SAN2020
E-BOOK

Welcome

In the context of the COVID19 pandemic, the XXXV Annual Meeting of the Argentinian Society for Neuroscience Research took place under a ***virtual*** *format, opening an opportunity to widely reach the neuroscience community in Argentina and abroad.*

Conserving the classical structure the meeting included ***plenary lectures***, ***symposia***, ***young investigator talks*** *and* ***poster presentations***, *as well as* ***round tables*** *discussing career advancement, work environment topics and a special event dedicated to LATBrain (Latin American Brain Iniciative).*

The meeting was supported, as every year, on the principles of ***scientific excellence*** *and* ***nationwide representation, with a special emphasis in gender equality***.

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SENSORY AND MOTOR SYSTEMS

Optogenetic activation of olivocochlear efferent fibers fibers: in the quest for the source of GABA.

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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 α9 and α10 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 channelrodhopsin (ChR2) in GABAergic and cholinergic fibers were used. We show here for the first time, that MOC fibers can be optogenetically activated in ChAT-Cre/ChR2 mice (n=3).

In addition, immunohistochemistry techniques were used to characterize expression in these transgenic mice. 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.