



CELLULAR AND MOLECULAR BIOLOGY

CU characterization:

CU name:

Cellular and Molecular Biology

Scientific area acronym:

BM

Duration:

Semiannual

Working hours:

78

Contact hours:

26

ECTS:

3

Observations:

Mandatory CU

Teacher in charge and respective teaching load in the CU:

Celso Cunha – 9 hours

Other teachers and respective teaching load in the CU:

Pedro Cravo – 6 hours

Intended learning outcomes (knowledge, skills and competences to be developed by the students):

After this unit, students should be able to:

Understand the general principles of evolution of life; know the main cellular organelles and their respective function. Understand the principles of the most popular techniques used to study cells. Define the concept of gene and understand the principles of the genetic code. Understand the function of gene regulatory elements. Understand the mechanisms that control gene expression. Understand the principles of DNA replication. Know the cell cycle stages and principles of its regulation. Understand the role of kinases and phosphatases during the cell cycle. Understand the mechanisms underlying alterations in cell cycle regulation. Understand the role of viruses and environmental factors in cancer promotion.



INSTITUTO DE HIGIENE E
MEDICINA TROPICAL
DESDE 1902

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Syllabus:

The evolution of life. Prokaryotes and eukaryotes; Chemical components of the cell: structure and function of proteins and nucleic acids. The genetic code. Biomembranes. Methods to study proteins and nucleic acids. Structure of genes and chromosomes. Transcription and its regulation. RNA processing. Nucleocytoplasmic transport. Protein synthesis. DNA replication. The ER and Golgi apparatus. Intracellular trafficking. The cytoskeleton. Cell cycle regulation and cancer biology.

Teaching methodologies (including assessment):

The curricular unit is structured in theoretical, interactive sessions, using audiovisual means. Students are evaluated by a written exam consisting of multiple-choice questions. Rating scale from 0 to 20. Approval with a rating equal to or greater than 10. Attendance of 2/3 of the classes is mandatory.

References for consultation / mandatory existence:

- Alberts, B. et al. Molecular Biology of the Cell, 5th edition. Garland Science.
- Lodish, H. et al. Molecular Cell Biology, 4th edition. W. H. Freeman and Company.