



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2018/2019		
MASTER'S DEGREE (MSC)	MEDICAL BIOTECHNOLOGIESD AND MOLECULAR MEDICINE		
INTEGRATED COURSE	MOLECULAR NEUROBIOLOGY AND NEUROLOGY - INTEGRATED COURSE		
CODE	13118		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/09, MED/26		
HEAD PROFESSOR(S)	ARIDON PAOLO	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	ARIDON PAOLO	Professore Associato	Univ. di PALERMO
	DI LIBERTO VALENTINA	Professore Associato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>ARIDON PAOLO Monday 13:00 15:00 Via gaetano La Loggia n,1previo contatto tramite mail o telefono</p> <p>DI LIBERTO VALENTINA Monday 10:00 17:00 Istituto di fisiologia, Corso Tukory 129 Tuesday 10:00 17:00 Istituto di fisiologia, Corso Tukory 129 Wednesday 10:00 17:00 Istituto di fisiologia, Corso Tukory 129 Thursday 10:00 17:00 Istituto di fisiologia, Corso Tukory 129 Friday 10:00 17:00 Istituto di fisiologia, Corso Tukory 129</p>		

DOCENTE: Prof. PAOLO ARIDON

PREREQUISITES	
LEARNING OUTCOMES	
ASSESSMENT METHODS	
TEACHING METHODS	

MODULE
GENETICS OF CENTRAL NERVOUS SYSTEM DISEASES

Prof. PAOLO ARIDON

SUGGESTED BIBLIOGRAPHY

Presentazioni in power point utilizzate dal docente. Monografie consegnate dal docente. Referenze bibliografiche per tematiche di recenti acquisizioni o su argomenti giudicati utili per la formazione.

AMBIT	20885-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

Object of the course is to increase knowledge about biological and genetic basis of the neurological disorders. Through the most important studies performed with classical genetic and genomic approach and considering the recent advances of molecular genetics the pathogenesis of neurological diseases will be investigated, together with the new therapeutic advances, including stem cell therapy.

SYLLABUS

Hrs	Frontal teaching
2	Anatomy and physiology of nervous system. Basic Concepts and Techniques of Molecular Genetics. Monogenic and complex disease
2	Alzheimer disease and Dementia
2	ALS and HSP
2	Parkinson disease and movement disorders
2	Epilepsy. Hereditary Ataxias. Hereditary neuropathy
2	Demyelinating disease (Multiple Sclerosis)
2	Headache. Cerebrovascular Disease (Ischemic and hemorrhagic stroke)
2	Genetic pharmacotherapy in neurological disorders
Hrs	Practice
8	Application of bioinformatics approaches to gain new insight into neurological diseases

**MODULE
MOLECULAR NEUROBIOLOGY**

Prof.ssa VALENTINA DI LIBERTO

SUGGESTED BIBLIOGRAPHY

Appunti presi dagli studenti nel corso delle lezioni e presentazioni in power point utilizzate dal docente.
Per integrazioni o approfondimenti degli argomenti trattati a lezione vengono consigliate referenze bibliografiche su tematiche di ricerca di recente acquisizione o su argomenti giudicati utili per la formazione e per la verifica dell'apprendimento..

AMBIT	50644-Discipline biotecnologiche comuni
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48

EDUCATIONAL OBJECTIVES OF THE MODULE

The primary objective is to teach both the genetic and molecular aspects of the main brain functions and advanced biotechnological approaches to scientific research applied to the problems of neuroscience . The teaching of molecular neurobiology is designed to develop advanced knowledge on the neurobiology of synapses , brain plasticity , the sinaptopatie , neuronal regeneration. Know the neurobiology of interaction glia- neurons. Interaction between the nervous system and the immune system. Acquire knowledge of brain neurogenesis and the use of stem cells, including iPS , in the treatment of brain disorders . Acquire knowledge of epigenetic role in the development and in brain diseases . Acquire knowledge of neurobiology of cognitive deficit in developmental disorders. Develop knowledge on in vivo experimental models and preclinical pharmacological study . Training on the ethics of animal use in scientific research and management of animal house

SYLLABUS

Hrs	Frontal teaching
4	Higher brain functions
2	Limbic system and production of emotions.
2	Neurobiology of synapses . Technologies for the study of events ligand - receptor and its signaling in neuronal cell communication
2	Neurobiology of brain plasticity : genetic basis and environmental of learning . Sinaptopatie and neurodegenerative diseases and aging. Neurobiology of nerve regeneration : neurotrophic factors and their receptors .
2	Methodological approaches to the study of genetic and molecular mechanisms of the brain higher functions . Study of gene function . Study of receptor deorfanzation.
2	Stem cells in the adult brain , their function and applications . Neuorni iPS . stem therapies in neurodegenerative diseases
2	Neurobiology of cognitive deficits in developmental disorders.
2	Epigenetics in the brain : memory; learning ; behavior ; addiction. Future of neuroepigenetic .
2	Role of genetic and environmental factors in the development of psychiatric disorders and addictions .
2	Pharmacological in vivo models in the brain study .
2	Translational research and ethics of in vivo research.
2	Interaction between the brain and the immune system.
2	Glia functional aspects. Hematoencephalic Barrier
2	Analysis of advanced research topics.
2	Analysis of advanced biotechnologies applied in basic and clinical research of neuroscience.
Hrs	Practice
8	Supplementary activities diversified for each group by assigning themes of innovative technologies applied to research. Presentation in power point of work subject to evaluation integrated with the oral examination.
Hrs	Workshops
8	Among the activities ' of the laboratory is provided a seminar held by external docent at the course on topics of innovative biotechnology and cross training . Activities : demonstration in the laboratory of experimental phases on the central nervous system research; in vivo and in vitro models and techniques in use. Animals housing rules and laws governing the in vivo research.