UCLouvain

wfarm2501

2022

Chimie pharmaceutique avancée et drug design

3.00 credits	22.5 h	Q2

Teacher(s)	Al Houayek Mireille (compensates Lambert Didier) ;Al Houayek Mireille (compensates Frédérick Raphaël) ;Frédérick Raphaël ;Lambert Didier ;Muccioli Giulio (coordinator) ;
Language :	French > English-friendly
Place of the course	Bruxelles Woluwe
Main themes	The teacher(s) will discuss first the different techniques allowing the discovery of novel therapeutic targets (lipidomic ' proteomic ' deorphanization), second the methods allowing the identification of hits for a given molecular target (high-throughput screening ; computer assisted de novo drug design); finally the strategies allowing to optimize a hit ('hit to lead') will be discussed (structures-activity relationships ; docking; ')
Learning outcomes	**At the end of this learning unit, the student is able to :** At the end of the activity the student will be able to 1 • Interpret, based on what was discussed in class, the results presented in a scientific paper dealing with the development of a novel drug • Suggest a strategy allowing to identify novel therapeutic targets • Suggest a strategy allowing to identify novel lead compounds for a given target (enzyme, receptor, ') • Suggest a strategy allowing to optimize the activity of a drug towards its target
Evaluation methods	Oral presentation of a work prepared by the student followed by questions from the teachers
Teaching methods	Students will be asked to propose a research "topic" to the teachers. After "validation" of the topic, students will have the opportunity to work on their topic with the support of the teachers. Scientific journals such as Nat. Rev. Drug Discov, J. Med. Chem, Cell Chem. Biol. are excellent sources of inspiration (among others). As an example, some elements to initiate the reflection could be • Choice of the target • What would be its interest in a pathological situation? • What is already known about this target? • What else can be done/developed on this target and why? • Description of the target (to help understand the rest of your project) • Type of target ? (GPCR, enzyme, nuclear receptor, channel receptor, ...) • Structure or 3D model available? • Pharmacological tools available? (e.g. radioligand, labelled substrate, ...) • How would you do it ? • Hit identification (Screening? Use of a 3D model? ...) • Hit to lead (pharmaco test ? use of 3D models ?...) • In vivo validation?
Content	• This course aims to allow students interested in drug design and medicinal chemistry to go further in their knowledge by proposing a "role play". The objective will be to propose a "research project" (in the form of a powerpoint presentation) illustrating one or more aspects of medicinal chemistry/drug discovery. This is an excellent complement to more general courses such as WFARM1302 and WFARM2118.
Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Pharmacy	FARM2M	3		🔍