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In vitro stem cell cultures from Mouse Dental pulp stem: Isolation and proliferation

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Introduction:

Stem cells are the source of cells that has ability to differentiate to another cells. Adult stem cells are found in adult tissues such as bone marrow, liver, muscle, dental pulp, and periodontal ligament (4).

Among these cells, dental pulp, entrapped with the pulp chamber, is rich site for stem cell collection. These stem cells are called dental pulp stem cells. Dental pulp stem cells (DPSCs) can be easily cryopreserved and stored for long periods of time and still retain their multipotency and bone-producing capacity (2, 9).

Mesenchymal stem cells in bone marrow and dental pulp cells have been used as the cell source for tissue engineering because they have many ability, including self-renewal capability and multi-lineage differentiation. It is expected that these cells can be a useful candidate cell source for therapeutic approaches for the restoration of damaged or diseased tissue (1, 3, 5, 6, 8, and10).

The aim of this study was to isolate and proliferation dental pulp Stem cells.

Key **words**: *dental pulp, isolation, proliferation*

Methodology:

Teeth were collected from mouse. The pulp tissue gently separated from the crown and root, and then digested in a solution of 4 U collagenase type I for 1 h at 37◦C. The dental pulp sample from each individual was pooled, and cultured with alpha-modified Eagle's medium (alpha-MEM) supplemented with 20% fetal bovine serum (FBS) then harvested pellete cells by centrifugation at 1200 g for 10 minutes.

Dental pulp cells are seeded into T25 culture dishes with alpha-modified Eagle's medium supplemented with 20% (v/v) fetal bovine serum, 100 units/mL penicillin, and 100 µg/mL streptomycin at 37° C and 5% CO_2. After 48 hours, the cells were washed with PBS for removal of another cell. Dental pulp stem cells were treated with alpha-MEM containing 15% (v/v) FBS and 1% (v/v) penicillin-streptomycin, so that the cells could proliferate sufficiently. For proliferation, cells washed with PBS and treatment with tripsin/EDTA for 5 min. After we used the basic medium contain alpha-MEM, 15 % FBS and cells transferred to 2× T 25 culture dishes .Then the cells incubate for 3 days for confluency.