

**Table S1.** Primers used for RT-PCR

Target	Forward primer (5'→3')	Reverse primer (3'→5')	GenBank No.
Runx2	F:CCTCTGACTTCTGCCTCTGG	R:ATGAAATGCTTGGGAACTGC	NM_009820.5
OCN	F:CCATCTTTCTGCTCACTCTGC	R:ACCTTATTGCCCTCCTGCTT	NM_007541.3
OPG	F:GAGAAGCCACGCAAAAGTGT	R:GGCAAACGTCCACCAAAC	NM_008764.3
RANKL	F:AGGAGGGAGCACGAAAAACT	R:AAGGGTTGGACACCTGAATG	NM_011613.3
SOST	F:CCTCATCTGCCTACTTGTGC	R:ATGGTCTGGTTGTTCTCAGG	NM_024449.6
GAPDH	F:ACCCAGAAGACTGTGGATGG	R:CACATTGGGGGTAGGAACAC	NM_008084.3

Note! *Runx2*: runt-related transcription factor 2; *OCN*: osteocalcin; *OPG*: osteoprotegerin; *RANKL*: receptor activator of unclar factor kappa-B ligand; *SOST*: sclerostin; *GAPDH*: glyceraldehydes 3-phosphate dehydrogenase.

**Fig.S1 Titanium particles and titanium nail used in this study. (A)** Scanning electron microscope images x500 (Scar bar = 100 $\mu$ m) or x5000 (Scar bar = 10 $\mu$ m). **(B)** Ti nail. **(C)** X-ray image of murine knee after surgery (Scar bar = 1.6mm), **(D)** skeletal formula of strontium ranelate.

