

CH-414 **Pharmacological chemistry**

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Cursus	Sem.	Type
Chimiste	MA2	Opt.

Language of teaching	English
Credits	2
Session	Summer
Semester	Spring
Exam	Oral
Workload	60h
Weeks	14
Hours	2 weekly
Courses	2 weekly
Number of positions	

Summary

The molecular and chemical basis of diseases and therapies are discussed.

Content

Lectures 1-5: The following five major disease areas as well as small molecule therapeutics applied to treat the diseases are discussed:

- cancer
- cardiovascular diseases
- neurologic disorders
- infectious diseases
- inherited diseases

Lectures 6-13: The following therapeutic formats being mostly biologics are discussed:

- blood and blood components
- enzymes
- hormones
- cytokines
- monoclonal antibodies
- antibody fragments and mimics
- macrocycles
- peptides and peptidomimetics

Keywords

pharmacological chemistry, drug discovery, therapeutics, biologics

Learning Prerequisites**Important concepts to start the course**

Basic knowledge in chemistry and biochemistry

Learning Outcomes

By the end of the course, the student must be able to:

- Describe The molecular basis of diseases
- Describe Therapeutics and their mechanism of action
- Recall Drug development strategies that are discussed as case studies

Teaching methods

Each week, one of the above described topics is presented in a lecture (45 minutes) and a research paper is discussed (45 minutes).

Expected student activities

The students read each week a research paper and answer questions that are provided (at home). The students participate in the discussion of the paper in the lecture.

Assessment methods

Oral exam

Resources

Notes/Handbook

The following materials are provided on Moodle:

- Handout for each lecture
- PPT presentation of the lectures and the case studies
- Research papers
- Questions about research papers
- Test exam

Websites

- http://scgc.epfl.ch/telechargement_cours_chimie

Moodle Link

- <http://moodle.epfl.ch/enrol/index.php?id=7631>