Title of module	Advanced Practical in the Focal Point Programme: "Molecular Medicine" VZ: 185881 **" Analysis of troponin I mutants causing cardiomyopathy"**

Credit points	7.5 (of 15)	***Available in semester(s)***	2
Hours per week	9	***Compact course***	☒

Lecturer(s)	K. Jaquet
Teaching methods	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 of 15 credits
Evaluation of learning progress	Active participation, feedback during independently performed experiments, project discussions with the supervisor
Mode of examination	Assessment of experimental skills during the practical (50%), a written project report (40%), and a seminar presentation of experimental results (10%).
Learning objectives	Students will acquire an intimate knowledge of molecular biological, protein biochemical and enzyme kinetical methods. They will further learn to isolate and handle primary cells (cardiomyocytes). Students will improve their knowledge on protein-protein interaction analysis, muscle contractility measurements and signal transduction.
Soft skills	Presentation of results and literature in a seminar

Contents of module	Site –directed mutagenesis, generation of recombinant adenovirus Reconstitution of troponin complex and thin filaments, Co-Sedimentation Actomyosin ATPase activity measurements Isolation and culture of adult rat cardiomyocytes Protein overexpression in cardiomyocytes via recombinant adenovirus Analysis of phosphorylation status Immunofluorescence: localization studies Contraction measurements of cardiomyocytes Scientific aims: Elucidate pathogenesis of hypertrophic cardiomyopathy based on mutations in genes encoding troponin subunits. Of special interest are mechanisms which lead to alterations in ß- adrenergic response.