XXVIII CONGRESO ANUAL DE LA SOCIEDAD ARGENTINA DE INVESTIGACIÓN EN NEUROCIENCIAS

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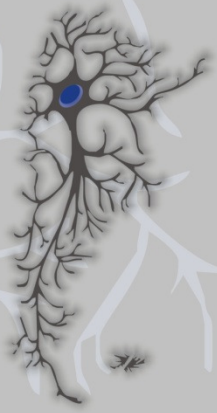
Reunión Satélite / Neurobiología del Comportamiento:
"Neuroetología y Neurobiología de la Memoria en el Cono Sur"

Septiembre 30 - Octubre 4, 2013, Huerta Grande, Córdoba, Argentina.



SAN

SOCIEDAD ARGENTINA DE
INVESTIGACIÓN EN NEUROCIENCIAS

XXVIII CONGRESO ANUAL DE LA
SOCIEDAD ARGENTINA DE INVESTIGACION EN NEUROCIENCIAS

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Reunión satélite sobre Neurobiología del Comportamiento:
"Neuroetología y Neurobiología de la Memoria en el cono sur"
Un homenaje a Héctor Maldonado

PROGRAM

Monday September 30th: SATELLITE DAY 1

09:00: **Registration**

10:30: **Introduction**

11:00: **Symposium on Neurobiology of Memory I - International Society for Neurochemistry Symposium (**Room A)
Chair: Arturo Romano
Jorge Quillfeldt, Dep. de Biofísica, PPG Neurociências ICBS. Universidade Federal de Rio Grande do Sul, Brasil.
"Exploring the possible physiological roles of memory reconsolidation: reativation enables updating, precision-keeping and strenghtening"
Arturo Romano, IFIBYNE-CONICET, FCEN-Universidad de Buenos Aires, Argentina
"Enduring memories and the NF-kB-dependent chromatin regulation"
Rafael Pagani, Departamento de Cs Fisiológicas, FMED-Universidad de Buenos Aires, Argentina.
"Understanding Learning Disability"
Valeria Della Maggiore, Departamento de Cs Fisiológicas, FMED, Universidad de Buenos Aires, Argentina.

Neurochemistry and Neuropharmacology
Poster Number 171 / Session 3

Stoichiometry for Activation of Neuronal α7 Nicotinic Receptors

Natalia Andersen[1°], Jeremías Corradi[1°], Steven Sine[2°], Cecilia Bouzat[1°]
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Neuronal α7 nicotinic receptors are homopentameric ligand-gated ion channels (LGICs) that participate in cognition, synaptic plasticity and neuroprotection, and have emerged as therapeutic targets for treatment of neurological disorders. α7 often localizes distal to sites of nerve-released ACh, binds ACh with low affinity, and thus elicits its biological response with partial occupancy of its five identical binding sites. We therefore addressed the question of how α7 operates at these physiological conditions. To assess function of α7 when neurotransmitter occupies fewer than five binding sites, we generated α7 receptors with a different number of functional neurotransmitter binding sites. By measuring open-channel lifetime of individual receptors, we found that only one occupied site allows maximal response and that the additional sites allow enhanced agonist sensitivity. In contrast to α7, we found that open-channel lifetime of a receptor formed by the extracellular domain of α7 and the transmembrane region of 5-HT3A (α7-5HT3A) is dependent on the number of functional binding sites. Our results reveal that: i) the agonist binding domain is not sufficient to determine the relationship between agonist occupancy and open-channel stability and, ii) the distinctive ability of a single occupancy to elicit a full biological response adapts α7 to volume transmission, a prevalent mechanism of ACh-mediated signaling in the nervous system and non-neuronal cells.