Ischemia-Responsive Protein (irp94) Gene Expression in Neurons

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An increased expression of the ischemia-responsive protein gene (irp94) was detected in a Mongolian gerbil brain after an ischemic injury, particularly in the cerebral cortex and hippocampus. In a rat phaeochromocytoma tumour cell line (PC12 cells), actinomycin D blocked the irp94 gene expression but cycloheximide did not. This indicates that irp94 gene expression is transcriptionally controlled. The half-life of irp94 mRNA was estimated to be approx. 5 h using 5,6-dichloro-1-β-D-ribofuranosylbenzimidazole (DRB). In addition, irp94 expression was enhanced by either endoplasmic reticulum (ER)-stress-inducible drugs or protease inhibitors. This suggests that irp94 gene expression is strongly associated with the unfolded protein response (UPR) in neurons.

Key words: Ischemia-Responsive Protein (irp94) Gene, Mongolian Gerbil, PC12 Cells