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PRE-CONGRESS COURSE "NEUROBIOLOGY OF DRUG ADDICTION"

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October 22nd -23rd, 2018

Ciudad Universitaria, Córdoba, Argentina

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-Salón Auditorio, Edificio Integrador, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba.
-Salón de Actos Pabellón Argentina, Ciudad Universitaria, Córdoba, Argentina

WORKSHOP *Homage to Ricardo Miledi*
"Workshop: Past, Present and Beyond of Synaptic Transmission"

Previous and satellite activity of the XXXIII Annual Congress of the Argentine Society of Neuroscience Research – SAN

October 22th – 23th, 2018 – Instituto Martín y Mercedes Ferreyra, Córdoba

LOCATION:
Instituto de Investigaciones Médicas
Mercedes y Martín Ferreyra (INIMEC)
Ciudad de Córdoba, República Argentina

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Dr. Juan D. Goutman
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Dr. Osvaldo Uchitel

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Carlos Matute (Spain)
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Antonia Marín-Burgin (Argentina)
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P23.-Serotonin and Catecholamines Neuronal Circuits regulate opposing behaviors in Caenorhabditis elegans

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Patients with anxiety disorders, such as post-traumatic stress disorders (PTSD) and panic attacks, exhibit high levels of catecholamines (CA), even in the absence of stress. Selective serotonin (5-HT) reuptake inhibitors (SSRIs), which increase the 5-HT level in the synaptic gap, are the most suitable drugs to treat these patients. This means 5-HT plays an important role in these disorders, but its relationship with CA is still unknown and difficult to study in the complex human nervous system. Given its simplicity and the highly conserved neurological pathways, C. elegans can be used to provide insights into the crosstalk between 5-TH and CA.
When C. elegans encounters food, it releases 5-HT to inhibit locomotion. We exposed tdc-1 and tbh-1 null mutants (unable to synthetize the analogous of mammalian CA tyramine (TA) and octopamine (OA), respectively) to exogenous 5-HT and found that they are hypersensitive to paralysis. These results strongly suggest that 5-HT acts antagonistically to CA. In addition, we studied the hypersensitivity to exogenous 5-HT of mutants in TA and OA receptors. We observed that tyra-3, ser-3 and ser-6 null mutants do not recover completely from the serotonin-induced paralysis. We are now digging into the molecular and cellular underpinning of these antagonistic effects by analyzing mutants in 5-HT receptors. These opposite actions could be conserved in mammals and explain the efficiency of SSRIs in PTSD and panic attack treatments.