Laboratory title

Supervisor

Name: Thesis title:
Cellular and molecular bases of aging related declarative memory decline: Estradiol effects
Keywords: Behaviour, Memory, Aging, Synaptic plasticity, Estradiol

Contact

Firstname: Mylène Name: POTIER
E-mail: mylene.potier@inserm.fr
phone number: 05 57 57 37 20
Fax: 0557573669

Abstract
Aging is characterized by a cognitive decline. One form of long-term memory, known as the declarative memory (DM), dependent on the integrity of the hippocampus, is particularly affected during normal aging and in the early stages of Alzheimer's disease. We have developed a mouse behavioural model of aging-related preferential degradation in DM. This DM deficit associated with aging is secondary to a decreased performance of short-term memory. This deficit may be reversed by the steroid hormone estradiol. Our research project aims to identify the cellular and molecular mechanisms underlying the aging-related DM decline and then to explore estradiol effects on these mechanisms. Our main hypothesis is that these mechanisms are those involved in transient synaptic plasticity or in switching transient into long-lasting synaptic plasticity.

During the course of PhD, we will use correlative and/or interventional behavioural tasks distinguishing between different forms of memory, combined with morphological (morphological plasticity, using in vivo viral transfections and dissection of the neuronal circuits using tract tracing approaches) and molecular approaches (short-term and long-term synaptic plasticity markers) to unravel the neurobiological bases of this DM decline and estradiol effects.

Qualification required
Candidates with a behavioural/cognitive neurosciences background with technical skills in stereotaxy, immunohistochemistry and biochemistry will be preferred for this position. Demonstrated interest to study synaptic plasticity molecular mechanisms involved in memory processes will be appreciated.