



SAN2023

October 3rd - 7th

**Universidad Nacional de San Luis
San Luis - Argentina**

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ORGANIZING COMMITTEE

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Lidia Szczupak

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14:00-16:00 hrs

MICROCINE – S3.- On the role of the vagus nerve and cholinergic signaling in multi-scale metabolic optimization and activeinference

Harold Schulz: Physiological foundations of the vagal efferent and afferent circuitry

Francesco Cerritelli (virtual): The role of touch in the neurobiological development of the mother-newborn dyad

Anjali Bhat: False inference in the brain and the immune system: Autoimmunity, allergies, hallucinations

Martin Frasch: Multi-scale organization of cholinergic signaling in immunometabolism: is there evidence of immunoceptive inference?

Chair: Martin Frasch

AUDITORIUM – S4.- Circuit maladaptations in neuropsychiatric disorders

Jacques Barik: “Nicotine disrupts Top-Down Habenular control over Cholinergic Signals to Gate Motivation”

Natalia De Marco: “The Emergence of Network Activity Patterns-An

Early Window to Autism Spectrum Disorder”

Francois Georges: “Emotion in Action: Anatomical and Functional characterization of Amygdala-Striatal circuits”

Marisela Morales: “Ventral tegmental area neuronal diversity, connectivity, unanticipated types of neurotransmission and behavior”

Chairs: Mariano Soiza & Sebastian Fernandez

16:00-16:30 hrs

Coffee Break

16:30-17:30 hrs

ORAL COMMUNICATION
MICROCINE

1.-Nahir Guadalupe Gazal

2.-Natali Rasetto

3.-Ivana Maria Gomez

4.-Juliette López Hanotte

5.-Christell Tatiana Becerra Flores

016 | DOWNREGULATION OF REDOX-SENSITIVE TRANSCRIPTION FACTORS AND NEURONAL FERROPTOSIS AS UNDERLYING MECHANISMS OF MANEB-INDUCED TOXICITY

Cellular and Molecular Neurobiology

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Epidemiological studies provide evidence of a strong association between the use of dithiocarbamate pesticides, such as Maneb (MB), and the risk of Parkinson's disease. Here, we tested the hypothesis that MB increases α -synuclein expression and downregulates several redox-sensitive transcription factors, thus promoting neuronal death. For this purpose, we challenged neuronal and primary glial cultures, and mice with MB. When exposed to MB, neurons showed α -synuclein upregulation accompanied by markers of oxidative stress. This was associated with diminished glutamate-cysteine ligase catalytic subunit and heme oxygenase-1 mRNA expression and upregulation of the NRF2 repressor, BACH1. MB treatment also downregulated glutathione peroxidase 4 mRNA levels in neurons, which was coincident with increased content of reactive oxygen species, lipid peroxidation, and mitochondrial alterations. These deleterious effects were prevented by treating MB-exposed neurons with ferrostatin-1, an inhibitor of ferroptosis. In glial cell cultures, MB triggered microglial and astrocyte activation. In mice, MB-induced neurodegeneration provoked motor impairment associated with enhanced α -synuclein expression in midbrain. Our results show that MB-induced neurotoxicity downregulates NRF2 pathway and elicits neuronal death probably triggering mechanisms associated with ferroptosis.