

Poster 6-23

INCREASED SURVIVAL OF AUDITORY NEURONES TREATED WITH LIF.

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Degeneration of spiral ganglion cells (SGC) is one of the most common correlates of sensorineural hearing loss (1). Several lines of evidence show that the continued supply of growth factors is responsible for maintaining auditory neurone integrity (2). In the present study SGC cultures were used as a model of auditory innervation to test the ability of the cytokine leukaemia inhibitory factor (LIF) and the neurotrophin NT-3 to promote neuronal survival individually or in combination. The data demonstrate that LIF promotes the survival of SGC in a concentration-dependent manner, with a significant increase in neuronal survival at concentrations as low as 0.1 ng/ml compared to untreated wells ($p < 0.05$), and a maximum neuronal survival at 10 ng/ml. In addition, when used in combination LIF and NT-3 were more effective in promoting neuronal survival than either factor individually, with a significant increase in survival at concentrations of $0.1 \text{ ng ml}^{-1} / 0.1 \text{ ng ml}^{-1}$ (LIF/NT-3). To our knowledge this is the first study reporting that LIF has trophic activity on SGC. Moreover, the data suggest that a combination of several growth factors may provide a better approach when developing pharmacological therapies for auditory neuron repair.

1. Otte *et al.* (1978) *Laryngoscope*, 88:1231-1246.
2. Lefebvre *et al.* (1992) *Hearing Research*, 58:185-192



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