

Behavioral Neuroscience and Behavioral Disorders IBRO-LARC School Program

Montevideo, Uruguay, (Time UTC-3)

September 16th. Neurodevelopment and behavior. **Coordinator: Deborah Suchecki**

Instituto de Investigaciones Clemente Estable

9:00. *Models of neonatal stress and late psychopathology.* Deborah Suchecki

10:00. *Conditioned fear as a model of Posttraumatic stress disorder (PTSD).* Deborah Suchecki

11:15. Seminar: Behavioral evaluation and translation to human depression and PTSD

14:00. Neurobiological basis of neurodevelopment. Luis Barbeito.

15:00. Influences of screen time in neurodevelopment. Alfredo Cerisola.

16:15. Specialization of neurocognitive processes through adolescence determining adult trajectories. Beatriz Luna.

September 17th. Sexual Behavior **Coordinator: Alonso Fernandez-Guasti**

Facultad de Medicina, Udelar. Salón Maggiolo.

9:00. *Neural basis of female sexual behavior.* Daniella Agrati

10:30. *Neural Basis of male sexual behavior.* Alonso Fernandez-Guasti

12:00. Invited virtual speaker: Eusebio Rubio. *Analysis of Human sexual behavior.*

14-19. Práctico Facultad Medicina Grupo 1

September 18th. Parental and Social Behavior. **Coordinator: Daniel Olazábal**

Facultad de Medicina, Udelar. Salón Maggiolo.

8:30. *Hormonal aspects of Parental Behavior.* Natalia Uriarte

9:30. *Hormonal Influences on Peripartum Mental Health.* Joseph Lonstein.

10:30. *Neural Mechanisms supporting motherhood.* Dayu Lin.

11:30. Seminar: New technologies (optogenetic, chemogenetics, calcium imaging, large-scale recording) will be discussed in the context of studying activity of neural circuits. Dayu Lin.

14-19 Práctico Facultad de Ciencias Grupo 3/Práctico Facultad de Medicina Grupo 2

September 19th. Neural basis of Defense Fear and Aggressiveness. **Coordinator: Newton Canteras**

Facultad de Medicina, Udelar. Salón Maggiolo.

8:30. *Neuroendocrine and cognitive aspects of Parental and Social behavior.* Daniel Olazábal

9:30. *General organization of hypothalamic circuits involved in the organization goal-oriented behaviors.* Newton Canteras

11:00. *Circuits involved in defense responses to natural predators.* Newton Canteras

14-18 Práctico Facultad de Ciencias Grupo 4/Práctico IIBCE Grupo 5

September 20th. The neurobiology of Stress, Anxiety and Mental Disorders **Coordinators: Juan Belforte, Alonso Fernández-Guasti, Victoria Gradin**

Facultad de Medicina, Udelar. Salón Maggiolo.

8:30-12:30 Práctico IIBCE Grupo 1

14:00. *Neurobiology of depression and anxiety in humans.* Victoria Gradin

15:00. *Animal models related to Schizophrenia.* Juan Belforte

16:15. *Neurobiology of depression and anxiety in animal models.* José Alonso Fernandez-Guasti

18:00. Invited virtual speaker. Humberto Nicolini. *Genetic variations in patients with psychiatric disorders.*

September 21st Symposium Neural circuits and emotional regulation of withdrawal, affiliative and agonistic behaviors

Sala Azul Intendencia Municipal de Montevideo

Speakers: Rosa Maria Martins de Almeida (Brasil), Newton Canteras (Brasil), Dayu Lin (USA), Joseph Lonstein (USA), Daniel Olazábal (Uruguay), Xiao-Hong Xu (China).

September 23rd. The neurobiology of Reward. **Coordinators: Carolina Escobar Briones, José Fuentealba, Cecilia Scorza**

Instituto de Investigaciones Clemente Estable

9:00. *Investigation of innovative strategies for the treatment of the use of psychostimulant drugs.* Cecilia Scorza

10:00 *Consequences of adolescent exposure to cannabinoids on the dopaminergic system and impulsive decision making.* José Fuentealba.

11:15 Neuroadaptations in the circuitry that accompany the transition from recreational to compulsive drug-taking. Marisela Morales.

14-18 Práctico Facultad de Medicina Grupo 2/Práctico CUDIM Grupo 4/5

September 24th. Rhythms, Sleep and Behavior. **Coordinator: Carolina Escobar Briones, Pablo Torterolo**

Facultad de Medicina, Udelar. Salón Maggiolo.

8:30. *The reward circuit mediated by the circadian system.* Carolina Escobar.

9:30 *Rhythms and Behavior in humans challenged by environmental and social pressures.* Ana Silva, Facultad de Ciencias, Udelar.

10:30 *Gamma frequency band of the EEG during wakefulness, sleep and the ketamine model of psychosis.* Pablo Torterolo, Facultad de Medicina, Udelar.

11:30 *Local sleep homeostasis and cognitive functions.* Matías Cavelli, Facultad de Medicina, Udelar.

