



NEUROCITOLOGY AND NEUROISTOLOGY

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| Enrollment year | 2021/2022 |
| Academic year | 2021/2022 |
| Regulations | DM270 |
| Academic discipline | BIO/06 (COMPARATIVE ANATOMY AND CYTOLOGY) |
| Department | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI" |
| Course | NEUROBIOLOGY |
| Curriculum | PERCORSO COMUNE |
| Year of study | 1° |
| Period | 2nd semester (01/03/2022 - 14/06/2022) |
| ECTS | 6 |
| Lesson hours | 48 lesson hours |
| Language | Italian |
| Activity type | WRITTEN TEST |
| Teacher | BOTTONE MARIA GRAZIA (titolare) - 6 ECTS |
| Prerequisites | Knowledge of cell biology and histology |
| Learning outcomes | The course provides an indepth discussion of morphology and morphofunctional specializations of the cellular types of the nervous tissue, the cellular infrastructures and its molecular correlates, and cytoarchitectonic organization of the central nervous system. |
| Course contents | <p>In particular, the subjects examined are the following:</p> <ol style="list-style-type: none">1) Types of neurons, morphology. The organelles of the soma and their function. The cytoplasmic extensions. The buttons terminals and electrical and chemical synapses. The axonal transport.2) The glial cells. Astrocytes: types and main functions, the molecular mechanisms involved in neuronal migration guided by radial glia, the formation of the blood-brain barrier, control of synaptic transmission, regulation of synaptogenesis, generation of new neurons. |

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| | <p>Oligodendrocytes types and functions. Formation of myelin sheaths. NG2 cells: morphology, types and functions. Microglia: histogenesis.</p> <p>3) The system of the meninges and choroid plexus.</p> <p>4) Organization of neurons and glial cells in the formation of nervous tissue. Examples of cytoarchitecture in areas of the central nervous system.</p> |
| Teaching methods | <p>lections and seminars</p> |
| Reccomended or required readings | <p>Texts that can be used for exam preparation:</p> <ul style="list-style-type: none"> - Material provided directly by the teacher - Purves et al.: "Biologia: La cellula" Zanichelli, Bologna - Purves et al.: "Neuroscienze" Zanichelli, Bologna <p>General reference texts:</p> <ul style="list-style-type: none"> - Alberts et al. "Biologia molecolare della cellula,", Zanichelli, Bologna - Wolfe "Biologia molecolare e cellulare" EdiSES |
| Assessment methods | <p>Two written tests "in itinere", ALTERNATIVE written exam on topics of neurocytology and neurohistology.</p> |
| Further information | <p>Two written tests "in itinere", ALTERNATIVE written exam on topics of neurocytology and neurohistology.</p> |
| Sustainable development goals - Agenda 2030 | <p>The goals</p> |