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Extraneuronal Localization of Acetylcholine and Its Release upon Nicotinic Stimulation in Rabbits*

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A study was undertaken to examine the origin of plasma acetylcholine (ACh). The ACh content of blood cells was about 25 times higher than that of plasma in normal rabbits (3,722 vs 140 pg/ml blood, $n=7$). Plasma ACh content in rabbits having antibody against ACh was about 80 times higher than in normal rabbits, while no difference was observed in the ACh content of blood cells between the groups. Nicotine (100 $\mu\text{g}/\text{kg}$, i.v.) produced a significant increase in plasma ACh content and a decrease in the ACh content of blood cells in normal rabbits. These data demonstrate that a large amount of ACh is localized in blood cells and that a considerable proportion of plasma ACh originates from blood cells, suggesting that ACh acts not only as a neurotransmitter but also as an autacoid.

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