



Inhibition of neophobia-stimulated c-Fos expression in the dorsomedial part of the prefrontal cortex in rats pretreated with midazolam

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Abstract:

The effect of an anxiolytic drug, midazolam, on the expression of c-Fos protein (the product of the immediate early gene, *c-fos*) in the rat brain was studied in animals that were exposed to the stress of neophobia using the open field test. Midazolam (0.5 mg/kg, *ip*) selectively and significantly attenuated the neophobia-induced increase in the number of Fos-like immunoreactive neurons in the dorsomedial part of the prefrontal cortex, but not in the primary motor cortex, the piriform cortex or the amygdalar nuclei. Overall, the effects of midazolam indicate that the prefrontal cortex is a likely candidate region in which drugs exert their anxiolytic action, and that the dorsomedial part of the prefrontal cortex may participate in the formation and expression of acute innate fear responses.

Key words:

open field test, neophobia, c-Fos, prefrontal cortex, midazolam
