

Drug Discovery and Development

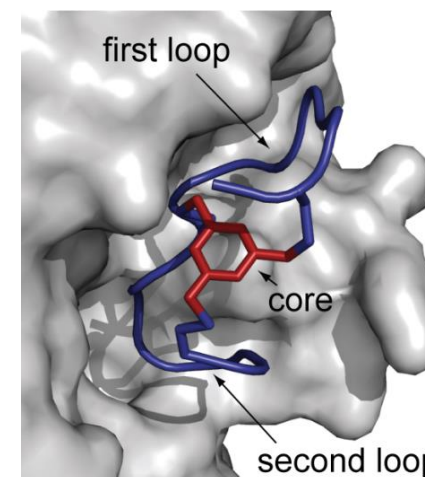
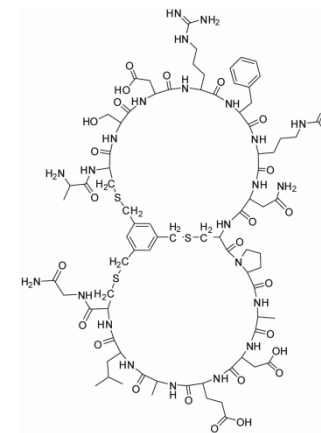
CH-317

Christian Heinis

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Christian Heinis

- Associate Professor in Bioorganic Chemistry
- Laboratory of Therapeutic Proteins and Peptides (LPPT)
- Research interests
 - New molecule designs (bicyclic peptides, macrocycles)
 - Combinatorial methods (phage display, HTS)
 - Drug discover and development
 - Translational research
- Contact details
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Course Organization

Thursday

10h15-11h:

lecture

11h15-12h:

case study

[illegible]

Course Objectives

*Understanding the molecular and chemical
basis of diseases and therapies*

discuss major
diseases

drug targets

know most
important drugs

mechanisms
of action

etc.

*Learn the key concepts in drug discovery
and development*

HTS & techniques

clinical testing phases

drug modalities

ADMET

pharmacokinetics

etc.

Lectures

Week	Topic	
1	Introduction	
1	Small molecule drugs	Cancer
2		Cardiovascular diseases
3		Neurological disorders
4		Infectious diseases
5		Genetic disorders
6	Protein therapeutics	Blood derived proteins, enzymes
7		Hormones, cytokines
8		Antibodies: basics & early development
9		Antibodies: technologies, therapy
10	Peptide drugs	Peptides: natural products
11		Peptides: in vitro evolution
12	New modalities	Most recent developments
13		...

Course Material

<http://moodle.epfl.ch>

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Case Studies

At home

- Students read one original research paper or a review article at home
- Students try to answer questions that are provided

In lecture

- The research paper or review article are presented
- The questions are discussed

Exam

- Written exam (2 hrs)
- Questions about the 13 lectures + 12 case studies
- No need to memorize chemical structures of drugs
(but you should be able to recognize the drugs and explain how they work (e.g. target, mechanism, etc.))
- No need to know details of case studies
(but you should be able to tell the main message of a research or a review article)