



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 Pastor Herrera, M^a Dolores (poster)

Poster board C96 - Sun 13/07/2008, 16:00 - Hall 1

Session 051 - Ischemia 1

Abstract n° 051.34

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Title Protective roles of ribosomal S6 kinase against astrocyte ischemia.

Text Ribosomal S6 kinases are a family of serine-threonine kinases involved in translation, cell survival and cell size control; whose role in ischemia has not yet been elucidated. However, downregulation of S6K has been linked to reduction of translation rates and poor prognosis in several in vivo models of cerebral ischemia. This work was designed to analyze the functions of S6K in the astrocyte response to ischemia. Using primary cultures of mouse astrocytes and oxygen and glucose deprivation (OGD) as an in vitro model of ischemia, we have observed that S6K1 mRNA is reduced by OGD. mRNA downregulation is followed by a pronounced decrease of both phosphorylated-active and total S6K protein forms. Interestingly, astrocyte viability following OGD was deeply impaired in the presence of rapamycin, which inactivates mTOR, a S6K kinase necessary for S6K activation. The effects of S6K on astrocytes viability were further analyzed in astrocytes obtained from S6K1 and S6K2 knockout mice. Ischemia-induced astrocyte damage was significantly increased in S6K^{-/-} astrocytes, which also displayed lower Bad phosphorylation and Bcl-x1 mRNA levels. All together, our work suggests that S6K plays an essential role in astrocyte survival to ischemia by regulating both pro- and anti-apoptotic signals.

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Theme C - Disorders of the nervous system
Ischemia - Cellular and molecular mechanisms
