Module Name

Genetic tools for investigating biochemical interactions

Identification Number	Workload	Credit Points	Term	Offered Every	Duration
MN-BC-BSM14	360 h	12 CP	1st or 2nd term	Winter, 1st half	7 weeks

1	Type of lessons	Contact Times	Self-Study Times	Group Size*
	a) Lectures	**8 h**	**54 h**	max. 4
	b) Practical/Lab	**180 h**	**80 h**	max. 2
	c) Seminar	**10 h**	**30 h**	max. 4

2 Module Objectives and Skills to be Acquired

Students who successfully completed this module

- have acquired experimental skills in state-of-the art methods in cell biology, molecular biology as well as computational biology and are able to independently design and perform small scientific projects related to topics of the module.
- are able to address a scientific question related to the topic of the module by independently planning and conducting an experimental project, including choice of accurate methods, appropriate data compilation, accurate documentation of experiments as well as analysis and interpretation.
- have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level.
- are able to transfer skills acquired in this module to other fields of biology.

3 Module Content

- Planning and conduction of an individual project (in teams of max. 2)
- Methods of gene targeting and site-directed mutagenesis
- Conditional gene expression
- Analysis of protein-protein interaction
- Characterization of post-translational regulation of protein
- Standard molecular genetic techniques (cloning, protein expression, sequencing, etc.)
- Basic concepts of protein data analysis

4 Teaching Methods

Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form

5 Prerequisites

Enrolment in the Master's degree course “Biochemistry and Molecular Medicine”

Additional academic requirements

Basic skills in wet-lab laboratory work and/or basic knowledge of working with biological data

6 Type of Examination

The final examination consists of two parts (type BC4): Written report (50 % of the total module mark), 20-30 min oral examination on topics of lectures, seminars and the practical/lab part (50 % of the total module mark)

7 Credits Awarded

Regular and active participation; Each examination part at least “sufficient” (see appendix of the examination regulations for details)

8	**Compatibility with other Curricula** None
9	**Proportion of Final Grade** 10%
10	**Module Coordinator** Prof. Dr. Jürgen Dohmen, phone 470-4862, email j.dohmen@uni-koeln.de; Dr. Karsten Klopffleisch, phone 470 3964, email karsten.klopffleisch@uni-koeln.de
11	**Further Information:** **Participating faculty**: Prof. Dr. J. Dohmen, Dr. K. Klopffleisch **Literature:** • Additional subject-specific literature will be provided at the beginning of the module **Note:** The module contains hand-on laboratory work as well as computational work, both conducted by small groups of students and is taught in course rooms and research laboratories. **Introduction to the module**: October 10, 2024 at 10:15 a.m., Center for Molecular Biosciences (COMB), room 2.17 (2nd floor). **General time schedule:** Weeks 1-5 (Mon.-Fri.): Lectures, practical/lab; Week 6 (Mon.-Fri.): Writing the protocol; Week 7 (Mon.-Fri.): Preparation for the oral examination **Oral examination:** November 29, 2024, second/supplementary examination February 21, 2025; the later date may vary if students and module coordinator agree. More details will be given at the beginning of the module.

* 4 students from the Master's degree course “Biochemistry and Molecular Medicine”