Molecular Biomedicine (M4415)

Stand: 14.11.2014

ECTS-Punkte	Arbeitsaufwand [h]	Dauer	Turnus	Studiensemester
14	420	1 Semester	WiSe	3.

Lehrveranstaltungen	Typ	Umfang [SWS]	Präsenz [h]	Eigenstud. [h]	Gruppengr.
Lecture	V	2	30	90	12
Practical	PExp	18	240	60	12

Modulverantwortlicher	Prof. Dr. E. Lammert
Beteiligte Dozenten	E. Lammert, D. Eberhard
Sprache	Englisch

Verwendbarkeit des Moduls	Studiengang	Modus
	M.Sc. Biochemie M.Sc Biochemistry International M.Sc. Biologie M.Sc. Biology International	Wahlpflicht

Lernziele und Kompetenzen

Students will learn how to describe, analyse and manipulate organ development, physiology, cell biology and biomedicine of selected organs and their human diseases. The students will organize and perform their own experiments on tissues and medically relevant organs, such as the cardiovascular system. The students will perform experiments on their own, using fluorescence and laser scanning microscopes (LSM), microsurgery, ELISA, real-time PCR, gel documentation system, and other state-of-the-art lab equipment.

Inhalte

Lecture: The lectures are about the basics of biomedicine, development, physiologic function and human disease of selected organs and tissues. In addition, the lectures cover some in vitro and in vivo models for human diseases as well as tissue and cell culture techniques.
Practical Course: Students will perform state-of-the-art methods on cell biology, developmental biology, physiology and biomedicine of selected organs and tissues. The students will isolate embryos, and - among other organs - isolate the aorta as the largest arterial blood vessel, islets of Langerhans as the key tissues involved in diabetes mellitus, lymph nodes involved in immunity, infection and autoimmunity under the stereomicroscope. They will generate cryosections of these important tissues, perform immunohisto- and cytochemistry, laser scanning microscopy (LSM), time-lapse video microscopy, insulin secretion assays (ELISA) required for diabetes research, angiogenesis assays required for tumour and cancer research, western blots, tissue- and cell culture techniques as well as software-based image analysis.

Teilnahmevoraussetzungen	none		
Studienleistungen	regular and active participation		
Prüfung und Bewertung	Prüfungsform	Dauer [min]	Gewichtung in Modulnote
	written examination	120	70%
	scientific practical report		30%
Gewichtung in Gesamtnote	gewichtet nach Leistungspunkten; 14 von ca. 100 benoteten LP bzw. 14%		
Webseite			
Literatur	provided at beginning		