

UE Synaptic Plasticity of the adult nervous system



Composante
UFR de Chimie
et de biologie



Période de
l'année
Toute l'année

Diplômes intégrant cet élément

- Master Biologie - Santé

- › Langue(s) d'enseignement: Anglais
- › Ouvert aux étudiants en échange: Oui
- › Code d'export Apogée: YAX9BI14

Présentation

Description

Synaptic Plasticity of the adult nervous system

The 3h lectures are given by specialists of the field working in Grenoble or in foreign universities.

After this module, the students should be able to:

- Recapitulate the basic cellular and molecular mechanisms underlying learning and memory as well as those compromised in neurodegenerative diseases.
- Apprehend the state-of-the art methods allowing studies of synaptic plasticity both in vitro and in vivo.
- Explain experimental strategies used in a scientific study, analyze and discuss the results.

Weekly lecture topics

- 1) Electrophysiology principles
- 2) Ion channels and neuronal excitability: physiology, pathology and exploration
- 3) Fluorescence Microscopy in Neurosciences
- 4) "From tripartite synapse to tripartite network : light from electron microscopy"
- 4) Short and long term plasticity phenomenon

- 5) Maturation of the hippocampal network
- 6) Connectivity and role of inhibitory circuits
- 7) How a neurotrophin changes adult synapses.
- 8) Neuronal cytoskeleton: from axogenesis to synaptic transmission
- 9) Cytoskeleton and Memory: molecular insights
- 10) From actin assembly to neuronal assemblies: physical supports of the memory trace
- 11) Training on article presentation by students 1
- 12) Training on article presentation by students 2

Details of assignments and Grading breakdown:

Article presentation by students 1 (20%)

Article presentation by students 2 (80%)

Heures d'enseignement

CM	CM	27h
TD	TD	9h

Période : Semestre 9

Compétences visées

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1. Recapitulate the basic cellular and molecular mechanisms underlying learning and memory as well as those compromised in neurodegenerative diseases.
2. Apprehend the state-of-the art methods allowing studies of synaptic plasticity both *in vitro* and *in vivo*.
3. Explain experimental strategies used in a scientific study, analyze and discuss the results.

Infos pratiques

Contacts

Responsable pédagogique

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Lieu(x) ville

➤ Grenoble

Campus

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