

P037 Exogenous hsp27 rescues motoneurons from cell death induced by apoptotic stimuli
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We have recently shown that increasing levels of hsp70 and hsp90 rescues motoneurons in SOD1 mice, a mouse model of Amyotrophic Lateral Sclerosis¹. Evidence suggests that the small hsp, hsp27 may also be neuroprotective. In both SOD1 mice and in an injury model of motoneuron degeneration, motoneurons up-regulate hsp27 expression^{2,3}. Moreover, motoneurons that survive injury and express hsp27 do not express markers of apoptosis⁴. Here, we examined the effect of exogenously applied hsp27 on motoneuron survival following exposure to apoptotic stimuli *in vitro*.

Primary motoneuron cultures were prepared from rat embryos or wild-type and SOD1 mouse embryos and exposed to a variety of apoptotic stimuli in the presence or absence of purified hsp27. The effect on neuronal survival was assessed 24 hours later. Cultures were stained with trypan blue, fixed and processed for immunocytochemistry using motoneuron-specific antibodies. The results showed that co-treatment with hsp-27 rescued a significant proportion of motoneurons from apoptotic cell death. Surprisingly, there was no difference in the extent of degeneration of motoneurons prepared from wild-type and SOD1 animals.

1. Kieran et al., (2004) Nat Med. 10, 402-405.
2. Vleminckx et al., (2002) J. Neuropathol. Exp Neurol. 61:968-974
3. Kalmar et al. (2002) J. Neurotrauma 19:667-679.
4. Kalmar et al., (2002) Exp. Neurol. 176, 87-97.