QUANTITATIVE ANALYSIS OF GOLDFISH BRAIN PROTEINS INVOLVED IN MEMORY CONSOLIDATION

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It is known that inhibitors of protein synthesis can interfere with the consolidation of long term memory. In goldfish specific brain proteins have been identified which show an enhanced metabolism after training. Antisera against them inhibit long term memory formation when injected into the IV. brain ventricle (for review see Shashoua, 1980, in Neural Basis of Behavior Symposium, Spectrum Publications, Holliswood, N.Y.). A very sensitive and specific radioimmunoassay for one of these proteins, Ependymin ß (Schmidt & Shashoua, 1981, J. Neurochem. in press), was used to analyse its cellular and subcellular distribution and possible changes after training. The RIA was also applied to investigate precursor molecules of Ependymin ß and its degradation products. Ependymin ß occurs in brain cytoplasm of untrained animals, is secreted into extracellular spaces and becomes removed via blood stream. It can be secreted in cell culture.