MOLECULAR ONCOLOGY MASTER - EDITION 2024-2025

SUBJECT	CLASS	LECTURER
MOLECULAR BASIS OF CANCER	Eukaryotic cell	MIGUEL A. LAFARGA COSCOJUELA
	The carcinogenesis process. Normal cells vs tumor cells	MIGUEL A. LAFARGA COSCOJUELA
	The human genome: genes and genetic code	JOSÉ FERNÁNDEZ PIQUERAS
	Epigenetics and Cancer	JOSÉ FERNÁNDEZ PIQUERAS
	Regulation of gene expression	MIGUEL FERNÁNDEZ MORENO
	Regulation of gene expression by nuclear receptors	ALBERTO MUÑOZ TEROL
	Metabolism, mitochondria and Cancer	JOSÉ MANUEL CUEZVA MARCOS
	Genes and Cancer I. Proto-oncogenes and oncogenes: current state	ALBERTO MUÑOZ TEROL
	Genes and Cancer II. Suppressor genes and genetic predisposition to cancer	JOSÉ FERNÁNDEZ PIQUERAS
	Mutations and DNA repair mechanism	ANDRÉS AGUILERA LÓPEZ
	Epigenetic modulation of aggressive tumours	JAVIER MARTÍNEZ USEROS
PROTO ONCOGENES AND ONCOGENES	Main signalling pathways in Molecular Oncology	MARCOS MALUMBRES MARTÍNEZ
	Biological basis of treatments against growth factors and tyrosine kinase receptors. VEGF and HER receptors	ATANASIO PANDIELLA
	The HER/c-ERBB family. Biology and implication in breast cancer	JOAQUÍN ARRIBAS LÓPEZ
*	Oncogene RAS family, its adaptors and effectors	MARCOS MALUMBRES MARTÍNEZ
	Cell Cycle: retinoblastoma, cyclins, CDKs and cancer	MARCOS MALUMBRES MARTÍNEZ
	The MYC gene family	JAVIER LEÓN SERRANO
	Mitogen signal transduction. RET and the multiple endocrine neoplasia	JAVIER LEÓN SERRANO
	Signal transmission through JAK STAT-associated receptors	JOSÉ PEDRO VAQUÉ DÍEZ
	Fusion gene BCR-ABL and other fussion oncogenes in myeloide leukemia	ROCÍO SALGADO
	Interpretation of cancer genomes	XOSÉ SUÁREZ PUENTE
	Computational analysis of mutations in human tumours. Therapeutic implications.	DAVID TAMBORERO NOGUERA
TUMOR SUPRESSOR GENES	The PI3K-PTEN-AK-mTOR pathway: survival and cell growth	ALEX TOKER
	PI3K and breast cancer	MAFALDA OLIVEIRA
	Genetic basis of hereditary breast and ovarian cancer	JAVIER BENÍTEZ ORTIZ
	TGF-beta: carcinogenesis effects	ISABEL FABREGAT ROMERO
	TGF-beta and gliomas	JOAN SEOANE SUÁREZ
	Hedgehog pathway and cancerogenesis	MIGUEL QUINTANILLA ÁVILA
	Gene suppressor APC and the Wnt/beta-catenin pathway	JOSÉ MANUEL GONZÁLEZ SÁNCHEZ
	DNA repair genes. Mutator phenotype and epigenetics	MANUEL PERUCHO MARTÍNEZ
	The gene TP53: structure and biological activity. The TP53-MDM2-1RF pathway	IGNACIO PALMERO RODRÍGUEZ
	TP53: mutations and their effects	IGNACIO PALMERO RODRÍGUEZ
	The Notch pathway in cancerogenesis	ISABEL FARIÑAS GÓMEZ
	The Hippo pathway and cancer	INES ANTON GUTIÉRREZ
*		
CELLULAR PROCESSES INVOLVED IN CARCINOGENESIS	Molecular basis of metastasis	ALBERTO MUÑOZ TEROL
	Brain Metastases	MANUEL VALIENTE CORTES
	Cell adhesion and cancer: E-cadherina. Epitelium-mesenchyme transition	MARÍA JESÚS LARRIBA MUÑOZ
	Tumor stromma	ALBERTO MUÑOZ TEROL
	Cell migration: Integrins, c-MET	ALBERTO MUÑOZ TEROL
	Microenvironment and metastasis	HÉCTOR PEINADO SELGAS
	Cancer immunology	VASSILIKI BOUSSIOTIS OK
