



Neuroscience Module – Introduction to Neuroscience

GABBA Program 2011, June 6-June 9

Organizer

Rui Costa: Introduction Week (Module coordinator)

Goals:

The study of neuroscience has become truly multidisciplinary in recent years, integrating a considerable array of technologies and approaches into a science aimed at understanding how the brain comes to perceive, acquire and use information. Although molecular, systems and cognitive neuroscience will continue to prosper on their own, there is a growing sense that integration of these fields is inevitable. Recently, powerful tools emerging from molecular genetics, electrophysiology and brain imaging have offered novel perspectives to the study of the brain, and their use has led to an unprecedented ability to both manipulate and observe brain phenomena across levels of biological complexity. In this module, we will highlight recent findings that document this exciting convergence between molecular, cellular, systems and computational neuroscience in areas of study such as cognition, perception, learning and memory, regeneration, neurodegeneration, plasticity, decision-making and motor control across different species.

Lecturers

In order to ensure the integrative and multidisciplinary aims of the Module, the lecturers' expertise includes molecular, cellular, systems, cognitive and computational approaches to the study of neuroscience.

Megan Carey, Champalimaud Neuroscience Programme

Rui Costa, Champalimaud Neuroscience Programme

Inbal Israely, Champalimaud Neuroscience Programme

Adam Kampff, Champalimaud Neuroscience Programme

Edward Kravitz, Harvard Medical School

Susana Lima, Champalimaud Neuroscience Programme

Marta Moita, Champalimaud Neuroscience Programme

Albino Oliveira-Maia, Champalimaud Neuroscience Programme

Michael Orger, Champalimaud Neuroscience Programme

Carlos Ribeiro, Champalimaud Neuroscience Programme

Luisa Vasconcelos, MIT Portugal/ Champalimaud Neuroscience Programme

Schedule

The Module will consist of lectures and workshops or demonstrations. Unless indicated otherwise, lectures will be held in the morning (10.00-12.00) and afternoon (14.00-18.00). Students will be notified of the changes in schedules of project discussions and practical experiments. The students attended the Portuguese Society for Neuroscience Meeting, and as an evaluation for the course the students will have to write an abstract in Nature Letter format about their favorite talk or poster seen at the meeting (due by June 20th).

Schedule at a Glance

Monday, June 6th	Tuesday, June 7th	Wednesday, June 8th	Thursday, June 9th
<p>10.00-12.00 Introduction to Neuroscience. RC</p> <p>14.00-15.00 Neural Systems. RC</p> <p>15.30-18.00 Synaptic and Structural Plasticity. II</p>	<p>10.00-12.00 Optogenetic manipulations RC and FT</p> <p>14.00-18.00 Motor Systems AK</p>	<p>10.00-12.00 Chemosensation CR and AOM</p> <p>14.00-15.00 Neuroscience. PA Behavioral Genetics in Fruitflies. MLV</p> <p>15.30-17.00 Mapping Circuits and Innate behaviors. MLV</p>	<p>10.00-11.00 Cerebellar Learning and plasticity MC</p> <p>10.00-11.00 Visually guided behavior in zebrafish</p> <p>14.00-15.00 Mate choice SL</p> <p>15.00-16.00 Fear in a social context MM</p> <p>16.00 Final Lecture, Edward Kravitz Harvard Medical School</p> <p>“Genetic manipulations in the fruit fly fight club: love and war in a single gene and other stories”</p>