

Title of Course: Advanced Practical in the Focal Point Programme "Molecular Medicine" "Molecular mechanisms of retinal diseases"				
Type: Mandatory practical with choices		185881	Workload 240 h	Intended for Semester 2
Duration 0.5 Semester				
1	Module: Advanced Practical with seminar	Presence hours per course a) 112 h b) 14 h	Self-study 114 h	Credit Points 8 CPs
2	Teaching Methods: a) Practical b) Seminar 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 credits			
3	Group Size: Individual training			
4	Learning/Course Objectives: Students will learn about the important cellular and molecular pathomechanisms of retinal diseases, such as glaucoma and age-related macular degeneration. The students will be supported with the theoretical background of retinal diseases and will analyze these mechanisms on retinal organ as well as cell cultures, animal models, or retinal and optic nerve samples. During the course they learn how to work in a research group/lab. They also practice how to properly evaluate and document experimental data. Moreover, they learn how to write a concise, informative, sufficiently detailed, and precise protocol. Finally, they present a publication during the journal club/lab seminar, thereby practicing how to present experimental data to an audience.			
5	Contents: The practical part focuses on several experimental techniques to study molecular mechanisms in retinal diseases like: <ol style="list-style-type: none"> 1.) Preparation of retina and optic nerve sections 2.) Cultivation of porcine organ cultures for different neurodegeneration models 3.) Cultivation of e.g., primary RPE cells/ARPE-19 cells 4.) Detection of structural and immunological molecules via histological stainings and immunohistochemistry 5.) Detection of changes in gene expression via RT-qPCR Seminar: The seminar provides: <ol style="list-style-type: none"> 1) Basic knowledge of retinal diseases 2) Knowledge about the current literature 3) Training of presenting a paper 4) Training of presenting and discussing of own research results 			
6	Degree Courses: Master of Science Biochemistry;			
7	Prerequisite(s): The four Modular Advanced Practicals of the first Master semester have to be passed			

8	Method(s) of Examination: Assessment of active and successful participation in the practical (50%), a written project report (40%), and a seminar presentation of experimental results (10%).
9	Requirements for Acquiring Credit Points: Achievement of at least the mark "sufficient" regarding the above modes of examination.
10	Significance for Overall Grade: Weighted according to the 16 CPs for two practical courses the average grade of the two practicals provides 13.3% of the overall grade
11	Frequency: Every summer semester
12	Supervisor(s): Stephanie Joachim, Sabrina Reinehr, teaching assistants
13	Additional Information: