Title of module	**X Lab Rotation (Wahlpflichtmodul)**
Module coordinator	**Prof. Dr. Beate Brand-Saberi**

Credit points	5	**Semester(s) in which the module is taught**	2
Contact hours	9	**Workload**	150 hours

Lecturer(s)	All PIs from the associated labs
Type of teaching	Compact course in a lab of the student's choice; Integration of students into the laboratory work flow of their chosen lab for three weeks, 8 hours per day, accompanied by an integrated seminar. Report writing during week 4.
Relation to curriculum	Compulsory; elective
Recommended prerequisites	The module III "Stem Cell Practical Courses" is recommended
Aims	In the module "Lab Rotation" students are expected to acquire specific techniques related to stem cell biology, and to develop the competence to apply them and to interpret them as required. In this way, the ground will be laid for appropriate and responsible lab behaviour.
Learning outcome	Knowledge: Students have learned how to acquire data; students know how to document and interpret experimental research data, they can identifying appropriate controls for experiments Skills: Students can handle specialized methods related to stem cell research, depending on the lab visited, and to work in a lab of choice appropriately. Competencies: Students have gained the a) ability to relate a technical method to a scientific question. b) capability of self-organization to manage experimental work c) competence of planning lab experiments and of coping with experimental difficulties d) competence to work in teams e) insight into their own research interests and methodical strengths.
Contents of module	The contents of this module depend on the choice of host labs. The module provides hands-on experience involving combinations of all techniques taught in the Modules IV, V, VI, and VII and can thus range from the generation of iPS cells to confocal and/or transmission electron microscopy of mutant or diseased tissues, depending on the interests and profile of the students and the choice of the lab.
Study and examination requirements; Forms of examination	The assessment is based on a written laboratory report. Each report should be between 15 and 25 pages and contains e.g. Introduction, Methods, Results, Discussion and Literature.
Literature	Yusuf F. and Brand-Saberi B. (2012). Myogenesis and muscle regeneration. Histochemistry and Cell Biology, 138(2):187-199 Mavrommatis L., Zaben A., …Zähres (2023) CRISPR/Cas9 Genome Editing in LGMD2A/R1 Patient-Derived Induced Pluripotent Stem and Skeletal Muscle Progenitor Cells. Stem Cells International Volume 2023 , Article ID 9246825

	Lafenetre P, Leske O, Wahle P, Heumann R. (2011). The beneficial effects of physical activity on impaired adult neurogenesis and cognitive performance. Front. Neurosci. doi: 10.3389/fnins.2011.00051. Manns, M., Leske, O., Gottfried, S., Bichler, Z., Lafenetre, P., Wahle, P., and Heumann, R. (2011). Role of neuronal ras activity in adult hippocampal neurogenesis and cognition. Front Neurosci 5, 18. Full text pdf Squire, Berg, Bloom, du Lac, Ghosh, Spitzer. Fundamental Neuroscience, 3rd Ed. AP (2008) Microscopy and Histology for Molecular Biologists: A Users Guide (2002). J. Kiernan and I. Mason (eds.) Portland Press limited. Stem Cells from Adult Human Inferior Turbinate STEM CELLS AND DEVELOPMENT Volume 21, Number 5, 742–756 Hennen E, Faissner A (2012) LewisX: a neural stem cell specific glycan? Int J Biochem Cell Biol 44:830-833. Kim, et. al., (2009) Direct reprogramming of human neural stem cells by OCT4 Nature 461: 649-653. Kögler et al. (2004) A New Human Somatic Stem Cell from Placental Cord Blood with Intrinsic Pluripotent Differentiation Potential JEM 200 no. 2 123-135 “Vertebrate Myogenesis: Stem Cells and Precursors” Beate Brand-Saberi (ed.) Springer-Verlag 2014, Problems and Results in Cell Differentiation