

and induction the sense of well being, which are all (at least partly) resulting of serotonergic system activity. Although there are many studies about the effects of Ritalin on developing brain, there are just a few about adults. Here we tried to find if Ritalin can affect the SERT density in mature medial frontal cortex.

Methods: Thirty male wistar rats were enrolled in the study. Rats were assigned into five groups; control, two Ritalin and two vehicle groups. Twelve rats received Ritalin 5mg/kg/BD for eleven days. After one week withdrawal time six rats were sacrificed for study the short-term effects of Ritalin and 12 weeks later the last six rats brain were studied for long-term effects.



Evaluation of NT3 gene expression in bone marrow stromal stem cell

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Introduction: Neurotrophin-3 (NT-3), is a neurotrophic factor in the Nerve Growth Factor(NGF) family of neurotrophins. It is a protein growth factor which has activity on certain neurons of the central nervous system; it helps the survival and differentiation of existing neurons, and causes the growth and differentiation of neurons and synapses. NT-3 was the third neurotrophic factor to be characterized, after NGF and BDNF(Brain Derived Neurotrophic Factor). **Materials and Methods:** In order to obtain high-level expression of recombinant human NT-3, we constructed expression plasmids and examined bone marrow stromal stem cell for expression of the human NT-3 gene. In this study first we transformed E. coli with p express-1 vector containing nt3 rat gene and subcloned this gene into psectag vector and then used it for transfection of bonemarrowstromalstemcell.

Results: We evaluate the expression of this gene by RT-PCR and western blotting techniques. **Conclusion:** Our results indicate high expression level of nt3 in bone marrow stromal stem cells.

Keywords: NT-3, BMSCs, Gene therapy



A new multistep induction protocol for the transdifferentiation of BMSCs into GABAergic neurons

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