Jawbone microenvironment promotes periodontium regeneration by regulating the function of periodontal ligament stem cells

Bin Zhu 1-3*, Wenjia Liu 1*, Yihan Liu 1,4*, Xicong Zhao 1 Hao Zhang 1, Zhuojing Luo 2 and Yan Jin 1

1. State Key Laboratory of Military Stomatology, Centre for Tissue Engineering, School of Stomatology, Fourth Military Medical University, Xi’an, Shaanxi, People’s Republic of China.
2. Department of Orthopedics Surgery, Xijing Hospital, Fourth Military Medical University, Xi’an, Shaanxi, People’s Republic of China.
3. Department of Stomatology, PLA Xizang Military Region General Hospital, Lhasa, Tibet, People’s Republic of China.
4. Department of Stomatology, PLA 301th Hospital, Beijing, People’s Republic of China.
*Correspondence to: Y. Jin, State Key Laboratory of Military Stomatology, Centre for Tissue Engineering, School of Stomatology, Fourth Military Medical University, Xi’an, 710032, China. E-mail: yanjin@fmmu.edu.cn; Z. Luo, Department of Orthopedics Surgery, Xijing Hospital, Fourth Military Medical University, Xi’an, 710032, China. E-mail: Zhuojingluo@sina.com.
*These authors contributed equally to this study.

Journal: Scientific Reports supplementary files including three figures.
Figure S1. Identification of PDLSCs, JBMSMCs and IBMSCs. Single cell formed cell colonies in three cell types after 10 days of culture (A). Mineralized nodules stained by Alizarin Red after 28 days of osteogenic induction (B). Lipid droplets stained by Oil-red O after 21 days of adipogenic induction (C).
Figure S2. Cell surface markers of PDLSCs, JBMSCs and IBMSCs analyzed by flow cytometry. All three MSCs expressed CD29, CD90 and CD105 positively; and CD31, CD34 and CD45 negatively. In addition, PDLSCs expressed Stro-1, and IBMSCs and JBMSCs expressed CD146 positively.
Figure S3. Proliferation and cell cycle assay of PDLSCs on Ti in indirect co-culture system. FCM assay for cell cycle (A) and EdU-Apollo567 (B) staining for proliferation showed no significant difference between experiment groups (P >0.05). MTT (C) showed slight higher proliferation of PDLSCs, indirectly co-cultured with JBMSCs at day 3, 4 and 5 (P
<0.05). and Diagrammatic sectional drawing of indirect co-culture system (D). The data are shown as the mean±SD; * P < 0.05, n=3.