

P060 Role of microglial activation in the inhibition of LTP induced by amyloid beta(A β)

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There is overwhelming evidence to suggest that Amyloid beta (A β) leads to activation of microglia (Tuppo and Arias, 2005, Gasic *et al.*, 2003, Meda *et al.*, 1995) with the consequent increase in production of inflammatory cytokines such as Interleukin-1 beta (IL-1 β). It has been reported that acute intracerebroventricular (icv) injection of A β leads to inhibition of Long-term potentiation (LTP) in the perforant path granule cell synapses and it has been shown that this is associated with an increase in hippocampal IL-1 β concentration and activation of stress activated protein kinase, JNK (Minogue *et al.*, 2003). Here we report that attenuation of A β -induced microglial activation by the substance minocycline blocks the increase in IL-1 β concentration in cultured glial cells. We also demonstrate *in vivo* treatment with minocycline inhibited A β induced microglia activation and the accompanying increase in hippocampal IL-1 β concentration is attenuated. Furthermore we show that *in vivo* treatment of rats with minocycline blocks A β induced inhibition of LTP.

These data pinpoint a significant role for microglial activation in A β -induced deficit in synaptic function.