UCLouvain

wfarm2139t

2021

Pharmacocinetic, genomics and toxicology (toxicology part)

3.00 credits	22.0 h	Q1

Teacher(s)	Bindels Laure (coordinator) ;
Language :	French
Place of the course	Bruxelles Woluwe
Prerequisites	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	A. This part of the class aims to introduce the basic concepts in toxicology that will allow the students to understand the rational of the current legal toxicological tests. Mechanisms of toxicity will be discussed and analyzed at various levels, from the generation of reactive species and their interactions with biological macromolecules, to the targeting of specific organs and the development of cancer and developmental malformations. Concepts related to risk evaluation are presented through the discussion and analysis of the results of in vivo and in vitro tests. B. In this part of the class, students are reminded of some basic notions of genetics, including the definition of various types of polymorphism (SNP, CNV, ..). The class focusses mainly on the influence of genetic polymorphisms on the clinical response to drug therapy (drug efficacy and side effects occurrence). Future prospects in personalized medicine are also presented.
Learning outcomes	
Content	This class will introduce basic concepts in toxicology. The **pharmacokinetics** part aims to integrate the 4 processes governing the exposition to toxic compounds (Toxicokinetics). We will see how a toxic goes through the biological barriers to enter the organism (Absorption), whether and to what extent they diffuse in the tissues (Distribution), how they undergo chemical transformation (Metabolism) in order to be excreted in biological fluids. We will then consider various situations affecting the kinetics outcome of xenobiotiques (DDI, hepatic and kidney failure). The second part of the class aims to introduce the **basic concepts in toxicology** that will allow the students to understand the rational of the current legal toxicological tests. Mechanisms of toxicity will be discussed and analyzed at various levels, from the generation of reactive species and their interactions with biological macromolecules, to the targeting of specific organs and the development of cancer and developmental malformations. Concepts related to risk evaluation are presented through the discussion and analysis of the results of in vivo and in vitro tests. In the last part of the class (**pharmacogenomics**), students are reminded of some basic notions of genetics, including the definition of various types of polymorphism (SNP, CNV, ..). The class focusses mainly on the influence of genetic polymorphisms on the clinical response to drug therapy (drug efficacy and side effects occurrence). Future prospects in personalized medicine are also presented.
Bibliography	Les dias du cours et les articles scientifiques vus au cours sont disponibles sur Moodle. Le principal livre de reference est Burcham, Introduction to Toxicology, 2014, pdf disponible sur Moodle.
Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Additionnal module in Biomedical Sciences	APPSBIM	3		🔍
Bachelor in Biomedicine	SBIM1BA	3	WMD1120 AND WMD1105 AND WMD1106 AND WFARM1221S AND WSBIM1201T AND WSBIM1205	🔍