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Isolation of stem cells from dental pulp of primary teeth

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Introduction: Finding an accessible resource is an important goal for stem cell research. The aim of this study is to isolate the stem cells from dental pulp of deciduous teeth.

Method & Material: Anterior deciduous teeth from children 6 to 9 years old which were exfoliating normally were used in this experiment. The exfoliated teeth were immediately placed in a normal saline sterile solution containing antibiotics and were kept in 4 °C. The dental pulp was isolated in complete sterile condition and then divided into small pieces with a fine scalpel. Then it was put on 4 mg/ml collagenase type-1 for one hour at 37 °C for preparation of single cell suspension. The samples have been cultured in MEM environment. To prove that these cells are stem cells we used flow cytometry.

Results: Rest of pulp of deciduous teeth contains a population of fibroblast like cells. SHED (stem cells from human exfoliated deciduous teeth) show positive response toward CD90 as an excellent mesenchymal marker and show negative response toward CD31 as an endothelial marker. The rate of reproduction in these stem cells was high. SHED has an ability to differentiate into adipocytes and osteocytes.

Conclusion: The deciduous teeth can be used as an accessible and great resource of stem cells without having any moral problems in researches involving tissue engineering.

Biography

Seyed Amir Mousavi is a licensed Dentist with Post graduate education in Endodontics. He has been doing research since 2007 and has trained multiple undergraduate students in Isfahan Dental Faculty. He has 4 publications in journals and 7 oral and poster presentations in international congresses.

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