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Basic Study

Polymeric vs hydroxyapatite-based scaffolds on dental pulp stem cell proliferation and differentiation

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Abstract

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AIM: To evaluate adhesion, proliferation and differentiation of human dental pulp stem cells (hDPSCs) on four commercially available scaffold biomaterials.

METHODS: hDPSCs were isolated from human dental pulp tissues of extracted wisdom teeth and established in stem cell growth medium. hDPSCs at passage 3-5 were seeded on four commercially available scaffold biomaterials, SureOss (Allograft), Cerabone (Xenograft), PLLA (Synthetic), and OSTEON II Collagen (Composite), for 7 and 14 days in osteogenic medium. Cell adhesion and morphology to the scaffolds were evaluated by scanning electron microscopy (SEM). Cell proliferation and differentiation into osteogenic lineage were evaluated using DNA counting and alkaline phosphatase

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