Preliminary Program

Monday 24 November

09:00-09:15	Welcome and Opening by Directors: F. Dajas and F. Barrantes
09:15-10:00	Overview of brain pathologies from preclinical studies. F. Dajas
10:00-11:00	Synapses and synaptopathies. F. Barrantes
11:00-11:30	Coffee break
11:30-12:30	MicroRNAs and the regulation of axonal development. F. Dajas-Bailador.
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Tuesday 25 November

09:00-10:00	Applications of superresolution microscopy in neurobiology. F. Barrantes
10:00-10:30	Coffee break
10:30-11:30	Novel therapeutic strategies in major depression: Focus on RNAi and ketamine. A. Bortolozzi
11:30-12:30	Effects of distinct environmental modifications during development. C. Dalmaz
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Wednesday 26 November

09:00-10:00	Prepubertal stress: long-lasting effects on metabolism and mitochondrial homeostasis in the nervous system. C. Dalmaz
10:00-10:30	Coffee break
10:30-11:30	Experimental approaches of maternal motivation in mammals. A. Ferreira
11:30-12:30	The impact of perinatal insults on the onset and progression of mental diseases. M. Herrera-Marschitz
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Thursday 27 November

09:00-10:00	Neurochemistry and neuropharmacology of basal ganglia. M. Herrera-Marschitz
10:00-10:30	Coffee break
10:30-11:30	Neurotoxicity mechanisms in Parkinson's Disease. G. Prunell
11:30-12:30	Acetylcholine nicotinic receptor and Parkinson's Disease. JA. Abin-Carriquiry
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Friday 28 November

09:00-10:00	Alpha-synuclein in Parkinson's Disease - from pathogenesis to therapeutic potential. A. Bortolozzi
10:00-10:30	Coffee break
10:30-11:30	Metalloproteases, inflammation and neurodegeneration. T. Herrero
11:30-12:30	Glyapse formation and inflammation in experimental parkinsonism. T. Herrero
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Saturday 29 November

09:00-10:30	POSTER SESSION I
10:30-11:00	Coffee break
11:00-12:30	POSTER SESSION II
12:30-14:00	Lunch

Sunday 30 November Free

Monday 1 December

09:00-10:00	Non-monoaminergic mechanisms involved in the neurobiology of depression. S. Joca
10:00-10:30	Coffee break
10:30-11:00	Overview of neuropeptide neurotransmission in brain pathologies. P. Lagos
11:00-12:00	Modulation of epigenetic mechanisms by antidepressant drugs. S. Joca
12:00-12:30	Role of the melanin-concentrating hormone in REM sleep and the physiopathology of depression. P. Torterolo
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Tuesday 2 December

09:00-10:00	Astrocyte roles in CNS damage and protection. S. Olivera
10:00- 10:30	Coffee break
10:30-11:30	Neonatal asphyxia. A nonotechnological therapeutic approach. F. Blasina
11:30-12:30	Integration of signals at the axon hillock: role of JIP1-AKT. F. Dajas-Bailador.
12:30-14:30	Lunch break
14:30-19:00	Hands-on

Wednesday 3 December

09:00-10:00	Modulation of the alpha-7 nicotinic receptor: Implications for the prefrontal dysregulation,schizophrenic-like cognitive deficit, and novel therapeutics. J.P. Bruno
10:00-10:30	Coffee break
10:30-11:30	Epigenetic factors involved in nicotine reward. R. Bernabeu
11:30-12:30	Role of dopamine in the mechanism of action of drug of abuse. V. Valentini
12:30-14:30	Lunch break
14:30-19:00	Hands-on and preparation of oral presentation

Thursday 4 December

09:00-10:00	Behavioral and neurochemical pharmacology of 5-HT6 receptors related to reward and reinforcement. V. Valentini
10:00-10:30	Coffee break
10:30-11:00	Coca-paste, a drug of abuse widely consumed in South America. C. Scorza
11:00-12:00	The neuropharmacology of the reinforcing properties of amphetamine. J. Fuentealba
12:30-14:30	Lunch break
14:30-19:00	ORAL PRESENTATIONS OF HANDS-ON ACTIVITIES
20:00	CLOSING DINNER

Hands-on laboratory modules:

1) Experimental approaches to evaluate new therapies in Parkinson´s disease
Prunell G/ Costa G

The classical 6-hyroxydopamine model of Parkinson´s Disease in rodents will be used during the laboratory module. The beneficial effects of nicotinic receptor agonism will be taken as an example of new potential therapies. The students will have the opportunity to work with several

experimental approaches including stereotaxic surgery, neurochemical assessment of DA tissue levels, western blot and behavioral studies.

