



FENS Forum 2008

For posters, morning sessions: 9:30-13:30; afternoon sessions 13:30-17:30.
Authors are expected to be in attendance at their posters at the time indicated.
For other sessions, time indicates the beginning and end of the sessions.

First author Serrano, M.Carmen (poster)

Poster board B26 - Sun 13/07/2008, 11:30 - Hall 1

Session 010 - Neurotransmitters 1

Abstract n° 010.26

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Authors Serrano M. C. (1), Pérez-Ortiz J. M. (1), Pastor M. D. (1), Martín E. (1), Calvo S. (1), Rincón M. (2) & Tranque P. (1)

Addresses (1) Dpt. Med. Sciences, Med. Sch. CRIB, Univ. Castilla-La Mancha, Albacete, Spain; (2) Immunobio. Prog., Univ. Vermont, Burlington, USA

Title Involvement of NFATc1 in astrocyte response to lesion: role of ATP and purinergic receptors.

Text The nuclear factor of activated T-cells (NFAT) is a family of transcription factors that, in response to increased intracellular calcium levels, are dephosphorylated by calcineurin and translocated to the nucleus. NFAT proteins are essential for activation of several immune cells. Besides, preliminary data indicates that NFAT may also regulate the pro-inflammatory functions of astrocytes. Here we examine NFATc1 and NFATc2 expression in primary astrocyte cultures and their involvement in astrocyte response to a mechanical lesion. Quantitative RT-PCR, Western blot and immunofluorescence microscopy analysis confirmed expression of NFATc1, but not NFATc2 in these cells. Moreover, NFATc1 rapidly translocated to the nucleus in response to wound lesions. We also found that ATP released by lesion mediates NFATc1 activation, and that the underlying mechanism involves purinergic receptor stimulation and a raise in intracellular calcium. A wide range of agonists and antagonists was tested in order to elucidate the specific purinergic receptor subtypes implicated in lesion-triggered NFAT activation. In summary, NFAT may control critical events associated to astrocyte response to brain trauma. Thus, further knowledge of the NFAT signaling pathway in astrocytes may be beneficial for the control of neuroinflammation.
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Theme B - Neural excitability, synapses and glia: cellular mechanisms
Neurotransmitters and signaling molecules - Glutamate
