

## The effect of selegiline on neural stem cells differentiation: An *in vitro* study

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**Background and Aims:** In recent years, the study of neural stem cells differentiation has attracted great attention in management of CNS disorders. In this investigation the effects of selegiline on neural stem cells differentiation has been evaluated.

**Methods:** The neural stem cells were isolated from lateral ventricle of C57 mice brain. The cells were exposed to selegiline in nano- to micromolar concentrations for 7 days. Immunocytochemical assay has been used to evaluate the differentiation rate to neuron, astrocyte or oligodendrocyte. Data were analyzed by one-way ANOVA and  $P < 0.05$  was considered statistically significant.

**Results:** The results showed that selegiline increased the beta tubulin positive cells (neuron, 0.001 to 0.1  $\mu\text{M}$ ) and the GFAP positive cells (Astrocyte, 1nM) compared to vehicle treated cells. In addition, the results indicated that selegiline in 1 $\mu\text{M}$  decreased both beta tubulin and GFAP positive cells.

**Conclusions:** In conclusion, we found that selegiline increased the differentiation of neural stem cells to neuron and astrocyte.

**Keywords:** Neural stem cells; Selegiline; Differentiation