Bone Targeted Delivery of SDF-1 via Alendronate Functionalized Nanoparticles in Guiding Stem Cell Migration

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1. Characterization of multi-differentiation potential of GFP$^+$ stem cells.

Methods:

For osteogenic differentiation, cells were cultured in α-MEM supplemented with 10% FBS, 10^{-7} M dexamethasone (Sigma-Aldrich), 10 mM β-glycerol phosphate (Sigma-Aldrich), and 50 mM ascorbate-2-phosphate (Sigma-Aldrich). After 3 weeks of induction, cells were stained by Alizarin Red S staining for the mineralization. For adipogenic differentiation, cells were cultured in α-MEM supplemented with 10% FBS, 10^{-6} M dexamethasone, 0.5 μM isobutylmethylxanthine (IBMX, Sigma-Aldrich), and 10 ng/mL of insulin (Sigma-Aldrich) for 2 weeks. Lipid accumulation was identified by Oil Red O staining. For chondrogenic differentiation, cells were cultured in high-density in F12:DMEM (1:1) supplemented with 1% FBS, 10^{-7} M dexamethasone, 1% insulin-transferrin-selenium (ITS, Sigma-Aldrich), 50 μM ascorbate-2-phosphate, 1 mM sodium pyruvate (Sigma-Aldrich), 50 μg/mL of proline (Sigma-Aldrich), and 20 ng/mL of TGF-β3 (R&D Systems, Minneapolis, MN, USA). After 3 weeks in culture, cells were processed for alcian blue staining (Sigma-Aldrich).

Results:

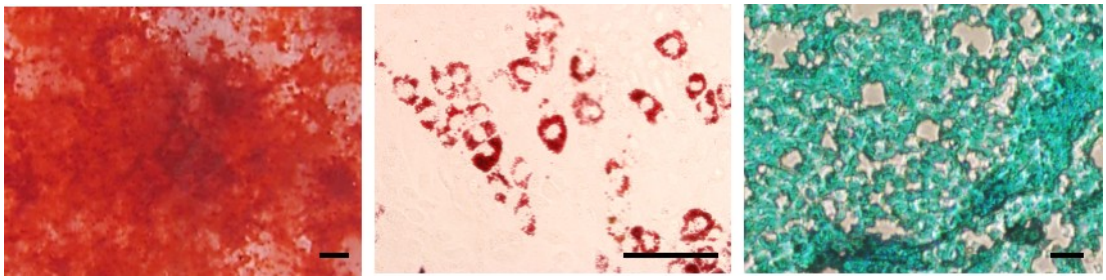

Figure S1. The multi-differentiation potential of GFP$^+$ stem cells was determined by osteogenic, adipogenic, and chondrogenic differentiation induced by different culture media. Scale bar, 100 μm.