2) In vivo approaches to study the mechanism of action of drugs of abuse
Fuentealba J/Valentini V/Bernabeu R/Scorza C

Place Preference conditioning paradigm and in vivo microdialysis technique in rodents will be used to study the rewarding effects of two psychostimulants, cocaine and coca-paste, and the neurochemical changes in accumbal dopaminergic transmission. Also, the chemical content of coca-paste seized samples will be analyzed. The students will be involved in experimental approaches such as behavioral paradigm, stereotaxic surgery, neurochemical assessment of dopamine extracellular levels by high performance liquid chromatography with electrochemical detection (HPLC-ED) and diode-array detection (HPLC-DAD).

3) In vitro approaches for the study of axon development and neuron connectivity in cortical neurons
Dajas-Bailador F/Arredondo F

The classical in vitro model of cortical neuron development will be implemented by preparing primary cultures from mice embryos. Neuron differentiation will be followed in vitro and students will have the opportunity to learn primary neuron culture models and to analyse the structural and morphological changes using immunofluorescence microscopy techniques. Models of compartmentalized microfluidic chambers will also be used to demonstrate state-of-the-art approaches for the study of axon development and degeneration.

4) Neurodegeneration and neuroprotection in culture (glia-neuron)
Olivera S/ Echeverry C

Isolated neuronal cultures and astrocyte-neuronal co-cultures will be employed to evaluate the neuronal damage caused by increased oxidative stress acting either directly on neurons or mediated by astrocytes. Different strategies looking for neuroprotection will be analyzed in both experimental paradigms. Students will have the opportunity to learn both types of primary cultures and work with different biochemical, immunostaining and imaging approaches currently used in Neurosciences.

5) Neuropeptide transmission in depressive-like behavior and sleep disturbances
Lagos P/Urbanavicius J

In vitro slice preparations of the brain of adult rats containing the dorsal raphe nucleus will be employed in order to study the modulation of melanin-concentrating hormone (MCH) on serotonergic and GABAergic neurons of such nucleus and the implications in depressive-like behavior and sleep disturbances. The students will have the opportunity to obtain fresh slices with a vibratome and perform immunofluorescence assays evaluated by confocal microscopy.

6) Experimental models to study ischemic and hypoxic brain diseases along lifespan
Blasina F/Rivera F/Vaamonde L

Birth asphyxia will be studied in the newborn piglet model either by monitoring hemodynamic variables such as blood flow and systemic pressures or evaluating brain function by means of electrical activity and regional oxygen saturation. The changes after severe hypoxia will be shown in this practical approach. In this module the students will also have the opportunity to follow the procedures to establish the permanent occlusion of the middle cerebral artery in the rat, the most widely accepted model to reproduce human ischemia experimentally. After

ischemia, brain structures affected will be recognized and brain injury identified with a tetrazolium salt.

Foreign faculties

Francisco Barrantes (Pontificia Universidad Católica de Argentina, Argentina)
Ramón Bernabeu (Universidad de Buenos Aires, Argentina)
John P. Bruno (The Ohio State University, USA)
Analía Bortolozzi (Instituto de Investigaciones Biomédicas de Barcelona, España)
Carla Dalmaz (Universidad de Rio Grande do Sul, Brasil)
Federico Dajas Bailador (University of Manchester, UK)
José Fuentealba (Pontificia Universidad Católica de Chile, Chile)
Mario Herrera-Marschitz (Universidad de Chile, Chile)
Trinidad Herrero (Universidad de Murcia, España)
Samia Joca (Universidad de Sao Paulo, Brasil)
Valentina Valentini (Universidad de Cagliari, Italia)

Local faculties

Andrés Abin Carriquiry (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
Fernanda Blasina (Hospital de Clínicas, Uruguay)
Federico Dajas (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
Annabel Ferreira (Facultad de Ciencias, Universidad de la República, Uruguay)
Patricia Lagos (Facultad de Medicina, Universidad de la República, Uruguay)
Silvia Olivera (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
Giselle Prunell (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
Cecilia Scorza (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
Pablo Torterolo (Facultad de Medicina, Universidad de la República, Uruguay)

Local collaborators

Florencia Arredondo (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay)
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Lucía Vaamonde (Hospital de Clínicas, Uruguay)