OMICS COUP Conference on Genetic Syndromes & Gene Therapy

November 19-21, 2012 Hilton San Antonio Airport, USA

The transmission of pdx1 gene into mesenchymal stem cells nonintegrately by using lentivirus

Payamnoor University, Iran

Type 1 diabetes is a kind of chronic metabolic disease which is caused by the disorder of β cells. One of methods which can be used for curing of the diabetes is the β cells replacement of a healthy individual to a diabetic person. However it is limited by shortage of pancreas donors. PDX1 gene is a decisive transcription factor through developing of pancreas and regulating insulin gene. In this study nonintegrated lentiviral vectors containing pdx1 gene made in 293T cells were used for transferring pdx1 gene to the human mesenchymal stem cells. The expression of pdx1 gene was confirmed in the level of mRNA and protein using RT-PCR and immune fluorescence. pdx1+ mesenchymal stem cells were exposed to differentiating medium that morphological changes to Langerhans islets was clearly obvious and confirmed ECL test of insulin secretion in culture medium, also expression of somatostatin and ngn3 markers were investigated by Real time-pcr in comparison to normal mesenchymal stem cells and their expression increase was recorded. Expression of pdx1 gene in transfer of gene with integrated and nonintegrated lentiviral vectors investigated in level of mRNA and obtained results suggest that the gene expression time in integrated method was longer and more stable. In conclusion, human mesenchymal stem cells as an easy and available resource can have impacted in cell based gene therapy of type 1 diabetes.

Biography

Ilnaz Rashidi was born in 1983 in Iran. She received her bachelor's degree in genetics from Iran's Esfahan University when she was 25 years old. Presently, she is a MA student of biochemistry in Payame Noor University of Iran and has passed her MA thesis in Iran's National Institute of genetic engineering.

rashidi_elnaz@yahoo.com