


# SAN 2019 Abstract Book for ASN Neuro MAY 2020

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## Abstracts of the 2019 Meeting of Argentine Society for Research in Neurosciences

### XXXIV Annual Meeting SAN 2019

October 3–5, 2019

Villa Carlos Paz, Córdoba, Argentina

The 2019 meeting of the Argentine Society for research in Neurosciences (SAN) was held at Villa Carlos Paz, Córdoba, Argentina, in Portal del Lago Hotel, from October 3 to 5, 2019.

There were 350 attendees among researchers, scholars, PhD students and guests from different centers and universities of Argentina and abroad from 8 countries of Latin America, North America and Europe. Our congress had a total of 4 Plenary Lectures, 6 Symposia, 2 Short Conferences, 6 Youth Conferences, 19 Oral Communications, 256 Posters covering a broad number of areas in the field of neurosciences together with 2 special activities at lunch time and a round table on “Gender and Science.”

It is noteworthy that two of the Plenary Lectures were placed in honors of the pioneers of neurochemistry and neurobiology of Argentina, Drs. Ranwel Caputto and Eduardo De Robertis. This year the “Ranwel Caputto” Lecture was delivered by Prof. Belen Elgoyhen of the University of Buenos Aires (Argentina) and the “De Robertis” Lecture by Prof. Beatriz L. Caputto of the National University of Córdoba (Argentina). The “Opening Lecture” was given by Prof. Marla B. Feller, Department of Molecular and Cell Biology and Helen Wills Neuroscience Institute, University of California (USA) and the “Hector Maldonado” Lecture by Prof. Lucas Pozzo-Miller Department of Neurobiology, University of Alabama at Birmingham (USA). Short conferences were delivered by Drs. Ethan Buhr of the University of Washington in Seattle (USA), and Emilio Kropff of the Leloir Institute, Buenos Aires (Argentina).

As pre-meeting activity, the specific course for PhD students “Molecular and Cellular Neuroscience and Neurochemistry: Experimental strategies for studying the nervous system in health and disease,” took place on September 30 to October 1–2, 2019 at the School of Chemical Sciences of the National University of Córdoba, Córdoba with the participation of more than 60 students.

Remarkably, all the activities organized, including the Symposia and the Young Investigator Lectures, covered a number of diverse disciplines in the field of neurosciences with the participation of outstanding invited speakers from Argentina and other countries.

Moreover, a very friendly atmosphere for discussion and data presentation was generated during the poster and oral communication sessions with the participation of 104 researchers, 139 PhD students, 64 undergrads and 34 postdocs from Argentina, Chile, Brazil, Uruguay, USA, Canada, Denmark, Germany and France.

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**Short Program SAN 2019**

Mon., Sept 30th - Wed., Oct 2nd	Thursday, October 3rd	Friday, October 4th	Saturday, October 5th
<b>PRE-CONGRESS COURSE "Molecular and Cellular Neuroscience and Neurochemistry: Experimental strategies for studying the nervous system in health and disease"</b> Auditorio Ciencias / Facultad de Ciencias Químicas – UNC <b>REGISTRATION</b>	<b>8:30 - REGISTRATION</b> <b>9:00 - 11:00</b> <b>SYMPOSIUM I</b> <i>"New perspectives and mechanisms underlying neurological disorders"</i>	<b>8:30 - 10:30</b> <b>SYMPOSIUM III</b> <i>"Molecular mechanisms of epigenetics and chromatin remodeling during brain development and aging"</i>	<b>8:30:00 - 10:30</b> <b>SYMPOSIUM VI</b> <i>"Sensory processing and integration in olfactory and tactile systems"</i>
	<b>11:00 - 11:30</b> Coffee break	<b>10:30 - 11:00</b> Coffee break	<b>10:30 - 11:00</b> Coffee break
	<b>11:30 - 12:30</b> <b>OPENING LECTURE</b> Prof. Marla Feller	<b>11:00 - 13:00</b> <b>SYMPOSIUM IV</b> <i>"First impressions: New roles for perinatal factors governing brain development"</i>	<b>11:00 - 12:00</b> <b>Oral Communications</b> Room Auditorio (OC 8-12) Room Lago (OC 13-18)
	<b>12:30 - Lunch with activities</b> <i>"The 3Rs in neuroscience research"</i>	<b>13:00 - Lunch with activities</b> <i>"HD Foundation"</i>	<b>12:00 - 13:00</b> <b>EDUARDO DE ROBERTIS LECTURE</b> Prof. Beatriz Caputto
	<b>14:30 - 15:30</b> <b>SHORT LECTURES</b> Ethan Buhr Emilio Kropff	<b>14:30 - 16:00</b> <b>Oral Communications</b> Room Lago (OC 1-7)	<b>13:00 - Farewell Lunch</b>
	<b>15:30-16:00</b> <b>Gender and Science</b> Verónica de la Fuente	<b>14:30-15:30</b> <b>Young Investigator Lectures</b> Room Auditorio (YIL 1-3) Room Lago (YIL 4-6)	
	<b>16:00 - 17:30</b> <b>SYMPOSIUM II</b> <i>"Advances in early diagnosis and in experimental therapy of Alzheimer's disease"</i>	<b>15:30 - 17:30</b> <b>SYMPOSIUM V</b> <i>"Sexual differences on development and function of CNS"</i>	
	<b>17:30 - Coffee break</b>	<b>17:30 - Coffee break</b>	
	<b>17:30 - 19:30</b> <b>Poster Session (Even numbers)</b>	<b>17:30 - 19:30</b> <b>Poster Session (Odd numbers)</b>	
	<b>19:30 - 20:30</b> <b>RANWEL CAPUTTO LECTURE</b> Prof. Ana Belén Elgoyhen	<b>19:30 - 20:30</b> <b>HÉCTOR MALDONADO PLENARY LECTURE</b> Prof. Lucas Pozzo-Miller	
	<b>20:30</b> <b>WELCOME RECEPTION</b>	<b>20:30</b> <b>SAN General Assembly</b>	

