

BIOCHEMICAL AND MOLECULAR BIOLOGICAL STUDIES ON A CELL ADHESION MOLECULE INVOLVED IN MEMORY CONSOLIDATION

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Secreted cell adhesion molecules of the extracellular matrix guide the migration of neuroectodermal cells during development and provide a substrate for the elongation of regenerating neurites. After active shock avoidance conditioning in goldfish, such a CNS-specific cell adhesion molecule (ependymin) is rapidly induced in endomeningeal cells (quantitative in situ hybridization), secreted (radioimmuno assay measurements) and incorporated into neurons of the optic tectum (electron microscopic immunohistochemistry). Injection of anti-ependymin antibodies inhibits long-term memory formation, probably by interference with the redistribution of this cell adhesion molecule. The primary structure of ependymin comprises two N-glycosylation sites, the L2/HNK-1 epitope, and independent binding sites for calcium and zinc ions which are involved in the regulation of the ependymin conformation (Supported by the Deutsche Forschungsgemeinschaft).