neu470 - Molecular Sensory Neuroscience

Module label: Molecular Sensory Neuroscience
Module code: neu470
Credit points: 15.0 KP
Workload: 450 h

Used in course of study:
- Master's Programme Neuroscience > Research Modules

Contact person

Module responsibility
- Karl-Wilhelm Koch

Authorized examiners
- Alle hier genannten

Module counseling
- Hans Gerd Nothwang
- Kathrin Thedieck
- John Neidhardt
- Anna-Maria Hartmann

Entry requirements
Skills to be acquired in this module:
+ Neurosci. knowlg. Expt. methods Independent research Scient. literature + Social skills
+ Interdiscipl. knowlg. Maths/Stats/Progr. Data present./disc. + Scientific English + Ethics

For students putting emphasis on cell biological, molecular biological, genetic, biochemical and/or neurobiological fields. The module can serve the purpose of preparing for a Master’s thesis.

Upon successful completion of this course, students
- have an advanced knowledge in molecular cell biology
- have acquired methodological and experimental skills in molecular cell biology
- have an advanced knowledge of how to perform research projects
- have advanced skills in presenting and discussing scientific data they have obtained, analysed and put in a wider framework of a current scientific topic.

Module contents
Theory and practice of topics related to issues in molecular sensory neuroscience;
independent treatment of an individual project; acquiring an advanced theoretical knowledge
in selected fields of the molecular biology of the cell (points of emphasis: genetics, biochemistry,
cell biology; topics depending on working groups).
There are several options for the lab projects, in the broad categories of:
1. Protein function in neurosensory signaling (Koch)
   Heterologous expression in cell cultures of a protein involved in visual transduction or
   magnetoreception
2. Neurosensory genetics (Nothwang)
3. Metabolic signalling networks (Thediek)
4. Human genetics: mutation identification, pathogenic processes and therapy development
   (Neidhardt)

Reader's advisory
Specific literature of the topics indicated above; original papers related to the current research
question; will be different for every student and every year.
Textbooks of Cell Biology, Biochemistry, Genetics:
Alberts et al. Molecular Biology of the Cell (5th Edition or later); Stryer Biochemistry (7th Edition or
later); Lehninger Biochemistry (4th Edition or later). These textbooks are updated almost every 3 or 4
years.

Links
Languages of instruction: German, English
Duration (semesters): 1 Semester
Module frequency: halbjährlich
Module capacity: unlimited
Reference text
- Time is flexible and subject to individual arrangement. An accepted internship report and
  participation in a joint poster presentation of concurrent research modules are required to pass the
  module.

Modullevel: MM (Mastermodul)
Modulart: Wahlpflicht

Lern-/Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination
- Time of examination
  - Final exam of module: as agreed; usually within 2 months of the conclusion of lab work

Type of examination
- Oral exam of 30 min. in Cell Biology, Genetics or Biochemistry, depending on the chosen option
  - Participation in seminar,
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**Course type**  : Projektorientiertes Modul

**SWS**  : 10.00
**Frequency**  : WiSe
**Workload attendance**  : 140 h