

SUBJECT TEACHING GUIDE

M1579 - Molecular Bases of Cell Proliferation, Differentiation and Death

University Master's Degree in Molecular Biology and Biomedicine

Academic year 2021-2022

1. IDENTIFYING DATA			
Degree	University Master's Degree in Molecular Biology and Biomedicine	Type and Year	Optional. Year 1
Faculty	Faculty of Medicine		
Discipline	Optional Subjects Module		
Course unit title and code	M1579 - Molecular Bases of Cell Proliferation, Differentiation and Death		
Number of ECTS credits allocated	5	Term	Semester based (1)
Web			
Language of instruction	English	Mode of delivery	Face-to-face

Department	DPTO. BIOLOGIA MOLECULAR
Name of lecturer	MARIA DOLORES DELGADO VILLAR
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Other lecturers	JAVIER LEON SERRANO JOSE LUIS FERNANDEZ LUNA BERTA CASAR MARTINEZ MARIA ANA BATLLE LOPEZ IGNACIO VARELA EGOICHEAGA MAGDALENA MARIA FOLTMAN

3.1 LEARNING OUTCOMES

- Knowledge of the molecular mechanisms controlling cells proliferation, differentiation and death through the study of the signal transduction pathways, the molecular bases of replication, mitosis, DNA repair, oncogenic transcription factors and pathways of apoptosis

4. OBJECTIVES

To acquire basic knowledge on the molecular biology of cells proliferation, differentiation and death as well as associated pathologies, with special focus on cancer.

6. COURSE ORGANIZATION

CONTENTS	
1	<p>PART 1. CELL BIOLOGY OF THE CANCER CELL</p> <ul style="list-style-type: none"> -The nature of cancer -Signalling pathways -Ras-ERK signalling and antitumoral therapy -G1 phase control and replication -Molecular control of mitosis -Molecular mechanisms in cancer: oncogenes -Molecular mechanisms in cancer: suppressor genes -Genomic instability and DNA repair
2	<p>PART 2. MOLECULAR BIOLOGY OF THE CANCER CELL</p> <ul style="list-style-type: none"> -Molecular targets in cancer therapy -Regulation of gene expression and cancer -Epigenetics and cancer -Oncogenic transcription factors and hematologic tumors -Cancer genomics -Molecular mechanisms of stem cell differentiation -Molecular biology of invasion and metastasis -Apoptosis pathways and cancer
3	Basic techniques in Cell Culture
4	Tutorial, evaluation, autonomous learning

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Attendance, participation of the student during the class, discussion of scientific articles	Others	No	Yes	60,00
Oral presentation	Oral Exam	No	Yes	40,00
TOTAL				100,00
Observations				
Questions related with subjects and articles. Oral presentation.				
Observations for part-time students				
Questions related with subjects and articles. Oral presentation of poster.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Weinbeg, R. The Biology of Cancer, Garland Science. 2014

Gelmann, E.P. et al. Molecular Oncology. Cambridge University Press. 2014