## Synaptic Transmission and Excitability

### P251.-GABA Modulation of Olivocochlear Efferent Neurotransmission

**Tais Castagnola, Ana Belén Elgoyhen, Juan Diego Goutman and Carolina Wedemeyer**

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During development, inner hair cells (IHCs) in the mammalian cochlea are unresponsive to acoustic stimuli but instead present intrinsic electrical activity, crucial for the normal development of the auditory pathway. During this same period, neurons originating from the medial olivocochlear complex (MOC) transiently innervate IHCs. This innervation is mediated by acetylcholine (ACh), activating nicotinic receptors assembled by  $\alpha 9$  and  $\alpha 10$  subunits and is responsible for controlling IHC excitability during this period. Even though this is a cholinergic synapse, previous evidence indicates the presence of abundant GABA and presynaptic GABAB receptors. Moreover, the application of GABAB receptors agonists can reduce ACh release. To determine the source of GABA in the MOC – IHC synapse, transgenic mice expressing channelrhodopsin (ChR2) in GABAergic fibers were used. Preliminary results indicate that ChR2 activation by light did not elicit any measurable synaptic response in IHC per se, but produced a transient potentiation of cholinergic synaptic responses (when coupled with an electrical stimulation) in 10/28 cases. In addition, immunohistochemistry techniques were used to characterize GABA innervation. On the other hand, to further understand the mechanisms of GABA modulation we used calcium imaging techniques that allowed us to estimate activity at a single synapse level. Altogether these results suggest that ACh might be released from fibers that have a GABAergic identity.

## Synaptic Transmission and Excitability

### P252.-Intracellular Modulation of $\alpha 7$ Ionotropic and Metabotropic Functions by Tyrosine Phosphorylation

**Juan Facundo Chrestia<sup>1</sup>, Ariana Bruzzone<sup>2</sup>, María del Carmen Esandi<sup>1</sup> and Cecilia Beatriz Bouzat<sup>1</sup>**

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The  $\alpha 7$  receptor is a nicotinic receptor present in neuronal and non-neuronal cells.  $\alpha 7$  acts as a ligand-gated ion channel and as a metabotropic receptor. We investigated the role of tyrosine phosphorylation of the intracellular domain (ICD) in the dual ionotropic/metabotropic receptor function. Single-channel recordings from HEK cells expressing  $\alpha 7$  showed that channel activity appears as brief isolated openings and episodes of few openings in quick succession (bursts). Exposure to an inhibitor of Src family kinases (PP2) increased the frequency and duration of bursts while preincubation with an inhibitor of tyrosine phosphatases had the opposite effect. Co-expression of  $\alpha 7$  and an inactive Src kinase also increased burst duration. A mutant  $\alpha 7$  lacking tyrosine phosphorylation sites in the ICD showed longer burst durations and insensitivity to PP2, thus recapitulating the effects of phosphorylation inhibition on wild-type  $\alpha 7$ . Cells exposed to the specific  $\alpha 7$  agonist (PNU-282987) showed an increase of ERK1/2 phosphorylation, which was abolished by exposure to a tyrosine kinase inhibitor. PNU-282987 did not trigger ERK phosphorylation in cells expressing the mutant receptor lacking tyrosine residues or co-expressing  $\alpha 7$  and  $\alpha 7$ -ICD domain. Our results indicate that dephosphorylation positively modulates ionotropic  $\alpha 7$  activity in a way compatible with decreased desensitization, and that the phosphorylated state of  $\alpha 7$ -ICD plays a role in metabotropic receptor responses.

## Synaptic Transmission and Excitability

### P253.-Histamine-Enhanced ASIC Mediated Currents Contribute to Anterior Cingulate Cortex Long-Term Potentiation

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Acid-sensing ion channels (ASICs) are H<sup>+</sup>-gated channels belonging to the ENaC/Deg superfamily that are involved in synaptic transmission and in neurodegenerative diseases. During synaptic transmission, acidification of the synaptic cleft due to the co-release of neurotransmitter and H<sup>+</sup> from synaptic vesicles activates ASIC channels in mice. We used slices from the anterior cingulate cortex (ACC) of P30-60 postnatal mice to evoke glutamatergic AMPA receptor-mediated excitatory postsynaptic currents (EPSCs),