	How the tumors evade the immune response?	MANUEL FRESNO ESCUDERO
	Inflammation and Cancer	MANUEL FRESNO ESCUDERO
	Apoptosis and necrosis	JOAN GIL SANTANO
	Cannabinoids and cancer	MANUEL GUZMÁN PASTOR
	Angiogenesis and tumoral lymphangiogenesis	BENILDE JIMÉNEZ CUENCA
	Mechanism of action of the antiangiogenic agents	BENILDE JIMÉNEZ CUENCA
	Cancer Stem Sells (CSC) in colorectal cancer. Organoids.	ALBERTO MUÑOZ TEROL
MOLECULAR PATHOLOGY TECHNIQUES	The future of Molecular Pathology	IGNACIO WISTUBA
	Introduction to molecular pathology	MIGUEL ÁNGEL PIRIS PINILLA
	Introduction to special techniques in histopathology	TERESA MARAFIOTTI
	Markers for immunotherapy in cancer	MIGUEL ÁNGEL PIRIS PINILLA
	Introduction : Techniques based on DNA analysis	MERCEDES ROBLEDO BATANERO
	Introduction to new generation sequencing techniques (NGS)	XOSÉ SUÁREZ PUENTE
	Next-generation sequencing: data analysis	XOSÉ SUÁREZ PUENTE
	Gene expression analysis, from qPCR to spatial transcriptomics	MARGARITA SÁNCHEZ-BEATO

MOLECULAR ONCOLOGY MASTER - EDITION 2024-2025		
SUBJECT	**CLASS**	**LECTURER**
	MicroRNAs and ncRNAs: Increasing the possibility for Personalized Medicine in Cancer	FRANK SLACK
	Cancer pharmacoepigenetics: genes and drugs	MANEL ESTELLER BADOSA
	Introduction to Proteomics	JAVIER MUÑOZ PERALTA
	Stratified Medicine (Biomarkers) or Personalized Medicine (Model-omics)?	NURIA MALATS RIERA
	Biobanks: an old activity and a new discipline	MARÍA JESÚS ARTIGA
	Discovering genetic biomarkers for personalized cancer therapy	FATIMA AL-SHAHROUR NÚÑEZ
	Flow Cytometry	DOLORES MARTÍNEZ GARCÍA
	Spatial genomics	TERESA MARAFIOTTI
MOLECULAR PATHOLOGY IN THE CLINIC OF HEMATOLOGICAL TUMORS	Molecular classification of haematological malignancies	MIGUEL ANGEL PIRIS PINILLA
	Molecular pathology of lymphomas	JUAN FERNANDO GARCÍA
	Monoclonal B lymphocytosis	JOSÉ ALBERTO ORFAO DE MATOS
	T-cell lymphomas	EVA DOMINGO DOMENECH
	Large B-cell lymphoma	SANTIAGO MONTES MORENO
	Cytogenetic and molecular alterations in myelodysplastic neoplasms	FRANCESC SOLÉ
	Chronic leukemia	FRANCESC BOSCH ALBAREDA
	Cytogenetic, molecular and epigenetic markers of myeloid leukaemias	ROCÍO SALGADO
	Multiple myeloma	NORMA GUTIÉRREZ GUTIÉRREZ
	The future of cancer genomics	ELIAS CAMPO GÜERRI
	Acute Leukemia: example of a therapy lead by the diagnosis	MIGUEL ANGEL SANZ ALONSO
MOLECULAR PATHOLOGY IN THE CLINIC OF SOLID TUMOURS	**Gynecological tumors**	
	Molecular stratification of breast cancer	CARLOS CALDAS
	Molecular Pathology of ovarian cancer	JOSE PALACIOS CALVO
	Endometrial carcinoma. Pathology and molecular genetics	XAVIER MATÍAS-GUIU GUÍA
	Molecular portrait of breast cancer	MIGUEL MARTÍN
	Sarcomas	
	Cytogenetic markers in solid tumours	SANDRA RODRÍGUEZ
	Sarcoma	ENRIQUE DE ALAVA CASADO
	Lung cancer	
	Genetic basis of lung cancer and associated new therapies	MONSERRAT SANCHEZ-CESPEDES
	Targeting mutant cancers: an urgent medical need	MARIANO BARBACID MONTALBÁN
	Melanoma	
	Molecular biology of melanoma	JOSE CARLOS GARCIA BORRON
	Melanoma, molecular diagnosis	JOSE LUIS RODRIGUEZ PERALTO
