

P046 Nerve growth factor induces chondroitin sulfate expression in the developing chicken brain tissue

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Nerve growth factor (NGF) plays an important role in neuronal development, and in the formation and plasticity of synaptic connections. These effects of NGF are at least partially due to the ability of the neurotrophin to increase protein synthesis both globally and locally. Proteoglycans, as part of the extracellular or cell-surface milieu of most tissues, play important roles in morphogenesis by modulating cell-matrix or cell-cell interactions, cell adhesiveness, or by binding and presenting growth and differentiation factors. Chondroitin sulfate proteoglycan is one of the most abundant extracellular matrix molecules in the brain. It is primarily synthesized by astrocytes and is believed to influence astroglial motility during development and under certain pathological conditions. In this study the effects of NGF on chondroitin sulfate expression in the developing brain have been investigated. NGF was injected into the cerebrospinal fluid through cisterna magnum. Using immunohistochemistry and Western blotting, it was found that chondroitin sulfate level is increased in the brain tissues in response to infusion of NGF into the cerebrospinal fluid. It is concluded that NGF may play role in the brain development by enhancing expression of chondroitin sulfate.