

# Manganese-Implanted Titanium Modulates the Crosstalk between Bone Marrow Mesenchymal Stem Cells and Macrophages to Improve Osteogenesis

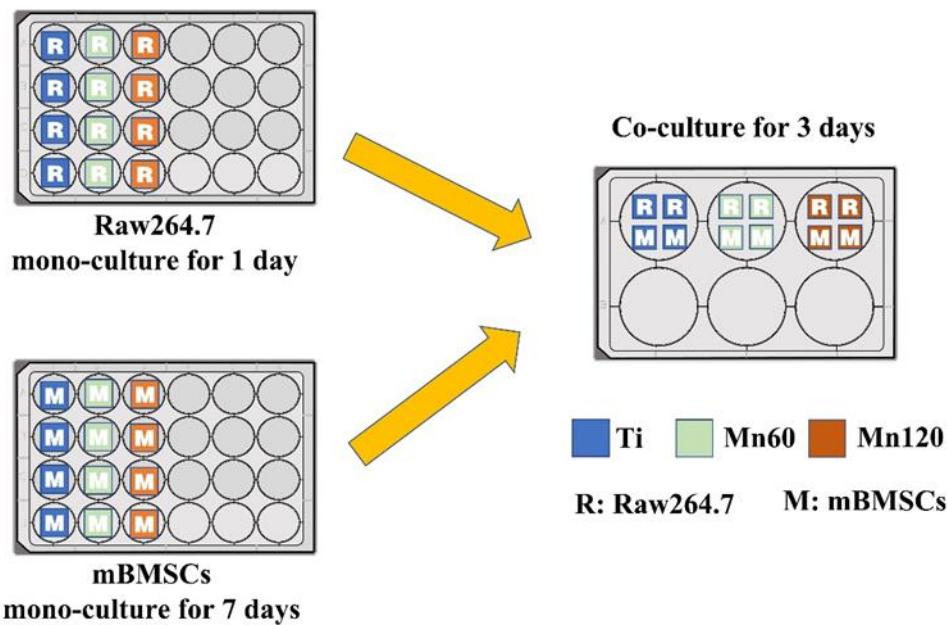
Kuicai Ye <sup>1,2</sup>, Xianming Zhang <sup>1</sup>, Li Shangguan <sup>1,3</sup>, Xingdan Liu <sup>1,2</sup>, Xiaoshuang Nie <sup>1,2</sup>, and Yuqin Qiao <sup>1,\*</sup>

<sup>1</sup> State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China

<sup>2</sup> Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing 100049, China

<sup>3</sup> School of Materials Science, Shanghai University, Shanghai 200444, China

\* Correspondence: qiaoyq@mail.sic.ac.cn (Y.Q.)



**Figure S1.** Schematic representation of the co-culture experiment (Raw264.7 with mBMSCs).

**Table S1.** Primers used in RT-qPCR assays

Gene (mouse)	Primer sequences (F, forward; R, reverse; 5'-3')
GAPDH	F: AAA TGG TGA AGG TCG GTG TG R: AGG TCA ATG AAG GGG TCG TT
CCL3	F: GGA TAC AAG CAG CAG CGA GT R: GCA GTG GTG GAG ACC TTC A
CCL5	F: CAG AGA AGA AGT GGG TTC AAG A R: CGA GTG GGA GTA GGG GAT TA
CSF2	F: GCG TAA TGA GCC AGG AAC TTG R: TGA GTC AGC GTT TTC AGA GGG
TNF- $\alpha$	F: TAG CCA GGA GGG AGA ACA GA R: CCA GTG AGT GAA AGG GAC AGA
CD206	F: AGG GAA GAG AAG AAG ATC CAG R: TGG GAG AAG ATG AAG TCA AAC
Arg-1	F: GCC AGG GAC TGA CTA CCT TAA R: AGT TCT GTC TGC TTT GCT GTG
IL-4	F: TCA TCC TGC TCT TCT TTC TCG R: CTT CTC CTG TGA CCT CGT TCA
IL-10	F: AGT GTG TAT TGA GTC TGC TGG R: GAG AGA GGT ACA AAC GAG GTT
ALP	F: GCA GGC AAG ACA CAG ACT R: TGG AGG AGA GAA GGT CAG AT
RUNX-2	F: GCA GCA CGC TAT TAA ATC CAA R: GCC AAA CAG ACT CAT CCA TTC
OCN	F: ACC GCC TAC AAA CGC ATC TA R: AGA GGA CAG GGA GGA TCA AGT
COL	F: TGA CTG GAA GAG CGG AGA GTA R: GAC GGC TGA GTA GGG AAC AC