Universitat Autònoma de Barcelona

2017/2018

Physiopathology and Regeneration in Neurological Illnesses

Code: 42910
ECTS Credits: 9

Degree	Type	Year	Semester
4313792 Neurosciences	OB	0	2

Contact

Name: Esther Udina Bonet
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Use of languages

Principal working language: spanish (spa)

Teachers

José Aguilera Ávila
Xavier Navarro Acebes
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Carlos Barcia Gonzalez
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Alfredo Jesús Miñano Molina
Albert Quintana Romero
Ruben Lopez Vales

External teachers

Javier Pagonabarraga
Miquel Vila

Prerequisites

Basic knowledgment from previous subjects in the master is recomended (M1-M3)

Objectives and Contextualisation

This module offers an updated vision of the processes involved in neurodegeneration and neuroregeneration in the nervous system.
The module covers the cellular and molecular mechanisms underlying neurodegenerative diseases, analyzing the ethiopathogenesis of these diseases as well as the development of therapies.

On the other hand, the module also covers the mechanisms of neuroplasticity after traumas and / or metabolic conditions, both from the molecular and the clinical point of view. Finally, recent articles regarding the different subjects will be discussed in small groups and students will also prepare a workshop, where they would have to propse a innovative therapy for ona pathology of the nervous system.

The general objectives of the subject are:
- Learn the basic concepts about the molecular and cellular bases of the neurodegenerative processes of different neurological pathologies.
- Learn the basics about the processes of regeneration and plasticity in the nervous system that underlie and start after traumatic injuries
- To train the student to apply the knowledge acquired on neurodegeneration and regeneration in a scientific context.
- Acquire skills and technical knowledge for scientific research on neurodegeneration and regeneration
- Acquire the ethical and rigorous attitudes to develop the work of scientific research.

Content

Molecular and cellular bases of neurodegenerative processes that include:

-Introduction to the clinical impact of neurodegenerative diseases
-Molecular mechanisms of inflammation
-Molecular Mechanisms of Neural Death
-Pathophysiology of various neurodegenerative diseases: Alzheimer's disease, diseases that affect basal ganglia, mitochondrial disease and sinaptopathies.
-Neurotoxicology

Basic processes of regeneration and plasticity in the nervous system

-Injuries and peripheral regeneration
-Strategies for peripheral nerve repair
-Injuries and central regeneration
-Therapeutic strategies after spinal cord injuries
-Post-lesion plasticity
-Introduction to neurorehabilitation