

Bioseparation, enzyme kinetic and gene regulation



ECTS
7 crédits



Hourly volume
116h

Introducing

- explain and analyse data concerning gene expression regulation in prokaryotic and eukaryotic organisms

Objectives

Objectives:

At the end of this module, the student will have understood and be able to explain (main concepts):

- the mechanisms of separation techniques usually used in biochemistry-biotechnology, more particularly in the case of biocatalysts: techniques of precipitation (proteins, nucleic acids), techniques of centrifugation and ultracentrifugation, membrane techniques (MF, UF, NF) and electrophoretic techniques;
- the bases of the measure of the reaction rate of an enzyme, the various models allowing the description of the behaviour of an enzyme, from the simplest to the most complex, the effect of physico-chemical parameters such as the pH or the temperature
- the main pathways of gene expression regulation

The student will be able to:

- choose the most suited method of bioseparation to a context by knowing correctly its functioning
- to use from a practical point of view the equipment and the techniques adapted in the purification of proteins and to the control of their purification (low and medium pressure chromatography, electrophoresis)
- to establish complex enzymatic equations of reaction rate by means of models.
- to determine experimentally the various kinetic parameters of an enzyme as well as its optimal conditions of functioning

Necessary prerequisites

Necessary knowledge:

Organic chemistry (I2BECH11), structural biochemistry (I2BEBC11), transport phenomena and reaction in fluids (I2BETF11). Analytical method (I2BEAN11). Molecular biology.

Practical info

Location(s)

Toulouse