

Supporting Information

Light-controlled BMSC Sheet-Implant Complexes with Improved Osteogenesis via an LRP5/ β -catenin/Runx2 Regulatory Loop

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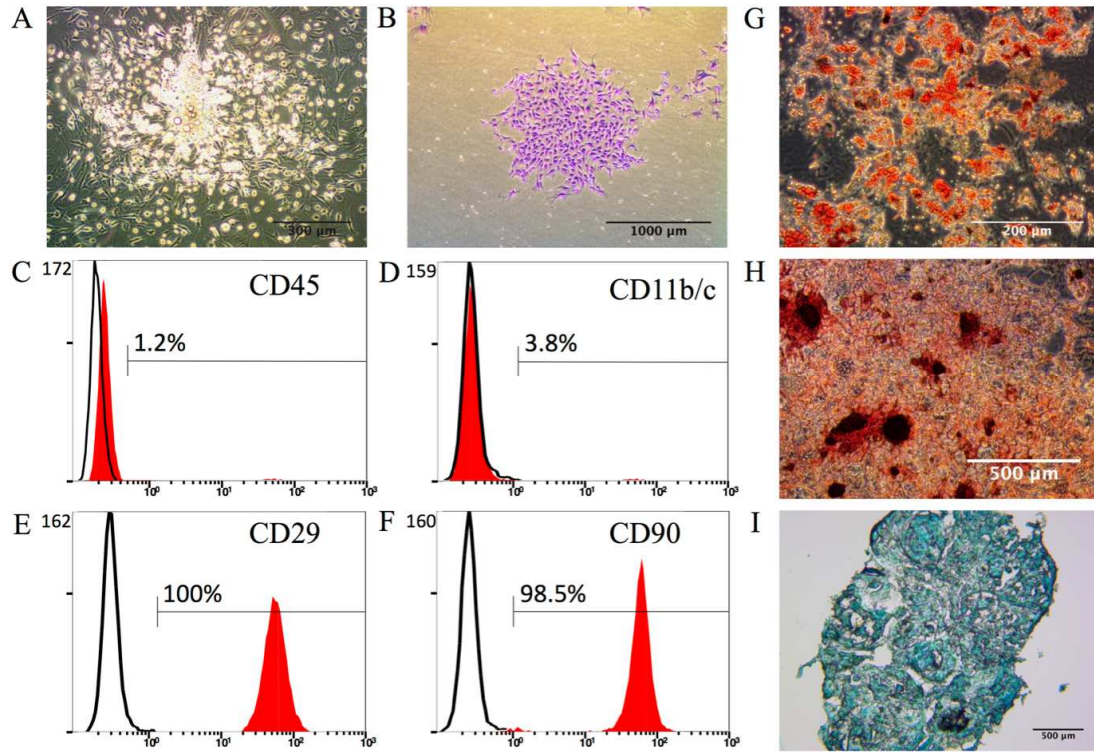


Figure S1. Characteristics of BMSCs. (A) A fibroblast-like morphology in primary BMSCs as observed under a phase contrast microscope. (B) Crystal violet staining of a CFU-F colony in BMSC culture at day 7. (C-F) Flow cytometry analysis of passage 3 BMSCs showing that BMSCs were negative for CD45 and CD11b/c, and positive for CD29 and CD90. (G) Oil Red O staining of BMSCs under adipogenic induction for 21 days. (H) Alizarin Red S staining of BMSCs under osteogenic induction for 21 days. (I) Alcian Blue staining of BMSCs under chondrogenic induction for 28 days. Scale bar: A: 100 µm; B: 1,000 µm; G: 200 µm; H, I: 500 µm.

