UE Epigenetics and cell differentiation

ECTS
6 crédits

Composante
UFR Chimie-Biologie

Période de l'année
Toute l'année

- **Langue(s) d'enseignement:** Anglais
- **Ouvert aux étudiants en échange:** Oui
- **Code d'export Apogée:** YAX9BI15

Présentation

Description

Course outline

Today, the term “epigenetics” is used to describe the study of heritable changes in genome function that occur without a change in DNA sequence. This includes the way gene expression is passed from one cell to its progeny, how gene expression changes during the differentiation of one cell type into another, and how environmental factors can change the way genes are expressed. Epigenetic regulation involves changes of chromatin structure. Interestingly, the mechanisms involved in epigenetic regulation, such as histone modifications, also participate in the transient changes of gene expression.

This course is therefore opened to all students with an interest in the control of gene expression. There are far-reaching implications of epigenetic research for plant and human biology and disease.

The different mechanisms involved in epigenetic regulation, and the different contexts involving epigenetic regulation will be presented:

- actors involved in epigenetic regulation (role of histone modification, chromatin remodeling complex, histone variants, DNA methylation, small and long noncoding RNA),

- contexts involving an epigenetic regulation (response to cell environment, cell differentiation, development)

Heures d'enseignement

UE Epigenetics and cell differentiation - TD	TD	20h
UE Epigenetics and cell differentiation - CM	CM	20h

Pré-requis recommandés

-Pre-requisites:

A solid formation in the field of transcription is required.

The topics developed in the M1 modules BIO 713 “Molecular Genetics and Epigenetics” and BIO 816 “Development and Differentiation” represent a good introduction to the module.

Période : Semestre 9

Compétences visées

Targeted skills:

- To understand the different biological contexts involving an epigenetic control of transcription as well as the molecular mechanisms, which are involved
- To understand the different scientific and therapeutic issues of research in epigenetics.
- Capacity to present, within a time limit, a scientific work and the issues at stake
- Acquisition of a solid intellectual formation through scientific questioning.

Infos pratiques

Contacts

Responsable pédagogique

Claire Vourc'h

Claire.Vourch@univ-grenoble-alpes.fr

Lieu(x) ville

Grenoble

Campus

- Grenoble - Domaine universitaire