



**“NEUROBIOLOGY OF DRUG ADDICTION”  
SAN IBRO LARC Course  
and ISN Small Conference (ISN-CC)  
Associated to the XXXIII SAN 2018 Meeting**

October 22<sup>nd</sup>-23<sup>rd</sup>, 2018  
Ciudad Universitaria, Córdoba, Argentina



**Organizer:** Dr. Liliana M. Cancela. IFEC-CONICET, Full Professor, Department of Pharmacology, School of Chemical Sciences, Universidad Nacional de Córdoba.

**Coordinator:** Dr. Flavia Bollati. IFEC-CONICET, Assistant Professor, Department of Pharmacology, School of Chemical Sciences, Universidad Nacional de Córdoba.

**Colaborators:**

**Dr. Verónica Álvarez (USA)**

**Dr. María Estela Andrés (Chile)**

**Dr. Bruno Averbeck (USA)**

**Dr. Rudy Bernabeu (Argentina)**

**Dr. Martine Cador (Francia)**

**Dr. Peter W. Kalivas (USA)**

**Dr. Silvia Cruz (México)**

**Dr. Juan Carlos Molina (Argentina)**

**Dr. Gabriela Paglini (Argentina)**  
**Dr. Mariela Pérez (Argentina)**  
**Dr. Marcelo Rubinstein (Argentina)**  
**Dr. Mirian Virgolini (Argentina)**

**Location:** Salón Auditorio Edificio Integrador, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, o Salón de Actos Pabellón Argentina, Ciudad Universitaria, Córdoba, Argentina

**Dates:** October 22<sup>nd</sup>-23<sup>rd</sup>, 2018

**Total Number of hours: 20 h**

**The course involves three modules:**

I-Theoretical Classes

II- Round Table and Discussion

III- Final Evaluation

### **Background and Goals**

A hallmark of drug addiction is the uncontrollable desire to consume drugs at the expense of severe negative consequences. Moreover, addicts that successfully refrain from drug use have a high vulnerability to relapse even after months or years of abstinence. The current understanding of drug-induced neuroplasticity within the mesocorticolimbic brain system that contributes to the development of addiction and the persistence of relapse to drug seeking is one of the most prominent challenges in neurobiology of drug addiction. The long-lived behavioral abnormalities associated with addiction are thought to arise from pathological plasticity not only in dopaminergic but also in glutamatergic neurotransmission. The nature of changes in excitatory synaptic plasticity depends on several factors, including the type of drug, the brain area, and the time-point studied in the transition of drug exposure to withdrawal and relapse to drug seeking. Identification of drug-induced neuroplasticity is crucial to understand how molecular and cellular adaptations contribute to the end stage of addiction, which from a clinical perspective, is a time-point where pharmacotherapy may be most effectively employed. The main aim of the SAN Course and ISN Small conference on “Neurobiology of drug addiction” is to contribute to the discussion of the neurobiological mechanisms of drug addiction. To this end, experimental models in laboratory animals for the different aspects of drug addiction (abstinence, sensitization, reinstatement, tolerance and compulsion) will be covered. It will include generalizations of shared processes with stress (as a precipitating factor of addiction), and the individual characteristics for heroin, cocaine, amphetamines, nicotine, cannabinoids, inhalants and alcohol. The neural mechanisms underlying compulsive eating disorder and reward learning will be also included. The newest molecular, behavioral and electrophysiological advances as well as therapeutic strategies will be proposed for drug addiction. This activity is orientated to students enrolled in Doctoral and Master Programs, as well as to young investigators in the Neuroscience areas, holding a Biochemistry, Medical, Biologist, Psychology, Pharmacy or Chemical Sciences degree.

### **Program**

**Day 1: Monday October 22<sup>nd</sup>**

**9:00-10:00** Welcome words by the SAN Course and ISN small conference organizer. Conceptual framework, definitions, and animal models in drug addiction. Neurobiological mechanisms. Vulnerability for drug use disorder.  
**Dr. Liliana Cancela.**

- 10:00-10:45** From worms to rat experimental models in addiction studies. Alcohol metabolism and reinforcement.  
**Dr. Miriam Virgolini**
- 10:45-11:15** **Coffee Break**
- 11:15-12:00** Maternal ethanol ingestion during gestation and breastfeeding: Recruitment of early learning processes that lead to ethanol preference and seeking behavior of the drug.  
**Dr. Juan Carlos Molina**
- 12:00-12:45** Development of tolerance to benzodiazepines associated to long term plasticity in hippocampus: a behavioral strategy to inhibit it.  
**Dr. Mariela Pérez**
- 12:45-14:30** **Lunch**
- 14:30-15:30** **ISN-CC Lecture:** Neurobiology of volatile solvent misuse.  
**Dr. Silvia Cruz**
- 15:30-16:15** Cannabis. Endocannabinoid system. Psychoactive vs medicinal use of Delta 9-THC and Cannabidiol. Short and long term effects on health of chronic Delta9-THC consumption.  
**Dr. Liliana Cancela**
- 16:15-16:30** **Coffee Break**
- 16:30-17:15** Nicotine. Behavioral analysis to evaluate the rewarding properties of nicotine in zebrafish. Epigenetic.  
**Dr. Rudy Bernabeu**
- 17:15-18:00** Mechanism of synaptic plasticity in addiction relevant brain areas induced by amphetamine and methylphenidate.  
**Dr. Gabriela Paglini**
- 18:00-19:00** **Group activity I: Students Presentations**

**Day2: Tuesday October 23<sup>rd</sup>**

- 9:00-10:15** **ISN-CC Lecture:** Neurobiology of addiction.  
**Dr. Peter W. Kalivas**
- 10:15-10:45** **Coffee break**
- 10:45-12:00** **ISN-CC Lecture:** Too much sucrose at adolescence: vulnerability to depressive disorders at adulthood ?.  
**Dr. Martine Cador**
- 12:00-14:00** **Lunch**
- 14:00-15:00** **ISN-CC Lecture:** Compulsive behaviors, the role of dopamine D2 and kappa opioid receptors of the mesolimbic system.  
**Dr. Estela Andres**

**15:00-16:00** ISN-CC Lecture: Central mechanisms controlling satiety, food intake and adiposity.

**Dr. Marcelo Rubinstein**

**16:00-16:30** Coffee break

**16:30-17:30** ISN-CC Lecture: Theoretical and experimental approaches to study reinforcement learning.

**Dr. Bruno B. Averbeck**

**17:30-18:30** ISN-CC Lecture: Circuit and synaptic mechanisms mediating the behavioral response and the vulnerability to compulsive drug abuse.

**Dr. Verónica Álvarez**

**18:30-20:00** Round Table and Final Conclusions of the SAN-ISN Small Conference and Course.

#### **Speakers Information:**

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