INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

DPT BIOSCIENCES
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Biology

Cell Biology

IDENTIFICATION

CODE : BS-3-S1-EC-COBIOCE
ECTS : 2.0

HOURS

Lectures :	22.0 h
Seminars :	0.0 h
Laboratory :	0.0 h
Project :	0.0 h
Teacher-student contact :	22.0 h
Personal work :	28.0 h
Total :	50.0 h

ASSESSMENT METHOD

2 hours

TEACHING AIDS

Powerpoint document

TEACHING LANGUAGE

French

CONTACT

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AIMS

COMPETENCIES: At the end of this module, students should know the different constituents of the eukaryotic cell, their organization into compartment and their functional during the cell division, differentiation, cell death or carcinogenesis.
OBJECTIVES:
The cell as a structural unit of living beings. The relationship between structure and function is largely illustrated. The evolutive origin of organelles is discussed.

CONTENT

1 Animal and plant cells .
2 Study methods.
3 Structure, ultrastructure, chemical composition and functioning of different cell compartments.
4 Mitosis and cell cycle, regulation, oncogenesis .
5 Cell differentiation, apoptosis .
6 Living cell dynamics: the main methods of exploration, examples of particular processes [cell migration, modelling and analysis of endocytosis processes, calcium signalling, cell deformations...].
7 New techniques for the study of cellular dynamics: use of GFP, techniques of FRAP and FLIP, FRET and BRET, TIRFM, FCS.

BIBLIOGRAPHY

Biologie moléculaire de la cellule, B. Alberts et al. Médecine Sciences, Flammarion Paris
Molecular Cell Biology, J. Darnell et al., Scientific American Books, Freeman and Company, NY
La Recherche
Scientific American
Cell
Biofutur

PRE-REQUISITE

No pre-requisites