



## Antidepressant treatments-induced modifications of glutamatergic transmission in rat frontal cortex

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### Abstract:

The effects of repeated administration of imipramine, citalopram, tianeptine and zinc hydroaspartate, lasting 7, 14 and 21 days, were studied *ex vivo* in rat frontal cortical slices prepared 48 h after the last dose of the drug. In a majority of cases the treatments resulted in a decrease in the amplitude of pharmacologically isolated N-methyl-D-aspartate (NMDA) and  $\alpha$ -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA)/kainate receptor-mediated components of the field potential. Zinc and tianeptine-induced effects were evident already after treatments lasting 7 days. Electroconvulsive shocks applied for 10 but not for 5 days reduced both the AMPA/kainate and the NMDA receptor-mediated components. The ratios of the amplitude of NMDA to AMPA/kainate component were altered to a different degree. These results indicate that repetitive treatment with antidepressants, zinc salt and electroconvulsive shocks results in an attenuation of glutamatergic synaptic transmission in the cerebral cortex, but the dynamics of the effects of these treatments vary.

### Key words:

field potential, cortical slice, imipramine, citalopram, tianeptine, zinc, electroconvulsive shock

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