BIO-696(2)

Neuromodulation of Neural Microcircuits (2019)

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Cursus	Sem.	Type
Neuroscience		Obl.

Language of teaching	English
Credits	1
Session	
Exam	Written
Workload	30h
Hours	**20**
Courses	20
Number of positions	

Frequency

Only this year

Remark

Next time: From 24 to 26 May 2019

Summary

This symposium aims to provide a unifying and mechanistic view by which an ever increasing number of neuromodulators, including monoamines, and peptides - the master switches - control genes, proteins, neurons and glia, dendrites, synapses, and emergent states in neural microcircuits.

Content

The “Neuromodulation of Neural Microcircuits – NM2 ” symposium will be held from the 24th to the 26th of May 2019 in Champery.
The overarching goal of the NM2 symposium is to provide a unifying and mechanistic view by which an ever increasing number of neuromodulators, including monoamines, and peptides - the master switches - control genes, proteins, neurons and glia, dendrites, synapses, and emergent states in neural microcircuits across different brain regions in health and disease. Building a mechanistic view of neuromodulation encounters several fundamental challenges: a) How do sensory signals, internal brain states, and computations in microcircuits, trigger the release of specific neuromodulators? b) How do neuronal assemblies and larger brain circuits respond to neuromodulators? and c) How do neuromodulators shape synaptic plasticity and brain states?
To this end, the NM2 symposium will bring together researchers to bridge a variety of disciplines using state-of-the-art techniques in different brain regions towards the common goal of understanding the mechanisms and principles of neuromodulation. The symposium is designed to foster cross-disciplinary collaborations that will pave the way to enable the next breakthroughs in understanding the neuromodulatory control of brain states. Our objective is to organize a dynamic symposium that will highlight an up to date view of the neuromodulation of brain states, establish future directions, and attract new talent to drive forward this important field.
The symposium will consist of 4 sessions spread over 2 days. Each session would consist of about 6 talks lasting 20 minutes each, followed by a panel discussion lasting about 30 minutes.

Note

Learning Outcome - By the end of this course the student will be able to understand the functional diversity of neurotransmitters/neuromodulators in the brain and how they regulate the emergence of behavioral states.

Keywords

Neuromodulation, acetylcholine, dopamine, serotonin, noradrenaline, histamine
neurons, synapses, dendrites, microcircuits, brain states

Resources

Websites

- https://nm2.epfl.ch/