	Animal models and mechanisms of resistance	ROMINA GIROTTI
	Colorectal cancer	
	Colorectal Cancer: towards a molecular classification	GABRIEL CAPELLA MUNAR
	Bladder cancer	
	Molecular pathology of urothelial bladder cancer	FRANCISCO REAL ARRIBAS
	Renal cancer	
	Relationship between VHL, hypoxia and renal cancer	MERCEDES ROBLEDO BATANERO
	Genomics of renal cancer: intratumoral heterogeneity and therapeutic implications	ANTONIO LOPEZ BELTRAN
	Central nervous system	
	CNS: glial tumours	CRISTINA CARRATO MOÑINO
	Paediatric high-grade gliomas in the era of histomolecular diagnosis	TERESA RIBALTA FARRÉS
	Endocrine tumors	
	Molecular pathology of endocrine and neuroendocrine tumours: thyroid cancer as a model for study	MERCEDES ROBLEDO BATANERO
	Neuroendocrine tumors	
	Merkel carcinoma: molecular approach and therapeutic implications	JOSE PEDRO VAQUE DIEZ
	Pancreas cancer	
	Short update in pancreatic cancer	MARIANO BARBACID MONTALBÁN
	Genetic characterisation of human cancer: applications in diagnosis and therapy	JOSE PEDRO VAQUE DIEZ
	Challenges and opportunities in the integration of omics data in epidemiological studies	NURIA MALATS
	Pancreatic ductal adenocarcinoma	FRANCISCO REAL ARRIBAS
METHODOLOGY IN CLINICAL RESEARCH IN	Epidemiological method	JESÚS SAN ROMÁN MONTERO
	Scientific information and documentation	JUAN ANTONIO LÓPEZ
	Measures of disease frequency	GIL RODRÍGUEZ CARAVACA
	Basic statistics for clinical research	GIL RODRÍGUEZ CARAVACA
	Hypothesis testing and significance testing	GIL RODRÍGUEZ CARAVACA
	Biostatistics applied to clinical trial design	PABLO FERNÁNDEZ

MOLECULAR ONCOLOGY MASTER - EDITION 2024-2025		
SUBJECT	**CLASS**	**LECTURER**
ONCOLOGY	Principles and foundations for research ethics	FRANCISCA TOMAR
	Informed consent	JESÚS SAN ROMÁN MONTERO
	Standards of good clinical practice in clinical trials	JESUS SAN ROMAN MONTERO
	Clinical Trials in Oncology - Case Studies	ENRIQUE GRANDE PULIDO
	Use of biological material in clinical protocols. Creation of diagnostic kits	GABRIEL CAPELLÁ MUNAR
RISK FACTORS IN NEOPLASIAS	Cancer epidemiology	BEATRIZ PÉREZ-GÓMEZ
	Carcinogenic risk factors. Diet and Tobacco.	CARLOS GONZALEZ SVATETZ
	Alcohol and carcinogenesis. Molecular Mechanisms	ANA RAMÍREZ DE MOLINA
	Ionizing Radiation. Effect of Low Doses. Modifying factors.	JESUS ROMERO FERNÁNDEZ
	Virus and other infectious agents, and Cancer	SILVIA DE SANJOSE LLONGUERAS
	Human exposition to endocrine disruptors and cancer	NICOLAS OLEA SERRANO
	Mechanism of estrogen action	MARÍA DEL MAR VIVANCO RUIZ
	Occupational factors and cancer	GIL RODRIGUEZ CARAVACA
	Carcinogens: disruption of DNA tuning	CRISTINA PEÑA
	Introduction to familial cancer. Entities with demonstrated mendelian inheritance	JAVIER BENITEZ ORTIZ
	Molecular Diagnosis. Diagnostic strategies.	MERCEDES ROBLEDO BATANERO
	Genetic counseling in familial cancer. Diagnostic problems	ANGEL ALONSO
	Practical management of family cancer in an oncology practice	RAQUEL FUENTES MATEOS
