

METABOLISM AND DISTRIBUTION OF EPENDYMINS IN GOLDFISH BRAIN

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Ependymins are goldfish brain proteins exhibiting a specifically enhanced synthesis when the animals acquire a new swimming pattern (Shashoua, 1976). Antisera against them inhibit consolidation of the newly acquired behaviour if they are injected into the CSF after training (Shashoua & Moore, 1978). A specific RIA has been developed for quantitative analysis of the ependymins (Schmidt & Shashoua, *J. Neurochem.* 36, 1368). They were shown to be brain-specific glycoproteins which occur in untrained animals as dimeric molecules (52-64k M.W.) in the cytoplasm and in the extracellular fluid. After training they are secreted into the CSF. The RIA and immunohistochemical methods were used to localize them in cells of the ependymal zone. These cells were grown in culture and secrete ependymins into the culture medium. In the CSF dimeric ependymins dissociate into their polypeptide chains and undergo further proteolytic cleavage into smaller polypeptides. During this process ependymin β (32k) is converted into ependymin γ (26k). The amino acid compositions of the proteins have been determined. A possible mechanism for the action of ependymins during memory consolidation will be discussed.