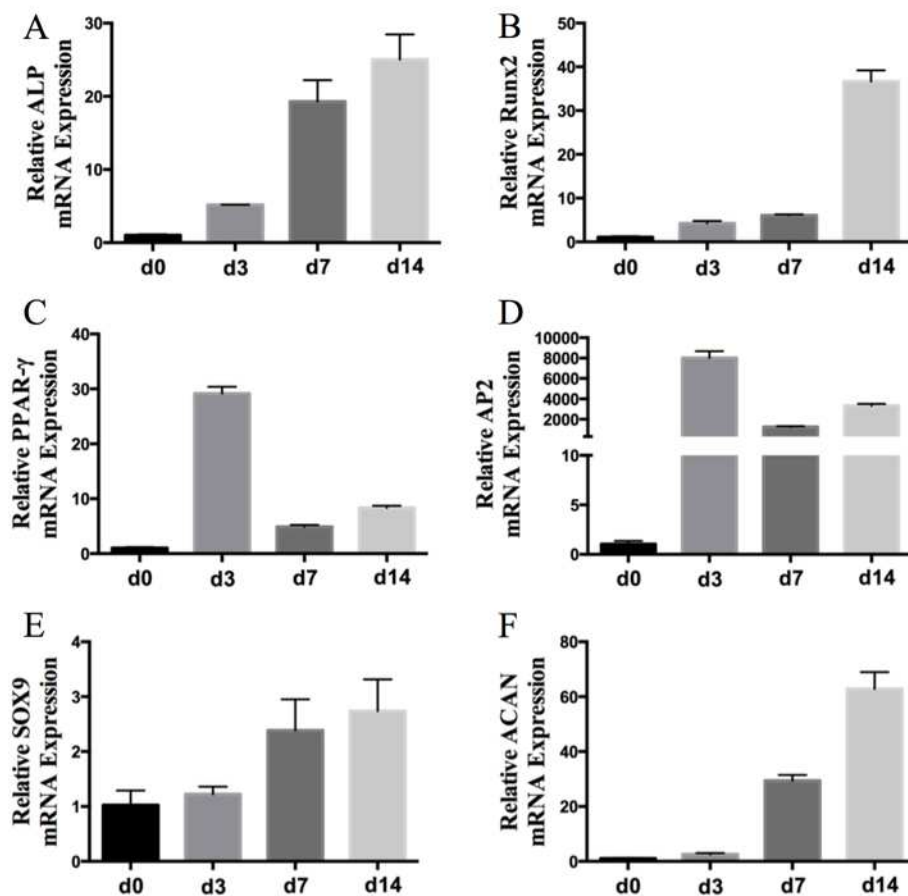


Figure S2. RT-qPCR analysis of tri-lineage induction of BMSCs. The relative expression levels of osteogenesis-specific genes: (A) ALP, and (B) Runx2; adipogenesis-specific genes: (C) PPAR- γ , and (D) AP2; and chondrogenesis-specific genes: (E) Sox9, and (F) ACAN.

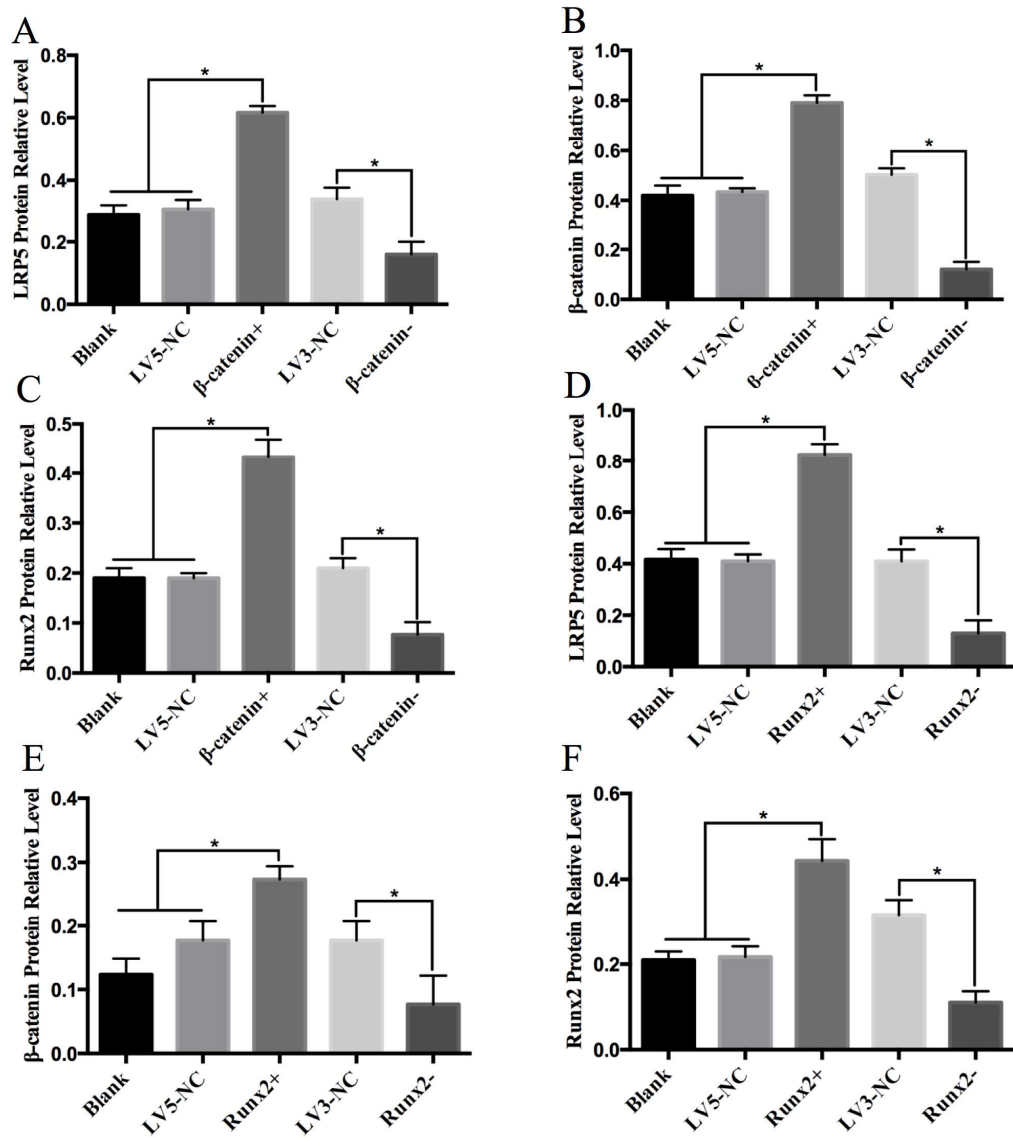


Figure S3. Western blot analysis of β -catenin, Runx2, and LRP5 regulatory loop. BMSCs are transfected with no agents (Blank), lentiviral vector 5 (LV5-NC), lentiviral vector overexpressing β -catenin (β -catenin+), lentiviral vector overexpressing Runx2 (Runx2+), lentiviral vector 3 (LV3-NC), lentiviral vector interfering with β -catenin (β -catenin-), and lentivirus vector interfering with Runx2 (Runx2-). Graphs show the semi-quantitative analysis of the western blot results of (A, D) LRP5, (B, E) β -catenin, and (C, F) Runx2 relative to β -actin. * $P < 0.05$.