

Faculty of Medicine



FARM2145 Metabolism of the xénobiotiques ones

[15h+22.5h exercises] 3 credits

This course is taught in the 1st semester

Teacher(s): Pedro Buc Calderon (coord.), Yves Horsmans, Roger-K. Verbeeck
Language: French
Level: Second cycle

Aims

To give to the pharmacists the bases necessary to include/understand the metabolic ways implied in the biotransformation of xénobiotique as well as the factors which can influence this metabolism (genes, age, etc).

Main themes

This course details the principal reactions implied at the time of the metabolism of the xénobiotiques ones. Using composed of reference one analyzes which reactional sites of a molecule are the potential seat for reactions of phase I and phase II In the same way, the aspects biochemical and genetic able to influence this biotransformation (families, subfamilles and isoformes P450, genetic polymorphism, inductors) are discussed.

Content and teaching methods

Three modules are proposed. - (1) reactions of phase I Cytochrome P450 (classification, catalytic cycle, mechanism of action); Oxidation of the Carbon atoms (hydroxylation, epoxydation, dealkylation); Oxidation of heteroatoms (N-oxides, Sulfoxides). - (2) reactions of phase II Mechanisms of reaction and type of substrates. Méthylation, Acetylation, Glucuronoconjugaison, Sulfoconjugaison, Combined in Glutathion and the amino acids. - (3) Pharmacogénétique. Discussion of the factors which influence the metabolism: genetic aspects, sex, race, age, nutriments, drugs, inductors and inhibitors. The teaching method is based in the lecturing. Moreover, one seminar (work completed by group of 2 students) is carried out. They consider the theoretical metabolism of a drug, which is compared with the metabolism described at the man (obtained after library search). A note (20% of the total note of the course) showing the written report/ratio and the oral presentation is allotted.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Pre-necessary: organic chemistry, general and medical biochemistry, cellular biology. Evaluation: written examination and oral presentation of personal work. Support: transparencies and table, not of syllabus. Framing: 1 PST to frame the seminars. Means: nothing Others: nothing

Programmes in which this activity is taught

ESP3DS Diplôme d'études spécialisées en santé publique
ESP3DS/ST Diplôme d'études spécialisées en santé publique (santé au travail)
NUT2 Licence en sciences biomédicales (nutrition humaine)

Other credits in programs

ESP3DS/TI	Diplôme d'études spécialisées en santé publique (santé au travail - toxicologie industrielle)		Mandatory
FARM21	Première année du grade de pharmacien	(3 credits)	Mandatory
SBIM31DS	Première année du diplôme d'études spécialisées en sciences biomédicales	(3 credits)	
SBIM32DS/TE	Deuxième année du diplôme d'études spécialisées en sciences biomédicales (toxicologie expérimentale)	(3 credits)	Mandatory
TOX21	Première licence en sciences biomédicales (toxicologie)	(3 credits)	Mandatory