardiac myocytes.

Cell culture of standard cell lines and primary cells.

Electrophysiological characterization of cardiac ion channels (Patch-clamp technique).

Pharmacological assessment of GPCRs in cardiac myocytes.