	Obesity and cancer. Current epidemiological data.	MANUEL DURÁN POVEDA
	Cancer prevention	BREZO MARTINEZ-AMORES
	Microbiota and cancer	ANA LOPEZ ALFONSO
	Cachexia, sarcopenia and cancer. Nutrition in surgical and oncological patients	MANUEL DURÁN POVEDA
PHARMACOLOGY AND ANTI-TUMOUR AGENTS	Introduction to drug discovery and development	FERNANDO PELAEZ PÉREZ
	Current state of lung cancer treatment: Conventional chemothepaies vs new targeted therapies	PILAR GARRIDO LÓPEZ
	Treatment with immunostimulatory antibodies	IGNACIO MELERO BERMEJO
	Genetic Therapy: antitumoral virotherapy in the clinic	JAVIER GARCIA CASTRO
	New concepts for the design of antitumoral inhibitors of the Ras-ERK pathway	PIERO CRESPO BARAJA
	Approach to tumours of the endocrine system from molecular alterations to treatment selection	ENRIQUE GRANDE PULIDO
	Potential of the cell cycle regulators in the design of therapeutic drugs	MARCOS MALUMBRES MARTÍNEZ
	Molecular evolution and clinical implications of prostate cancer	CRISTINA SUÁREZ
	TP73 as a therapeutic target	GEMMA DOMINGUEZ MUÑOZ
	Anti-tumor strategies based on the redirection of immune system effector cells	LUIS ALVAREZ VALLINA
	Cancer-Associated Fibroblasts (CAFs) as a potential anti-tumour target	ANTONIO GARCIA DE HERREROS
	Lipid metabolism as a therapeutic target in cancer. Role of therapeutic nutritional supplements as metabolic modulators.	ANA RAMÍREZ DE MOLINA
	Role of the antiangiogenic therapy in tumoral progression and metastasis	ORIOL CASANOVAS CASANOVAS
	Histopathological and pharmacodynamic alterations in patients treated with molecularly engineered agents	FEDERICO ROJO TODO
	Antibody engineering for therapeutic use	LUIS ÁNGEL FERNÁNDEZ HERRERO
NEW MOLECULAR THERAPIES	Oncology in the 21st Century: From Precision Medicine to Immunotherapy	MARIANO BARBACID
	Anti-tumor treatment with transgenic CRT	ALENA GROS
	Vitamin D and Cancer: Mechanism and Possibility of clinical use	ALBERTO MUÑOZ TEROL
	Selective metastatic CXCR4+ stem cell removal for the prevention of metastasis in human colorectal cancer	RAMON MANGUES BAFALLUY
	Cellular senescence and cancer	MANUEL SERRANO MARUGÁN
	Analysis of the extracellular genetic material circulating in the blood	VANESA GARCÍA BARBERÁN
	Molecular biology behind the modulation of cellular radiosenssibility	JESUS ROMERO FERNÁNDEZ
	Drug design: drugs that block oncogenic stimulation	PERE GASCON VILAPLANA
	Apoptosis regulation in chronic lymphatic leukemia. New therapeutic targets.	JOAN GIL SANTANO
	Extracellular matrix as a mediator of tumour development. Possible new tumour target.	CRISTINA PEÑA MAROTO
	New molecular therapies in pancreatic cancer	TERESA MACARULLA MERCADÉ
	Discover, validate and transfer to the clinic therapeutic targets in sarcomas	ENRIQUE DE ALAVA CASADO
	Energy protein metabolism: Rising targets in antitumoral therapy	JOSE MANUEL CUEZVA MARCOS
	CART immunotherapy in solid tumours	SONIA GUEDAN
	Biomarkers in cancer immunotherapy	RUBEN PIO OSES

Note: The academic content is preliminary and can be subject to changes