## FAKULTÄT FÜR CHEMIE UND BIOCHEMIE

Master of Science Biochemistry (M. Sc. Biochemistry)



Title	of Course: "Molecular Oncol	logy <i>- In vitro</i> drug ef	fects on the trans	scriptome"	
<b>Type:</b> Advanced practical course within the focal point program "Molecular Medicine"		Workload 120 h	Intended for Semester	<b>Duration</b> 1 Semester	
1	Module: Elective Practical	Hours per Week 5.25	Self-study 41.25 h	Credit Points 4 CP	
2	Teaching Methods:         a) A two-week all-day practical lab course         b) A seminar presentation and discussion of up-to-date research articles				
3	Group Size:				
4	<ul> <li>Learning/Course Objectives:</li> <li>One crucial step for drug discovery is the identification of the effects of potential candidates <i>in vitro</i>, including their cytotoxicity. In cancer research, therefore performed assays will provide an insight if a substance might be suitable for therapeutic applications. <i>In vitro</i> determination of IC<sub>50</sub> concentrations will give first hints concerning effectivity and selectivity of newly discovered drugs.</li> <li>After completion of the course the students will be able to (i) maintain cell lines in culture, (ii) determine the IC<sub>50</sub> value of drugs in vitro (iii), (iv) isolate RNA and (v) perform qPCR experiments.</li> <li>Further they will learn to plan and execute experiments, evaluate their results in the context of current knowledge in the scientific field, present their project and their results and gain insight into translational research.</li> </ul>				
5	Contents: Molecular, biochemical and cell biological experimental techniques to study cancer cell reaction to drug treatment. - cell culture of cancer cell lines of various origin - cell viability assays (SRB/MTT) - determination of IC <sub>50</sub> values - preparation of cells for comparative transcriptome analysis via qPCR				
6	Degree Courses: Master of Science Biochemistry				
7	Prerequisite(s): Knowledge of basic laboratory techniques in molecular biology				
8	Method(s) of Examination: Assessment of active and successful participation in the practical (50%) and an oral presentation (50%).				
9	<b>Requirements for Acquiring</b> Achievement of at least the mark	<b>Requirements for Acquiring Credit Points:</b> Achievement of at least the mark "sufficient" regarding the above modes of examination			
10	Significance for Overall Grade: Weighted according to CPs				
11	Frequency: Winter semester 2020/21				
12	Lecturer(s):				
13	Additional Information:         This lab course is embedded within the Focal Point Program Molecular Medicine, which has to be fulfilled in by first term master students of Biochemistry and Biology.				