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Author	鈴木, 岳之(Suzuki, Takeshi) 藤本, 和子(Fujimoto, Kazuko) 大畑, 尚代(Ohata, Hisayo) 川島, 紘一郎(Kawashima, Koichiro)
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Presynaptic M_1 muscarinic receptor modulates spontaneous release of acetylcholine from rat basal forebrain slices

Takeshi SUZUKI, Kazuko FUJIMOTO, Hisayo OOHATA,
and Koichiro Kawashima

鈴木岳之，藤本和子，大畑尚代，川島紘一郎

Spontaneous release of acetylcholine (ACh) from rat basal forebrain slices in the presence of cholinesterase inhibitor was directly determined using a specific radioimmunoassay for ACh. The release was calcium dependent. A consistent amount of ACh release was observed throughout the experiment. Atropine (10^{-8} to 10^{-5} M) and pirenzepine (10^{-7} to 10^{-5} M) enhanced spontaneous ACh release. These findings indicate the presence of an M_1 muscarinic autoreceptor that modulates spontaneous release of ACh in the rat basal forebrain.

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