

Module title		Abbreviation
Modern Drug Research 2: Technologies - Targets - Modalities		o8-MCM4-242-m01
Module coordinator		Module offered by
lecturers of Pharmaceutical Chemistry		Institute of Pharmacy and Food Chemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
<ol style="list-style-type: none"> 1. DNA-encoded library technology for small molecule screening. 2. Phage display and chemical modification of peptides in display libraries. 3. Medicinal Chemistry in the Pharmaceutical Industry, case studies presented by invited external speakers. 4. Entrepreneurship in the life sciences: start-ups, biotech, and private equity. 5. Protein-protein interactions as drug targets and modalities to inhibit them. 6. How not to perform the art of Medicinal Chemistry: Dirty Drugs, PAINS, frequent hitters, and impurities from compound synthesis as confounders 7. Therapeutic nucleic acid drugs 8. Multi-target drugs 9. Pharmacokinetic aspects in drug development 10. Modern strategies in drug delivery 		
Intended learning outcomes		
<p>The students acquire basic knowledge of the terminology of medicinal chemistry, technologies for drug identification; exemplary biologics (oligonucleotides, peptides), properties of protein-protein-interaction inhibitors, basic knowledge of the industrial pharmaceutical research process, including entrepreneurship aspects, as well as of the compound optimization cycles and can confidently apply this knowledge in solving Medicinal Chemistry-related tasks.</p> <p>By successfully completing this module, students will be able to,</p> <ul style="list-style-type: none"> • explain the processes of pharmaceutical research and applications in industry. • understand the underlying principles for the action of biological drugs. • understand different technologies for drug identification. • understand pharmacokinetic challenges to drug development. • understand modern technologies for drug delivery. • describe different strategies for protein-protein interaction inhibition and to draw conclusions about possible consequences of protein-protein interaction inhibition from chemical structural features. • to develop interdisciplinary solution strategies for practical problems at the interface between chemistry, pharmacology and biophysics for basic research and biomedical applications. 		
Courses (type, number of weekly contact hours, language — if other than German)		
S (2) Module taught in: German or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)		
a) written examination (approx. 45 to 90 minutes) or b) oral examination of one candidate each (20 to 30 minutes) Language of assessment: German and/or English		
Allocation of places		
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Additional information		
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Workload

150 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Chemistry (2024)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Master's degree (1 major) Biochemistry (2026)

Master's degree (1 major) Chemistry (2026)