UCL Université catholique de Louvain

WFARM2139

2014-2015

Pharmacogenomics and toxicology

4.0 credits	37.5 h	1q

Teacher(s) :	Haufroid Vincent ; Buc Calderon Pedro (coordinator) ;
Language :	Français
Place of the course	Bruxelles Woluwe
Main themes :	A. To discuss the basic concepts of regulatory toxicology. The risk assessment procedure is discussed by using both in vitro and in vivo methods. The mechanisms of toxicity are discussed by starting from the formation of reactive intermediates (free radicals and electrophiles), followed by their interaction with biomolecules (lipid peroxidation, protein and nucleic acid adducts, mutation and cancer), loss of cell homeostasis (hypoxia, oxidative stress, etc), the activity of cell defence systems (superoxide dismutase, catalase, vitamin E, etc), and finally cell death (necrosis and apoptosis). B. 1. Definitions of various polymorphisms (SNP, STRP, CNP). 2. Other reasons for interindividual variability (expression: promoters, methylation, acetylation, LCRs,). 3. Differences between germline, post-zygotic and somatic variability. 4. Techniques to detect genetic variations and expression differences. 5. Importance of variability for development, disorders and therapeutic response. 6. Evolution / future : personalized medicine.
Aims :	A. To allow the students the understanding of the main mechanisms of toxicity as well as to give them a basic knowledge for the management of a toxicological dossier. B. Part B of this course aims to deepen the student's knowledge on molecular genetics, and especially in the field of pharmacogenomics. The objective is to understand the variability in the human genome, its various polymorphisms, and their frequencies and evolution, as well as importance of genetic variations for pharmacological treatment. Influence of these polymorphisms on response to treatment will also be discussed. *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".*
Cycle and year of study :	> Master [60] in Biomedicine > Master [120] in Biomedicine > Master [120] in Pharmacy
Faculty or entity in charge:	FARM