

Brevican and phosphacan expression and localization following transient middle cerebral artery occlusion in the rat.

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Abstract

The ECM (extracellular matrix) is a complex molecular framework that provides physical support to cells and tissues, while also providing signals for cell growth, migration, differentiation and survival. The ECM of the CNS (central nervous system) is unusual in that it is rich in CSPGs (chondroitin sulfate proteoglycans), hyaluronan and tenascins. The CSPGs are widely expressed throughout the developing and adult CNS and have a role in guiding or limiting neurite outgrowth and cell migration. Alterations in the synthesis or breakdown of the ECM may contribute to disease processes. Here, we examine changes in the brain-specific CSPGs, brevican and phosphacan, following transient middle cerebral artery occlusion, a model of stroke in the rat. We have investigated their expression at various time points as well as their spatial relationship with ADAMTS-4 (a disintegrin and metalloprotease with thrombospondin motifs 4). The co-localization of ADAMTS or its activity may indicate a functional role for this matrix-protease pair in degeneration/regeneration processes that occur in stroke.

PMID: 17635124 [PubMed - indexed for MEDLINE]