

Cells Isolated from Human Periapical Cysts Express Mesenchymal Stem Cell-like Properties

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Abstract :

We provide a detailed description of mesenchymal stem cells (MSCs) isolated from human periapical cysts, which we have termed hPCy-MSCs. These cells have a fibroblast-like shape and adhere to tissue culture plastic surfaces. hPCy-MSCs possess high proliferative potential and self-renewal capacity properties. We characterised the immunophenotype of hPCy-MSCs (CD73⁺, CD90⁺, CD105⁺, CD13⁺, CD29⁺, CD44⁺, CD45⁻, STRO-1⁺, CD146⁺) by flow cytometry and immunofluorescence. hPCy-MSCs possess the potential to differentiate into osteoblast- and adipocyte-like cells *in vitro*. Multi-potentiality was evaluated with culture-specific staining and quantitative reverse transcription-polymerase chain reaction (qRT-PCR) analysis for osteo/odontogenic and adipogenic markers. This is the first report to indicate that human periapical cysts contain cells with MSC-like properties. Taken together, our findings indicate that human periapical cysts could be a rich source of MSCs.

Key Word :

Mesenchymal stem cells (MSCs), cyst, periapical inflammatory tissues, mesenchymal stem cells isolated from human periapical cyst (hPCy-MSCs), osteogenic differentiation, adipogenic differentiation, odontogenic cyst.

Volume 9, Number 10, - 2013, ISSN 1449-2288