2-O-45

Oral Sessions

Hypoxia induced factor-1 α participates in Schwann cell differentiation in peripheral nerves.

Yuka Ujiie-Kobayashi¹, Shuji Wakatsuki¹, Toshiyuki Araki¹

¹Dept. PNS Res., NCNP.

Schwann cells (SC) generate myelin sheath in the peripheral nervous system. SC differentiation stages observed during development as well as degeneration/regeneration of the peripheral nerve have been characterized by the expression of genes specific for each stage. However, it remains unclear how these genes regulate SC differentiation and peripheral myelination. Here, we show the involvement of hypoxia induced factor-1 α (HIF-1 α) in the regulation of SC differentiation and myelination. Expression of HIF-1 α in SC increased during development of peripheral nerves. Hypoxic treatment, application of a HIF-1 α stabilizing drug, and overexpression of HIF-1 α , bearing a mutation which gives resistance to proteasomal degradation, activated the expression of myelin related genes in SC and facilitated myelination *in vitro*. Expression of HIF-1 α was also observed in SC in peripheral nerves after injury. In addition, the number of myelinating axons was increased by an local application of a HIF-1 α stabilizing drug. These findings suggest that HIF-1 α might be involved in SC differentiation and peripheral myelination during development as well as regeneration after injury. We are now investigating whether HIF might be a potential therapeutic target for inherited neuropathy such as Charcot-Marie-Tooth disease.