

SUBJECT TEACHING GUIDE

G1938 - Anatomopathology

Degree in Biomedical Sciences

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Degree in Biomedical Sciences			Type and Year	Compulsory. Year 3
Faculty	Faculty of Medicine				
Discipline					
Course unit title and code	G1938 - Anatomopathology				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web	https://moodle.unican.es/course/view.php?id=14153				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS MEDICAS Y QUIRURGICAS				
Name of lecturer	JOSE JAVIER GOMEZ ROMAN				
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Other lecturers	MARIA CARMEN GONZALEZ VELA SANTIAGO MONTES MORENO FRANCISCO JAVIER FREIRE SALINAS MARIA PILAR GARCIA-BERBEL MOLINA SOFIA DEL CARMEN MARTINEZ				

3.1 LEARNING OUTCOMES
- Identify the historical and conceptual evolution of Molecular Pathological Anatomy.
- List general notions of immunohistochemical and molecular methodology useful in Pathological Anatomy.
- Identify the fundamentals of the main immunohistochemical methods.
- List the limitations of the various study methods in Molecular Pathology and their potential for error.
- Identify general notions of molecular methodology of both "in vitro" and "in situ" techniques.
- Distinguish between the diagnostic applications of the different techniques on biological samples.

4. OBJECTIVES

Offer training on basic methodological aspects in Molecular Pathology that allows the understanding of these new techniques and their applications.

Identify the applications of molecular diagnosis in clinical practice.

Get started in the knowledge of innovative techniques and applications in molecular pathology such as liquid biopsy or next generation sequencing.

Know the limitations of the various study methods in Molecular Pathology and their possibilities of error.

Summarize the diagnostic applications of the different techniques.

Integrate functional and molecular diagnostics on a cellular pathology basis

Train the student to develop care work in hospitals in the field of precision medicine through the use of routine biological samples

6. SUBJECT PROGRAM

CONTENTS

1	General Pathology
1.1	Introduction. General concept, history and evolution
1.2	Immunohistochemical techniques I. Types of antibodies. Methods. Obtaining antibodies
1.3	Immunohistochemical techniques II. Diagnostic antibodies. clinical use. Pharmacodiagnosis
1.4	Genetic structure. Basic concepts in Molecular Pathology. Preanalytical phase
1.5	Methodology I. Introduction to "in vitro" molecular techniques on tissue samples. PCR-based techniques
1.6	Methodology II. Introduction to "in vitro" molecular techniques Clonality detection techniques in lymphoid tissue
1.7	Cell death and necrosis. Reversible cell injury.
1.8	General metabolism disorders
1.9	Circulatory disorders: Hyperemia and edema. Thrombosis. Embolism. ischemia and infarction. hemorrhage and shock
1.10	Inflammation, repair, immune disorders: Study of the inflammatory focus. Morphological patterns of acute inflammation. Chronic inflammation and its anatomical forms. Wound healing. Hypersensitivity, autoaggression and transplants
1.11	Atherosclerosis
1.12	Diabetes
1.13	Morphological bases of cancer. Dissemination pathways. Classification and stages.
1.14	Generalities on applications of molecular pathology. Genetic mechanisms of tumors. Oncogenic agents
2	Applications in special Anatomical Pathology
2.1	Morphological, immunohistochemical and molecular analysis in neoplasms of the respiratory system-I.
2.2	Morphological, immunohistochemical and molecular analysis in neoplasms of the respiratory system-II
2.3	Morphological, immunohistochemical and molecular analysis in neoplasms of the digestive system-I. Stomach and digestive tube. Phenotypes and molecular classification
2.4	Morphological, immunohistochemical and molecular analysis in neoplasms of the digestive system-II. pancreas and liver
2.5	Morphological, immunohistochemical and molecular analysis in breast neoplasms-I. Histological and molecular classification
2.6	Morphological, immunohistochemical and molecular analysis in breast neoplasms-II
2.7	Morphological, immunohistochemical and molecular analysis in neoplasms of the female genital tract
2.8	Morphological, immunohistochemical and molecular analysis in neoplasms of the male genital tract. Urological neoplasms, prostate and testis
2.9	Morphological, immunohistochemical and molecular analysis in neoplasms of the endocrine system
2.10	Morphological, immunohistochemical and molecular analysis in neoplasms of the central nervous system
2.11	Morphological, immunohistochemical and molecular analysis in skin neoplasms. Melanoma and non-melanotic neoplasms
2.12	Morphological, immunohistochemical and molecular analysis in bone and soft tissue neoplasms
2.13	Morphological, immunohistochemical and molecular analysis in hematological and lymphoid neoplasms

3	New insights
3.1	Gene expression arrays. Expression profiles in breast carcinoma
3.2	Proteomics
3.3	Immunotherapy
3.4	Liquid biopsy
3.5	Next Generation Sequencing
4	Final exam

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Final exam	Written exam	Yes	Yes	60,00
Continuous evaluation of practices	Laboratory evaluation	No	Yes	30,00
Classroom practices and virtual support	Activity evaluation with Virtual Media	No	No	10,00
TOTAL				100,00
Observations				
<p>- Compulsory attendance at practices (classroom, laboratory). - Theoretical exam, multiple choice test type. 74 questions, 2 per topic. A valid answer. Negative score (1 error = -0.25 points).</p> <p>- In the event that it is impossible to carry out the face-to-face evaluation test due to the indication of the health and/or educational authorities, a telematic test will be carried out, included within the Moodle platform, multiple-choice test with fewer questions (37, one per topic with a valid answer and a negative score equivalent to an error=-0.25 points)</p> <p>- At all times there will be continuous evaluation with Socrative or similar methodology and tools included in the Virtual Classroom of the subject where the activities and scores obtained in them will be progressively collected.</p>				
Observations for part-time students				
The same than for the rest of students				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Robbins. Patología humana. Kumar. Abbas, Aster (10a edición, 2021). Elsevier. ISBN de la edición española. 978-84-9113-911-9