

Internship Proposal Academic Year 2019-2020

1. Host team :

Research Unit (e.g. Department or Institute) : **Saints-Pères Paris Institute for the Neurosciences, CNRS UMR 8003, Université Paris Descartes**

Research Unit Director : **Martin Oheim**

Research Team Director : **Céline Auger/Brandon Stell**

Team name : **Team 2 – Cerebellar Neurophysiology**

Address : **45 rue des Saints Pères, 75270 Paris Cedex 06, France**

Supervisor of the Research Intern for this project : **Michael Graupner**

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2. Internship project title: **Exploring cerebellar molecular layer interneuron network activity and function during locomotion**

3. Internship Description :

We are proposing a M2 internship project starting September 2019 at the SPPIN Lab (CNRS UMR 8003, Université Paris Descartes, 45 rue des Saints-Pères, Paris, France) under the supervision of Michael Graupner (PhD). The candidate will be involved in a multifaceted project dedicated to studying the cerebellar interneuron network during locomotion using calcium imaging and electrophysiological recordings in the awake, behaving animal.

The cerebellum plays a crucial role for the timing and coordination of movements. It is thought that the cerebellar microcircuit processes sensorimotor inputs and makes immediate alterations of ongoing movements. The cellular underpinnings of such a task remain largely unknown. We study the role of the cerebellar molecular layer interneuron (MLI) network in awake mice walking on a treadmill. The project takes advantage of the recent advent in *in vivo* recording techniques as well as optogenetic approaches and proposes to combine activity measurements in an ensemble of MLIs through calcium-sensitive dyes with whole-cell patch-clamp recordings in the awake behaving animal. Our goal is to understand the functional role of the MLI population during locomotion and adaptation to environmental changes. The results will advance our understanding of the cerebellar microcircuit and its involvement in generating coordinated movements in mammals.

Applicants should pursue studies in/or related to neuroscience. The ideal candidate has practical skills for experimental work, some background in neurophysiology, and a deep desire to understand the principles underlying the functioning of the nervous system. Good communication skills are a must.