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Acetylcholine synthesis is modulated by acetylcholine content of cytosolic fraction but not by that of releasable fraction*

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Synthesis and release of acetylcltoline (ACh) in the rat hippocampal slices were examined to clarify the mechanism of modulation of ACh synthesis. Treatment with 2-(4-phenylpiperidino) cyclohexanol (AH 5183, 50 μM), an inhibitor of ACh transport from cytosol to synaptic vesicles, inhibited the increase in ACh content of the membrane-bound fraction which is readily releasable, but did not affect the cytosolic ACh content. Under these conditions. The total ACh content reached a plateau value. These results indicate that ACh synthesis is modulated by cytosolic ACh content but not by the vesicular fraction.

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