

Faculty of Medicine



BCMM2140 Molecular cell biology of hormonal regulation

[30h] 3 credits

This course is taught in the 1st semester

Teacher(s): Stefan Constantinescu, Frédéric Lemaigre
Language: French
Level: Second cycle

Aims

The students should acquire a global vision and the rationale behind the molecular mechanisms by which intercellular signals (hormones, growth factors, messengers of intercellular communication) control cell activity. At the end of the course the students should be able to (i) understand the literature of the field, (ii) understand how perturbations of these very signalling mechanisms lead to several pathologic conditions, (iii) use their acquired knowledge to approach novel questions in the field.

Main themes

The course describes the molecular cell biology of hormone action and focuses on the main molecular mechanisms of action of the major classes of intercellular signals (signal transduction pathways). The course approaches the theoretical and technical principles by which these signalling mechanisms are studied. How perturbations in these signalling pathways lead to pathologic conditions represents an important focus of the course.

Content and teaching methods

This course follows those of cell biology, molecular biology and biochemistry that are taught during the baccalaureat in medicine or biomedical sciences. Half of the course is dedicated to lectures on the major signal transduction pathways. The other half is dedicated to analysis and discussion of primary scientific articles that pioneered knowledge on signalling, in order to confront theory and practice and to compare physiologic and pathologic situations. The analysis of scientific articles is jointly accomplished by students and teachers.

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

Requirements : Basic notions of general biochemistry, molecular biology and cell biology.

Evaluation: Oral exam with written preparation. The student will be evaluated with respect to acquired knowledge and the ability to use this knowledge in order to solve problems.

Support: Notes of the course and reprints of scientific papers.

Programmes in which this activity is taught

ENDO3DS	Diplôme d'études spécialisées en endocrinologie
NUT2	Licence en sciences biomédicales (nutrition humaine)
SBIM3DS	Diplôme d'études spécialisées en sciences biomédicales

Other credits in programs

BIOL22/A	Deuxième licence en sciences biologiques (Biologie moléculaire, cellulaire et humaine)	
MD3DA/BI	Diplôme d'études approfondies en sciences de la santé (sciences biomédicales)	Mandatory
MD3DA/MO	Diplôme d'études approfondies en sciences de la santé (sciences de la motricité)	Mandatory
SBEX22	Deuxième licence en sciences biomédicales (sciences biomédicales expérimentales)	Mandatory