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Human adipose derived stem cells do not alter cytokine secretion in response to the genetic modification with pEGFP-N2 plasmid DNA

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Abstract

Adipose tissue contain progenitor cells with regenerative (angiogenic, neuroprotection, trophic etc.) potential and treatment based on adipose tissue-derived stem cells (ADSCs) transplantation may constitute a promising therapy. Genetic modification of stem cells with genes encoding growth factors and other biologically active molecules might further increase therapeutic efficiency. However, there is a question about the advantages and disadvantages of such gene/stem cell therapy. For a better understanding of the mechanisms occurring in organism after cell transplantation we should first study cell behavior in vitro. Here we report results of ADSCs transfection with plasmid DNA pEGFP-N2 and subsequent study of cytokines and chemokines secretion using Luminex technology. We demonstrated that genetic modification of ADSCs with commonly used control plasmid vector, encoding enhanced green fluorescent protein (EGFP), did not affect secretion of cytokines/chemokines IFN- γ , IL-1, IL-2, IL-8, IL-10, IL-12, MCP-1. Thus, genetic modification procedure on its own might have little effect on stem cell properties, making it useful for gene-stem cell therapy applications. © IDOSI Publications, 2013.

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Keywords

Chemokines, Cytokines, Human Adipose Derived Stem Cells, pEGFP-N2, Plasmid, Transfection