Neuroscience Institute Cavalieri Ottolenghi

NICO

UNIVERSITÀ DEGLI STUDI DI TORINO

FONDAZIONE CAVALIERI OTTOLENGHI

Thursday, 2nd July - h 14:00

Seminar room, NICO

Expression and functional characterisation of transient receptor potential vanilloid-related channel 4 (TRPV4) in hippocampal astrocytes after ischemia/reperfusion

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During cerebral ischemia a rapid increase of intracellular calcium ([Ca2+]i) initiates dramatic changes in the nervous tissue leading to apoptotic and necrotic cell death and reactive gliosis. Propagating [Ca2+]i waves evoked by ischemia can spread through the astroglial syncytium for a long distance and cause damage in distal CNS regions.

It has been suggested that in astrocytes the massive and uncontrolled plasmalemal Ca2+ entry after hypoxia/ischemia could be mediated by the activation of diverse Ca2+-permeable cation channels and potentially by transient receptor potential vanilloid-related channel 4 (TRPV4). However, to the best of our knowledge, the role of astrocytic TRPV4 channels during in vivo ischemic injury has not yet been defined. In the first part of the seminar we will discuss pathological changes in the CA1 region of the adult rat hippocampus during the reperfusion after cerebral hypoxia/ischemia (H/I).

The second part of the seminar will be dedicated to the pathophysiological role of TRPV4 channels in adult rat astrocytes – we will talk about the functional expression of TRPV4 channels 1 hour (acute phase of reperfusion) and 7 days (late phase of reperfusion) after H/I in situ as well as in vitro.

Host:
Alessandro Vercelli