

Generation of Human Adipose-Derived Stem Cell Lines with Expression of TESC Gene

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Abstract

© 2016, Springer Science+Business Media New York. Tescalcin plays an important role in the proliferation and differentiation of certain cell types. It is involved in the regulation of expression of Ets family transcription factors through PMA-induced ERK pathway. This pathway is known to regulate the proliferation and differentiation of mesenchymal stem cells (MSC). Research and development of cell therapy applications using human adipose-derived stem cells (hADSCs) is important for regenerative medicine, since the hADSCs are easy to obtain and have high proliferative and differentiation potential. It is of particular interest to create stable MSC lines with continuous and controlled expression of tescalcin to assess the potential role of the protein in differentiation of stem cells. Recombinant lentiviruses are often used for genetic modification of cells since it allows long-term expression of transgene due to integration of the provirus into the genome of host cell, relatively large size of transgenic insert and ease of manipulation. Here, we report generation of stable hADSC cell lines with ectopic expression of tescalcin using lentiviral transduction.

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Keywords

EF-hand calcium binding proteins, Gene overexpression, Mesenchymal stem cells, Recombinant lentivirus transduction, TESC, Tescalcin protein

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