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Generation of recombinant adenoviruses and lentiviruses expressing angiogenic and neuroprotective factors using Gateway cloning technology

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Abstract

The critical aspect in gene and gene-cell therapy is to find an optimal vector - a carrier of genetic information. Viruses represent a natural biological system for gene transfer into eukaryotic cells. One of the most effective and proven vectors for delivery of recombinant nucleic acids into mammalian cells are adenoviruses and lentiviruses. In this study using the Gateway cloning we have constructed adenoviral and lentiviral vectors encoding angiogenic and neuroprotective factors: various isoforms of vascular endothelial growth factor vegf121, vegf165, vegf189; basic fibroblast growth factor fgf2; glial cell-derived neurotrophic factor gdnf. The efficiency of transduction of HEK293A cell line with generated recombinant viruses and expression of recombinant proteins were confirmed by immunofluorescent analysis.

Keywords

Adenovirus, Basic fibroblast growth factor, Gateway cloning, Glial cell-derived neurotrophic factor, Lentivirus, Vascular endothelial growth factor