RAPID DESENSITIZATION OF RECEPTORS FOR PITUITARY ADENYLATE CYCLASE-ACTIVATING POLYPEPTIDE (PACAP) IN CHICK CEREBRAL CORTEX

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Pituitary adenylate cyclase-activating polypeptide (PACAP) potently stimulates cyclic AMP formation in slices of chick cerebral cortex. One- to fifteen-minute pretreatment of slices with 30 nM PACAP led to a time-dependent attenuation (when compared with values observed in the control tissue) of the cyclic AMP response produced by subsequent re-stimulation with 1 µM PACAP. Concentration-response curve for re-stimulation with PACAP applied at 0.01–1 µM to tissue slices preincubated for 15 min with 30 nM PACAP revealed dose-dependent decreases in subsequent cyclic AMP responses by 16–37%. It is concluded that in chick cerebral cortex, the receptors mediating PACAP-driven cyclic AMP responses (PAC1 receptors) undergo rapid homologous desensitization.

Key words: pituitary adenylate cyclase-activating polypeptide, PACAP, PAC1 receptor, cyclic AMP, desensitization, chick brain

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