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**Short communication**

## Effect of cocaine on responsiveness of $\alpha_1$ -adrenergic receptors in rat cerebral cortex: modulation by GABA-mimetic drugs

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**Abstract:**

We investigated the effects of single doses of cocaine (10 mg/kg, *ip*) and the  $\gamma$ -aminobutyric acid (GABA)-mimetics tiagabine (10 mg/kg, *ip*) and vigabatrin (150 mg/kg, *ip*) injected separately or concomitantly with cocaine, on the responsiveness of cerebral cortical  $\alpha_1$ -adrenergic receptors. The accumulation of noradrenaline-stimulated inositol phosphates was estimated *in vitro* at 2 and 24 h after the drug injection. Cocaine significantly enhanced  $\alpha_1$ -adrenergic receptor responsiveness to noradrenaline. Neither tiagabine nor vigabatrin influenced the accumulation of inositol phosphates. Finally, the cocaine-evoked augmentation of  $\alpha_1$ -adrenoceptor responsiveness was counteracted by tiagabine but not by vigabatrin. This effect may represent a characteristic feature of tiagabine, not necessarily shared by other GABA-mimetic drugs.

**Key words:**

$\alpha_1$ -adrenergic receptor, inositol phosphate, rat cerebral cortex, cocaine, tiagabine, vigabatrin

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