Title of module	Modular Advanced Practical and Seminar in the Focal Point Programme "Molecular Medicine", VZ: 185780, 183781 **"Protein misfolding and neurodegeneration"**

Credit points	4	***Available in semester(s)***	1
Hours per week	5.25	***Compact course***	☒

Lecturer(s)	Prof. J. Tatzelt and teaching assistants
Teaching methods	Two-week advanced laboratory course with an intergrated seminar, one of four lab courses to be completed in the first term
Evaluation of learning progress	Active participation in the laboratory tasks and seminar, feedback during the experiment
Mode of examination	Assessment of active and successful participation in the practical (50%) and a written project report (50%)
Learning objectives	Aberrant protein folding is a characteristic feature of different neurodegenerative diseases, such as Alzheimer's and Parkinson disease and prion diseases. The students will learn state-of-the-art techniques to analyze protein folding and trafficking in neuronal cell and to evaluate the cytotoxic activity of misfolded proteins.
Soft skills	Ability to work in a research team. Identification and formulation of scientific questions. Improvement of communication skills and scientific writing.

Contents of module	**Topics:** Gene transfer into mammalian cells Protein-protein interactions Mechanism of cell death Intracellular trafficking of protein Import into the endoplasmic reticulum **Methods:** Cultivation and transfection of mammalian cells Cell lysis by detergents Immunoprecipitation of proteins Separation of proteins by SDS polyacriylamide gel electrophoresis Western blotting