

Studies on Proliferation and Migration of Glioma Cells for Development of an Artificial Nerve Tubing

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In an attempt to provide useful information on the development of an artificial nerve tubing, proliferative and migrative properties of two glioma cell lines, C6 rat glioma cells and Hs683 human glioma cells, were examined. The present study shows that C6 cells proliferated more rapidly than Hs683 cells. The Hs683 cells are more adequate for the development of nerve tubing since unlike C6 cells, they are of human origin and known to be non-tumorigenic. In order to enhance proliferative and migrative abilities of Hs683 cells for the application as an artificial nerve tubing, we studied the effect of glial cell-derived neurotrophic factor (GDNF) on Hs683 cells. Cells were seeded in the scaffolds (polymer constructs), fabricated with type I collagen and alginate modified with cinnamoyl moiety, in the presence or absence of GDNF. Stimulatory effect of GDNF on the proliferation and migration of Hs683 cells cultured in the scaffolds is currently under investigation. In addition, possible neuroprotective activities of natural products which inhibit staurosporine-induced apoptosis of glioma cells are also being studied.