

Descriptive study on Dental pulp stem cells in regenerative dentistry current findings and future perspectives

By

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Abstract

Dentinal repair in the postnatal organism occurs through the activity of specialized cells, odontoblasts that are thought to be maintained by unclear prelude population associated with pulp tissue. Mesenchymal stem cells (MSCs) live-in bone marrow are one of the most studied and clinically major populations of adult stem cells. In this study the researcher addressed the present state of knowledge regarding these cells, their properties, origins, locations, functions and potential uses in tooth tissue engineering and restore. However, the ultimate therapeutic use of hASCs requires that these cells and their derivatives maintain their genomic stability. To explore cytogenetic integrity of cultured human dental stem cell (hDSC) lines, the researcher analyzed four expanded hDSC cultures using classical G banding and fluorescent in situ hybridisation (FISH) with X chromosome specific probe. Our preliminary results revealed that about 70% of the cells exhibited karyotypic abnormalities including polyploidy, aneuploidy and ring chromosomes. The heterogeneous spectrum of abnormalities indicates a high frequency of chromosomal mutations that continuously arise upon extended culture. These findings emphasize the need for the careful analysis of the cytogenetic stability of cultured hDSCs before they can be used in clinical therapies.

Keywords: *Dental pulp, immunogenicity, stem cells ,regenerative dentistry.*