SAN2011

XXVI Congreso Anual
de la Sociedad Argentina
de Investigación en Neurociencia

Huerta Grande, Córdoba
18-22 Octubre 2011.

SAN2011 | Organizing Committee

Guillermo Lanuza, *Instituto Leloir - Buenos Aires*
Pablo López, *Instituto Mercedes y Martín Ferreyra - Córdoba*
María Eugenia Pedreira, *Facultad de Ciencias Exactas y Naturales Universidad de Buenos Aires - Buenos Aires*
Estela Muñoz, *Universidad Nacional de Cuyo - Mendoza*
Cecilia Inés Calero, *Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires - Buenos Aires*
Franco Mir, *Instituto Mercedes y Martín Ferreyra - Córdoba*
Ricardo Pautassi, *Facultad de Psicología, Universidad Nacional de Córdoba – Córdoba*

Course | Organizing Committee

Germán Szapiro, *Neuroscience Section, Ecole Normale Supérieure, Paris, France.*
Juan Goutman, *INGEBI-CONICET, Buenos Aires, Argentina.*

Logistic Organization: **Silvina Andrea Ceriani**

Synaptic Transmission and Excitability
Poster Number 242 | **Session 2**

"Functional changes of Cys-loop receptors generated by electromagnetic fields"

María Fernanda Tolosa[1,2], Walter Ruben Cravero[1], Cecilia Bouzat[2]
[1]*Departamento de Física, UNS-CONICET, Bahía Blanca, Argentina,* [2]*Instituto de Investigaciones Bioquímicas de Bahía Blanca. UNS-CONICET*
mftolosa@uns.edu.ar

Due to the rapid advances in communication technologies, the population is increasingly exposed to electromagnetic fields (EMFs). This has raised concern about potential health effects resulting from exposure to them. We here studied the influence of EMFs on AChR and 5HT3A receptors. We recorded macroscopic and single-channel currents from cells expressing these receptors and exposed to EMFs before or during agonist application. Exposure to EMFs (15 Hz-120 kHz) produces a significant decrease of the peak current, an increase on the rise time and no changes in the decay time constants of macroscopic currents activated by ACh. The peak current decreases as a function of EMF frequency (IC50 54 kHz). The effect on 5HT3A receptor currents is 3-fold more profound than on AChR currents, thus indicating different sensitivity of Cys-loop receptors to EMFs. The single-channel amplitude of AChR channels is not affected by the EMF, revealing that the reduction of macroscopic currents is originated from a change in the activation kinetics and not in the ion permeability of the receptor. In accordance with this, open time histograms change in EMF-exposed AChRs. Our results reveal that EMFs affect ligand-gated ion channel function and open doors to understand the mechanistic of such effect.

Synaptic Transmission and Excitability
Poster Number 243 | **Session 3**

"Functional maturation of striatal cholinergic interneurons during adolescence"

Cecilia Tubert, Gonzalo Sánchez, Lorena Rela, Gustavo Murer
Laboratorio de Fisiología de Circuitos Neuronales, Departamento de Fisiología, Facultad de Medicina, UBA.
cecitubert@gmail.com