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Expression of pluripotency transcription factors in human third molar tooth germ derived multipotent mesenchymal stromal cells transfected by plasmid pBud-Sox2-Oct4

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Abstract

In this study, the double expression cassette plasmid, based on pBudCE4.1 vector encoding transcription factors SOX2 and OCT4 was constructed using standard gene engineering techniques. Expression of recombinant genes was confirmed by immunoblotting. It is shown that genetic modification of multipotent mesenchymal stromal cells (MMSC), isolated from human third molar tooth germs, with resulting recombinant plasmid increases the level of expression both, transcription factors SOX2 and OCT4 in the treated cells, and also transcription factor NANOG. Analysis of histological sections of subcutaneous Matrigel implants, containing fluorescently labeled MMSC, showed that genetic modification had no effect on cell viability.

Keywords

expression plasmid, multipotent mesenchymal stromal cells, OCT4, pluripotency, SOX2, third molar dental follicles, transcription factors, transfection.