14-18 Práctico Facultad de Medicina Grupo 3/Práctico CUDIM Grupo 4/5

September 25th. Continuation of Rhythms, Sleep and Behavior and Presentations by students

Facultad de Medicina, Udelar. Salón Maggiolo.

9:00. *Dissecting preoptic circuitry controlling arousal states, affect and pain.* Giancarlo Vanini, University of Michigan. USA.

10:00 Markers of states of consciousness in dynamic brain activity. Pablo Barttfeld, CONICET, Argentina.

11:00 First presentation session by 6 students

13:00 Second presentation session by 6 students

14:15 Third presentation session by 6 Students

15:30 Fourth presentation session by 6 students

16:45 Fifth presentation session by 6 students

17:45 Closing Remarks

Practical Tasks involved in the School

Students will be divided in 5 groups to participate in different activities that will take place several days during the week. Each student will be assigned to at least two practical activities.

Experimental work will include:

Groups 1 and 2

Students will be introduced to the tests and methods used to register and analyze parental behavior. They will make brain infusions and the effects of those substances on the behaviors of mice investigated. At Facultad de Medicina

Groups 3 and 4

Students will be introduced to the tests and methods used to register and analyze sexual behavior. They will make brain infusions and the effects of those substances on the behaviors of rats investigated. At Facultad de Ciencias.

Group 1 and 5. The students will conduct a series of hands-on activities. The aim will be to introduce students to animal models that allow the study of the neuropharmacological effects of psychostimulants drugs such as amphetamine. Open field and elevated plus maze experiments will be carried out to assess the effect of amphetamine on locomotor activity and anxiety-like behaviour. Also, students will be introduced to use of the video-tracking software Ethovision XT (Noldus) through the track of live experiments and the offline analyses of the video recordings obtained. During the practical work, we will explore in detail the technical complexities and theoretical framework to enhance our understanding of the topic. We will achieve this by encouraging critical discussion of the results. IIBCE

Groups 2 and 3

Sleep diagnosis in laboratory rodents. This session will introduce polysomnographic recording techniques in small mammals and their corresponding sleep patterns and data analysis. Before classes look at: Video of stereotactic surgery, Polysomnography, and electroencephalogram. <https://www.youtube.com/watch?v=xpJkmhhWRb4>; <https://multimedia.edu.uy/video/5e5fa3c30f19e2022517097b> at Facultad de Medicina

Group 4 and 5

Students will attend lectures on basic aspects and examples of the use of PET in research with small animals. This will include talks on production of radiotracers for brain studies. Characteristics of the different radiotracers and its use in animal models of Alzheimer. Modalities of pre-clinical images. Quantification of functional brain images in preclinical experimentation. Quality Assurance System in Animal Facility. Demonstration on site of all procedures involved in the registration with PET. At CUDIM

Latin American Organizing Committee:

Argentina: Juan Belforte (IFIBIO-Houssay, CONICET)

Brazil: Newton Canteras (Institute of Biomedical Sciences, University of São Paulo), Deborah Suchecki (Escola Paulista de Medicina, Universidade Federal de São Paulo)

Chile: José Fuentealba (Facultad de Química y de Farmacia, Pontificia Universidad Católica)

México: Alonso Fernandez Guasti (Cinvestav), Carolina Escobar Briones (Facultad de Medicina, UNAM)

Uruguay: Daniel Olazábal (Facultad de Medicina, Udelar)

Local Uruguayan Organizing Committee:

Gabriel González (Facultad de Medicina y Hospital Pereira Rossell)

Cecilia Scorza (IIBCE)

Victoria Gradin (Facultad de Psicología)

Daniel Olazábal (Facultad de Medicina, Udelar)

Pablo Torterolo (Facultad de Medicina, Udelar)

Ana Silva (Facultad de Ciencias, Udelar)

Eduardo Savio (CUDIM)

Local Participants:

Daniella Agrati (Facultad de Ciencias, Udelar)

Marcela Alsina (Facultad de Medicina, Udelar)

Florencia Arredondo (CUDIM)

Luciana Benedetto (Facultad de Medicina, Udelar)

Juan Pedro Castro (Facultad de Medicina, Udelar)

Santiago Castro (Facultad de Medicina, Udelar)

Alicia Costa (Facultad de Medicina, Udelar)

Santiago Castro (Facultad de Medicina, Udelar)

Matias Cavelli (Facultad de Medicina, Udelar)

Rosina Dapuelto (CUDIM)

Andrea Devera (Facultad de Medicina y Hospital de Clínicas, Udelar)

Germán Falasco (CUDIM)

Diego Gallo (Facultad de Medicina, Udelar)

Bruno Lenzi (Facultad de Medicina)

Mateo Mendoza (Facultad de Medicina, Udelar)

Joaquín Gonzalez (Facultad de Medicina, Udelar)

Fabiana Insaurralde (CUDIM)

José Pedro Prieto (Facultad de Ciencias)

Laura Reyes (CUDIM)

Mayda Rivas (Facultad de Medicina, Udelar)

Natalia Uriarte (Facultad de Ciencias, Udelar)

Leandro Urrutia (CUDIM)

Jessika Urbanavicius (IIBCE)