Course syllabus for

Advanced Receptor Pharmacology, 4 credits

Avancerad receptorfarmakologi, 4 hp
This course syllabus is valid from autumn 2023.

Course code	4FF008
Course name	Advanced Receptor Pharmacology
Credits	4 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Translational Physiology and Pharmacology
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Physiology and Pharmacology
Decided by	Education committee FyFa
Decision date	2023-02-02
Course syllabus valid from	Autumn 2023

Specific entry requirements

At least the grade Pass on the courses Integrated physiology and pharmacology (semester 1) and Physiological and pharmacological mechanisms and experimental methods (semester 2) on the Master (120 credits) programme in Translational Physiology and Pharmacology.

Objectives

The aim of the course is is the deepening of the student's understanding of the receptor concept and its importance for mechanism and structure-based drug development.

After completing the course, the student shall be able to:

- Give an account of and apply the receptor concept and associated concepts of allostery that form the basis for signal transduction and drug effects.
- Describe the phenomena efficacy and potency and apply these concepts to different mechanisms for drug action.
- Explain the terms agonist, antagonist (and different variants of these), drug affinity and drug selectivity in a phenomenological and structural biological way.
- Discuss the relevance of pharmacodynamic concepts for design of drug screening.
- Integrate the theory in analysis design with relevant methodology such as bioluminescence resonance energy transfer (BRET) -based methods for e.g. ligand binding, receptor activation and signal initiation.

Content

The course focuses on pharmacodynamic core concepts such as drug effect, mechanisms for drug impact, agonists, antagonists, drug affinity, drug selectivity and drug tolerance, pharmaceutical target, drug receptor interaction and structure-function relationship. Advanced knowledge in receptor pharmacology is the basis for future drug discoveries including drug screening, hit optimisation and compound validation.

The course includes theoretical and practical aspects of receptor pharmacology of importance to a broad spectrum of future career alternative in academia and industry.

Teaching methods

The course contains lectures, seminars, group work, practical laboratory work.

Examination

Individual oral presentation. Graded Fail/Pass/Pass with distinction.

Written assignment in groups. Graded Fail/Pass.

Written assignments should be submitted before the end of the course according to the specification in the schedule. To pass the course (grade Pass or higher), at least Pass on all examinations in the course is required. To pass the course with distinction, the grade Pass with distinction on the individual oral presentation is required.

Compulsory participation
Participation in group work and laboratory sessions is compulsory.

The examiner decides if, and how, absence from compulsory parts can be compensated. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the examiner. Absence from a compulsory educational component may mean that the student cannot take the opportunity until the next time the course is given.

Limitation of number of examinations
The students who have not passed the course according to the schedule are allowed to revise and hand in the report and/or do the oral presentation for at most five additional occasions. If the student has failed six times in total, no further examination or continued course participation is allowed. As submission, the times been counted the student submitted a revised version of the assignment and/or orally presented to examining teachers.

In the event of special circumstances, or if a student with a disability is in need of certain adjustments, the examiner may decide to depart from the syllabus' regulations on examination form, number of examination opportunities, possibility of completion or exemption from compulsory educational elements, etc. Content and intended learning outcomes as well as the level of expected skills, knowledge and abilities must not be altered, removed or lowered.

Other directives

The course is offered in English. Course evaluation takes place according to the guidelines that are established by the Committee for education at basic level and second cycle.

Literature and other teaching aids

Recommended literature

Supplementary study materials and reference articles will be provided during the course.

Kenakin, Terrence P.

A pharmacology primer : techniques for more effective and strategic drug discovery

Sixth edition : London : Academic Press, [2022] - xiii, 488 sidor
ISBN:9780323992893 LIBRIS-ID:vbs83pqwsqkwwtx3

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