عنوان مقاله:

The Effect of Noggin on the Differentiation of Human Amniotic Epithelial Cells into Neuronal Fate

محل انتشار:

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خلاصه مقاله:

Stem cells are promising tool for treatment of a variety of diseases such as neurodegenerative diseases (e.g. Spinal cord injury, Multiple Sclerosis, and Parkinson disease). Using proper cell source for this purpose is very important. hAECs, isolated from human amniotic membrane, have favorable and unique characteristics that make them highlighted and attractive for cell therapy. Materials and Methods: Inthis study, we have investigated the effects of noggin (as BMP antagonist) on differentiation of hAECs (Human Amniotic Epithelial Cells) into Neuronal Fate after 21 days. The amnion layer was mechanically peeled off from the chorion and human amniotic epithelial cells wereisolated with trypsin-EDTA in 37°C. Then, cells were exposured by differentiation medium include noggin (50 and 100 ng/ml). After 21 days, cells were fixed and characteristic analysis of AEC-derived Neuronal Fate (neurons) was performed by flow cytometry technique.The following primary antibody was applied for flow cytometer: Map2 (neuron marker). Results: The effect of noggin (BMP antagonist) on MAP-2 expression was confirmed before and after differentiation for 21 days by flow cytometry analysis. The results indicated thatnoggin increases MAP2 neuronal marker. There are no significant difference between 50 and 100 ng/ml noggin concentrations. The percentage of MAP2 expression was 74.07± 13.33 % for 50ng/ml noggin treated group and 66.82± 4.275 % for the 100 ng/ml noggin group.Conclusion: Together the results of this study showed that noggin as BMP antagonist acts a critical role in differentiation of hAECs into neuronal fate and hAECs inducedwere capable of being differentiated to neuronal cells. hAECs is a proper candidate for cell therapy in neuraldegenerative diseases

کلمات کلیدی: