wfarm1302p

2019

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

4 credits	45.0 h + 15.0 h	Q1

Teacher(s)	Frédérick Raphaël (coordinator) ;
Language :	French
Place of the course	Bruxelles Woluwe
Main themes	The general theme is the structure - activity relationship of the drugs. Since this theme is broad, it has to be exemplified by selected topics: (i) chemical and physico-chemical properties of drugs in relationship with their pharmacokinetic and pharmacodynamic behavior (phototoxicity, in vitro and in vivo hydrolysis, charge (pKa), logP (Lipinski's rule), chirality) (ii) (ii) ligand - receptor interaction, with regard to physico-chemical properties : ature of the intermolecular interactions, types of targets (receptors, ion channels, enzymes, transporters, pumps), consequence of the binding of a xenobiotic on these targets (iii) drug discovery and optimization process, scope and limitation of the drug design techniques. The practical exercises allow students to establish themselves their own experimental plans in order to assign the structure of simple molecules (spot tests, derivatization, spectroscopy).
Aims	*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content	The course is intended to be an in-depth description of typical examples of structure-activity relationships rather than an exhaustive coverage of the broad field of medicinal chemistry. For example, the classes of sulfonamides, NSAI agents, inhibitors of the conversion enzyme, chloroquine, etc. illustrate the relevance of pKa and logP parameters on the pharmacological and pharmacokinetic properties of these drugs. Beta-adrenergic, nicotinic, glutamate, insuline, and oestrogene receptors, calcium channels, Na+/K+ & H+/K+ ATPases allow to illustrate the effector - target molecular interaction. The classical and more recent developments of CNS drugs (e.g. opioids) are used to introduce drug design concepts.
Bibliography	Drug-like Properties: Concepts, Structure Design and Methods, 1st Edition from ADME to Toxicity Optimization Authors: Li Di Edward Kerns The Practice of Medicinal Chemistry, Editors: Camille Wermuth David Aldous Pierre Raboisson Didier Rognan
Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Minor in Medication Sciences	WFARM100I	4		