New approaches to *in vitro* myelination

In *vitro* studies have shown that when carbon or glass fibers were co-cultured with oligodendrocytes an initial contact with the fibers was established. However, no myelination of artificial axons was observed. This study aimed at establishing a similar *in vitro* system which could be used to find out whether the axonal growth factor NRG1 type III is sufficient to induce myelination. Different fiber materials were tested to find out whether they can be used in such a system. We concentrated our tests on viscose. It was pretreated to increase its reactivity to the protein of interest. Fluorescent labelled antibodies were coupled first to the fiber to test their ability to react. The fiber was added to Schwann cells and oligodendrocytes and the effect on them was observed by staining against differentiation makers. We found an initial contact between the fiber and myelinating glia. Schwann cells however behaved differently. They aligned parallel to the artificial fiber, just as they do in co-culture with primary neurons. We were also able to stably bind fluorescently labelled antibody to viscose.

Additionally *in vitro* myelination co-culture of dorsal root ganglion neurons with oligodendrocytes or Schwann cells was established.