

Internship Proposal Academic Year 2018-2019

1. Host team :

Research Unit (e.g. Department or Institute) : **Laboratoire de Physiologie Cérébrale
CNRS UMR 8118, Université Paris Descartes**

Research Unit Director : **Isabel Llano**

Research Team Director : **Isabel Llano**

Team name : **Optical probing of the Cerebellar Circuit**

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 intership project starting September 2018 at the Brain Physiology Lab (CNRS UMR 8118, Unviersité 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 cerebelluar interneuron network during locomotion using calcium imaging and electrophysiolocial 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.