

Title of module

Modular Advanced Practical and Seminar
in the Focal Point Programme
"Molecular Medicine" VZ: 185780, 183781
**"Generation and Charcterization of Lentiviral Vectors for
Gene Therapy"**

Credit points

4

Available in semester(s)

1

Hours per week

5.25

Compact course



Lecturer(s)

M. Tenbusch and teaching assistants

Teaching methods

two weeks 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

The students will be thereotically introduced in the design and characterization of lentiviral vectors used for gene therapeutic approaches. They gain insides in the propogation of permanent cell cultures and in molecular biological and basic virological methods.

Soft skills

Students have to collaborate in small groups of 2-3 students, planning of collaborative, consecutive experiments which based on each other, further interaction in the environment of an research laboratory, writing a comprehensive project report

Contents of module

propagation of a permanent cell line

Amplification and Purification of plasmid DNA

Transient transfection with lentiviral vector constructs using polyethylenimine (PEI) complexes

Harvesting and partial purification of lentiviral particles by ultracentrifugation

Transgene expression analysis by fluorescence microscopy and FACS measurements

Quantification of lentiviral particles by ELISA and RT-PCR

Determination of infectivity of lentiviral particles

Introduction into "virtual cloning"