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Short communication

NMDA and AMPA receptors are involved in the antidepressant-like activity of tianeptine in the forced swim test in mice

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Abstract:
It is known that tianeptine exhibits antidepressant-like activity. Its influence on the glutamatergic system is also known, but the mechanisms involved in this activity remain to be established. The aim of this study was to investigate the involvement of the glutamate pathway in the antidepressant-like action of tianeptine. We investigated the effects of *N*-methyl-D-aspartate (NMDA) and α-amino-3-hydroxy-5-methyl-4-isoxazole propionate (AMPA) receptor ligands on tianeptine-induced activity in the forced swim test (FST) in mice. The antidepressant-like activity of tianeptine (30 m/kg, *ip*) was significantly antagonized by D-serine (100 nmol/mouse *icv*) and NBQX (10 mg/kg, *ip*). Moreover, low, ineffective doses of the glycine/NMDA site antagonist L-701,324 (1 mg/kg, *ip*) administered together with low, ineffective doses of tianeptine (20 mg/kg, *ip*) exhibited a significant reduction of immobility time in the FST. These doses of the examined agents, which did have an effect in the FST, did not alter locomotor activity. The present study indicates that the antidepressant-like activity of tianeptine in the FST involves both NMDA and AMPA receptors and suggests that the interaction between serotonergic and glutamatergic transmission may play an important role in the action of tianeptine.

Key words:
tianeptine, forced swim test, NMDA, AMPA, receptors, mice