Programme de Formation

Neuro-electrophysiology: from Patch-Clamp to In Vivo Recordings - ENGLISH Course

Organisation

Durée : 42 heures

Mode d'organisation : Présentiel

Contenu pédagogique

Public visé

This workshop is aimed at PhD students, Postdoc fellows, Staff scientists, Researchers from academia or corporate institutions.

Objectifs pédagogiques

- Acquire knowledge in fundamental principles of neuronal activity and bioelectricity
- Learn about the techniques in neuro-electrophysiology: optogenetics, DREADDs and calcium sensors
- Analyze and interpret data obtained from diverse electrophysiological approaches
- Learn to communicate and discuss electrophysiological experiments
- Gain hands on experience in several neuro-electrophysiological techniques

Description

This workshop involves two modules onsite. The first module is a 3-day interactive course (8h/day), organized into half-day sessions. Each session includes a theoretical presentation by one of the instructors followed by collective activities, aimed at interpreting and communicating electrophysiological data from scientific literature. The second module is a 2-day immersive experience (9h/day) in an electrophysiology partner lab at IPMC and includes: sample preparation, recording acquisition and post hoc analysis of collected data.

Days 1 to 3

- Fundamental principles of neuronal activity and bioelectricity
- Synaptic plasticity and field recordings
- Patch-clamp to access neuronal excitability
- Synaptic transmission - Patch-clamp coupled to optogenetics
- In vivo recordings from signal unit to network oscillations

Days 4 and 5

- Hands on training at IPMC. It includes sample preparation, recording acquisition and post hoc analysis of
  collected data

Prérequis

General knowledge in neurobiology and brain anatomy. Previous knowledge on electrophysiology is NOT a requirement.

Modalités pédagogiques

Throughout the training, practical cases or corrected exercises will allow the learner to assess the acquisition of skills.

Moyens et supports pédagogiques

Equipment : Ex vivo electrophysiology setup, In vivo recordings setup

Modalités d'évaluation et de suivi

Ongoing formative assessments throughout the course. A certificate of completion is issued at the end of the training.

Informations sur l'admission

Admission to this training programme is not subject to any examination, test or prior selection; registration is confirmed upon receipt of a complete application file and validation by the training provider.

Informations sur l'accessibilité

Our organisation is committed to ensuring inclusive and equitable access to its training programmes, whether delivered online or in person, for all participants, including people with disabilities. A dedicated accessibility contact is available to assess individual needs and, where possible, implement appropriate pedagogical, technical and organisational adjustments.