



Visiting Professor Program Academic Year 2024/2025

TEACHING COMMITMENT: 12 hours

COURSE TITLE

The Development and Function of GnRH Neurons: a Common Neural Circuit in Vertebrates Controlling Reproduction

TEACHING PERIOD

1st term

SCIENTIFIC AREA

Neurobiology

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

Reproduction in vertebrates is under the control of a small population of hypothalamic neurons, named Gonadotropin Releasing Hormone Neurons (GnRH), which regulate the release of the pituitary

gonadotrophins, and in turn the maturation and function of the gonads.

This population of neurons is highly conserved among vertebrates and represents a great model to understand key questions of the comparative neurobiology, as well as the basic mechanisms underlying the development of neural circuits (from cell genesis to cell specification and circuit organization) essential for animal evolution.

The objective of the course will be to give an overview on the GnRH system development and function in vertebrates, including the repertoire of molecular cues regulating the migration and

targeting to the hypothalamus, as well as how the environment triggers the activity of GnRH neurons during the postnatal critical period and adulthood.

LEARNING OBJECTIVES

The goal of this module is to teach and train master students in the field of comparative neurobiology through direct and active interaction with an internationally recognized expert in the field. Through the analysis of the most recent literature and active discussion, the students will develop critical thinking and knowledge on the cellular/molecular/environmental mechanisms underlying development, function and dysfunction of the vertebrates nervous system. Students will learn from an experienced researcher how to address problems and formulate research questions. They will also acquire in-depth knowledge of the novel, cutting-edge approaches and technologies that can be applied to study neural system development.

6 of the 12 scheduled hours will be dedicated to foster a deep understanding of the topics presented during the course. Students will be required to present focused scientific papers on the subject and discuss them and/or to develop a small research projects on specific aspects. These activities will be designed in order to promote the active participation of each student.

VISITING PROFESSOR PROFILE

The Visiting Professor should be an internationally recognized specialist in the field of neural development, with a documented track-record in brain development and plasticity. She/he should have experience in teaching, in particular in the relevant area of neural development at the level of advanced master and/or early PhD students. We seek someone with deep experience in the neural development research field and particularly in the development of the GnRH system.

CONTACT REFERENT

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