

# **Negative regulation of brain-derived neurotrophic factor mRNA expression by kainic acid in substantia nigra**

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## **Abstract**

By using in situ hybridization, we have demonstrated that kainic acid (KA) administration decreases brain-derived neurotrophic factor (BDNF) mRNA expression in the substantia nigra pars compacta of adult rat. In addition, RT-PCR analysis indicated that transcripts derived from exons 1a and 1c of the BDNF gene were strongly decreased after KA treatment. Conversely, in dentate gyrus this treatment increased the expression of BDNF mRNAs derived from exons 1b, 1c and 1d. Our data show, contrarily to what is observed in most brain structures, that KA exerts a negative regulatory effect on BDNF mRNA expression in the adult substantia nigra.