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STEM CELLS FROM HUMAN EXFOLIATED DECIDUOUS TEETH (SHEDS): A NEW HORIZON

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ABSTRACT:

Background and Objectives: Stem cells from human exfoliated deciduous teeth (SHED) have been demonstrated as a novel population of adult stem cells capable of multi-differentiation potential. Hence, isolating and evaluating the pluripotency of SHEDs opens a new era in the field of dentistry for the treatment of damaged teeth.

The present study was conducted to isolate and differentiate Stem cells from Human Exfoliated Deciduous teeth.

Method: Study samples comprise of 30 extracted exfoliated primary teeth collected from children aged 6 to 14 years. Isolation of SHEDs was done followed by which flowcytometric analysis and tri-lineage differentiation was performed. Growth kinetics of SHEDs were assessed.

Results: SHEDs were successfully isolated. Flowcytometric analysis of SHEDs showed expression of positive markers CD73, CD90, CD105 while no expression of negative markers CD34, CD45 and HLA-DR. SHEDs differentiated markedly into osteocytes, chondrocytes while less significant differentiation of adipocytes were observed. The Population Doubling was found to decrease with increase in passage number while Cumulative Population Doubling was found to increase with increase in passage number. Time Doubling was found to be 14 hours which means that SHEDs have high proliferation potential.

Conclusion: Stem cells from Human Exfoliated Deciduous teeth are mesenchymal stem cells which are multipotent and can serve as a promising incentive for therapeutic and future research purposes.

KEYWORDS: Mesenchymal Stem Cells, Deciduous Teeth, Tissue Engineerin, Dental Pulp

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