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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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we use a behavioral task that allowed us to discriminate if an animal recognizes a context as new, or as one they already knows. We carried out electrophysiological recordings in CA3 and CA1 region of the HP while they were performing the tasks in order to correlate the remapping and the evocation of different contexts.

Cognition, Behavior, and Memory

PI77.-Long-Term Memory Impairment Is Different in Male and Female Transgenic McGill-R-Thy1-APP Rat Model of Alzheimer's Disease

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Memory impairment in early Alzheimer Disease (AD) would rely on an increase in soluble A β -oligomers, potent neurotoxins altering synaptic plasticity. McGill-R-Thy1-APP Wistar-transgenic (Tg) rats bearing human Amyloid Precursor Protein gene with Swedish and Indiana mutations of familial AD offer an opportunity for testing sex differences in cognitive deficits at AD onset. Homozygous Tg rat already showed cognition deficits at 3 month and intraneuronally human A β accumulation from first week. Hemizygous Tg (He) show a more subtle phenotype and do not develop extracellular plaques even at 20 months. 12–13 month old (mo) He male (m) and female (f) rats and their wild type litter-mates (WT) were left to explore an open field (OF) for 5 min and tested 24 hr later; bi-dimensional exploration was quantified, being significantly lower in test than in training, denoting habituation. Same rats were trained in a 2-object recognition (OR). WT and Hef, and WTm, discriminated new vs. known object 1 hr (short-term memory, STM), and 24 h (long-term memory, LTM) later, while Hem rats did not. Rats were trained in an inhibitory avoidance step-through (IA), where latencies to avoid a mild footshock were recorded. 24 h later/Test latencies were significantly higher for WT and Hef. and WTm, while there was not significant difference for Hem rats. Hence, 12–13 mo He Tg male rats, though not females, suffer selective

STM/LTM deficits, in associative memories with spatial and/or aversive components.

Cognition, Behavior, and Memory

PI78.-When Does the Mammalian GPS Use the Dentate Gyrus in Everyday Challenges of Spatial Navigation?

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Our mammalian GPS, Global Positioning System, is made of diverse brain structures such as the dentate gyrus (DG) of the hippocampus. This is one of the most plastic brain regions because it has adult neurogenesis and this process is modulated by the animal experiences. The most accepted function of the DG and its new neurons is the discrimination of similar spatial contexts. However, their contribution in an ordinary behaviour remains unknown. We started investigating the hypothesis that the DG would be necessary to solve difficult spatial challenges but not easy ones in a goal guided behaviour. Therefore, adult mice were infected with AAV flex-hM4Di plus CAG-Cre retrovirus in the DG to allow chemogenetic manipulation of neuronal activity in mice navigating in a crossword maze after the i. p. injection of the synthetic agonist clozapine-N-oxide ("CNO") or its vehicle ("control"). In a single day mice had to learn two shortest paths to a new reward location. We designed spatial routes of two levels of cognitive demand and evaluated mice performance with or without chemogenetic inhibition (CNO vs. control). Easy and difficult journeys were equally solved and learnt by mice under control condition. However, mice receiving CNO could only learn easy spatial trajectories but not the difficult ones ($p=0.01$, Wilcoxon signed rank test, $N=4$ mice). Therefore, our preliminary data suggest that the DG is required by the GPS during spatial navigation in complex mnemonic challenges.