TIFR Centre for Interdisciplinary Sciences, Narsingi, Hyderabad 500075

Seminar

Tyrosine phosphatase STEP: a potential target for protection against ischemic brain damage

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Abstract: The tyrosine phosphatase STEP is a component of the NMDA receptor mediated excitotoxic signaling pathway, which plays a key role in ischemic brain injury. Using neuronal cultures and a rat model of ischemic stroke we show that STEP plays an initial role in neuroprotection during the insult by disrupting the p38 MAPK pathway. Degradation of active STEP during reperfusion precedes ischemic brain damage and is associated with secondary activation of p38 MAPK. Application of a cell-permeable STEP-derived peptide that is resistant to degradation and binds to its substrates protects cultured neurons from hypoxia-reoxygenation injury and reduces ischemic brain damage even when injected 1.5 hour after the insult. Conversely, genetic deletion of STEP in mice exacerbates infarct size and neurological deficits following ischemia. The findings indicate a neuroprotective role of STEP and suggest a potential role of the STEP-derived peptide in stroke therapy.

***Date*: Tuesday, March 19th 2013**

***Time*: 11:30AM (Tea/Coffee at 11:15AM)**

***Venue*: Conference Hall, TCIS**

All are cordially invited