UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Mechanisms and Biomarkers of Neuronal Damage

2526-2-F0901D047-F0901D092M

Aims

The student should be able to integrate basic knowledge regarding the field of neuroscience, besides pathogenic mechanisms, therapeutic goals and present research trends in the most important diseases of the nervous system.

Knowledge and Understanding - at the end of this course, the student will be able to understand and integrate interdisciplinary info useful for understanding neuroscience research methods. Know and understand the applicative fields of neuroscience.
Applying Knowledge and Understanding - At the end of this course, the student should be able to use the acquired knowledge for understanding neuroscience potential in the medical field.
Making Judgments - At the end of this course, the student will be able to link and put together info coming from different fields (biology, medicine, technology), in order to understand and interpret neuroscience.
Communication Skills - At the end of this course, the student will have acquired an adequate scientific terminology and will be able to expose with the correct use of language the course topics.
Learning Skills - At the end of this course, the student will be able to comprehend and critically evaluate the scientific literature regarding neuroscience.

Contents

This course aims at contributing to the training of a medical biotechnologist able to integrate basic principles of neuroscience in order to understand the biological basis, main pathogenic mechanisms and experimental models regarding nervous system disorders. Models will be analyzed stressing critical aspects and role in the development of novel therapeutic strategies.

Detailed program

Neuroscience, an integrative approach: (1) structure and function; (2) your brain, your self; (3) thought processes; (4) the dynamic brain; (5) breaking from neurodogma; (6) emerging technologies and challenges;

Neurological disorders, a translational approach: mechanisms and biomarkers of neuronal damage; role of glutamate and GABA in CNS disorders; link between inflammation, oxidative stress and excitotoxicity; physiopathology of stroke and multiple sclerosis; genetics of Parkinson; Alzheimer and amyotrophic lateral sclerosis; molecular mechanisms of neurodegenerative disorders.

Prerequisites

Basic knowledge of anatomy and histology, physiology and general pathology and neuropharmacology.

Advanced knowledge of biochemistry, molecular biology and genetics.

Teaching form

In-presence erogative: 36 hours total.

Textbook and teaching resource

Slides, scientific papers.

Semester

First semester second year.

Assessment method

Oral exam.

Office hours

By e-mail to the professor: lucio.tremolizzo@unimib.it

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING