FARM2182 Molecular genetics of the procaryotes and concepts of genetic engineering

[30h+15h exercises] 4 credits

This course is taught in the 2nd semester

Teacher(s): Etienne De Plaen, Jean-Noël Octave (coord.)
Language: French
Level: Second cycle

Aims

The objectives are to learn the approaches of molecular biology, which allow the analysis of DNA and RNA to develop both diagnostic tools as well as cellular and animal models needed in biomedical and pharmaceutical sciences.

Main themes

Cloning and expression in prokaryotic and eukaryotic cells. Genetic engineering and production of proteins that are useful in biomedical and pharmaceutical sciences. Utilization of DNA polymorphisms as diagnostic tools. Transgenic animals. DNA modifications in hereditary diseases. Gene therapy.

Content and teaching methods

Description and utilization of different cloning and expression vectors in procaryotic cells. Construction and screening of genomic DNA libraries. Analysis of the DNA molecule : Detection of different polymorphisms. Construction and screening of cDNA libraries. Cloning and expression of cDNA in different cell types. Overexpression and knock out of genes in transgenic animals. Examples of gene therapy.

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

Assessment: By written exam.
Support: Notes and Power Point presentations provided by the lecturers.

Other credits in programs

ESP3DS/TI	Diplôme d'études spécialisées en santé publique (santé au travail - toxicologie industrielle)		
NUT21	Première licence en sciences biomédicales (nutrition humaine)		Mandatory
SBEX21	Première licence en sciences biomédicales (sciences biomédicales expérimentales)		Mandatory
SBIM13BA	Troisième année de bachelier en sciences biomédicales	(4 credits)	Mandatory
TOX21	Première licence en sciences biomédicales (toxicologie)		Mandatory