

Intra-axonal mRNA expression in the adult sciatic nerve *in vivo*
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Neurons throughout the nervous system are highly polarised cells connecting with each other through specialised fibre structures called dendrites and axons. Some of these fibres are highly plastic as reflected for example in their ability to change their connectivity or to regenerate after injury. Plasticity is, among others, dependent on the synthesis of new proteins. The classic view that mRNA molecules and protein synthetic machinery are present exclusively in the neuronal cell body has been challenged by *in vitro* studies showing mRNA localisation in dendrites and axons. Several factors involved in the synthesis of proteins were also shown to be present. For instance, studies on axons from dorsal root ganglion (DRG) neurons *in vitro* showed intra-axonal localisation of β -actin mRNA and protein synthetic machinery (Zheng et al, 2001). Local synthesis of proteins in the axon rather than in the neuronal cell body might be of great importance for neuronal plasticity. To date, however, there is little evidence of intra-axonal mRNA expression in DRG axons *in vivo*. We aim to investigate whether mRNA molecules can be expressed in DRG axons *in vivo* by performing quantitative PCR on sciatic nerve for genes not expressed in Schwann cells. In order to achieve accumulation of mRNA molecules transported to the periphery, we performed a sciatic nerve transection and ligation.

Zheng J.-Q. et al. (2001) J. Neurosci. 21: 9291-9303

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