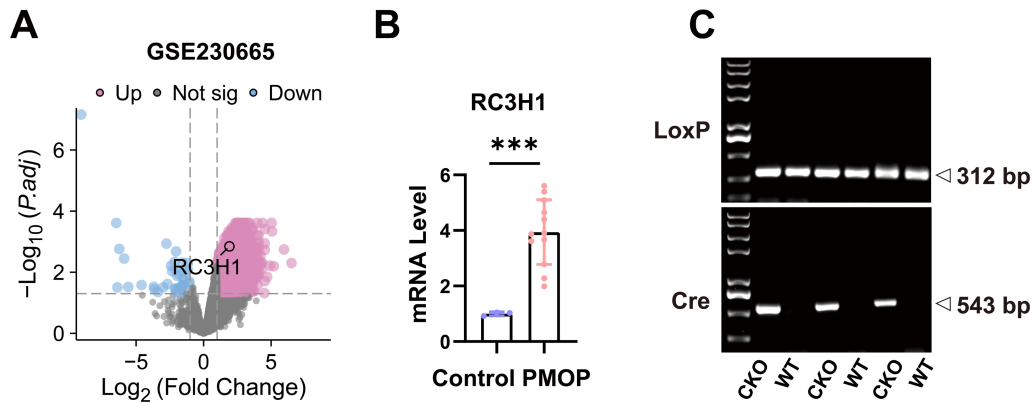# Supplementary materials

Figure S1. The expression of Rc3h1 is increased in bone tissues of PMOP patients. (A-B) Volcano plot and relative reads of Rc3h1 in control and PMOP patients form dataset GSE230665. PMOP: postmenopausal osteoporosis. (C) Identification of the genotype in Rc3h1 WT and CKO mice with DNA agarose gel electrophoresis. $*P < 0.05$, $**P < 0.01$, $***P < 0.001$.
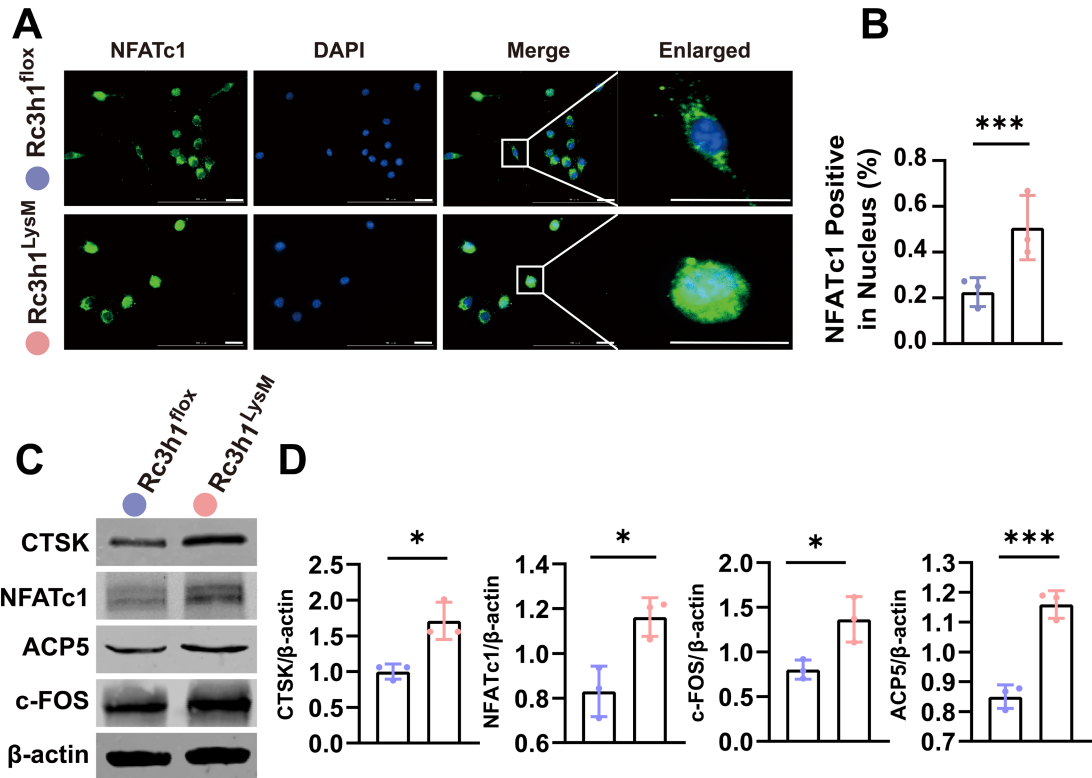
Figure S2. Rc3h1 negatively regulates osteoclast activation. (A) Immunofluorescence staining and statistical analysis of NFATc1 in the cytoplasm and nucleus of BMMs induced by M-CSF and RANKL for 48 hours. Scale bar= 20 μm. (C-D) WB images and quantitative analysis of CTSK, NFATc1, Acp5 and c-FOS in Rc3h1^{flox} and Rc3h1^{LysM} osteoclasts. *P < 0.05, **P < 0.01, ***P < 0.001.

Table S1 Primer sequence for osteoclast-related genes

Genes	Forward	Reverse
Acp5	ACGGCTACTTGCGGTTTCA	TCCTTGGGAGGCTGGTCTT
Dcstamp	TCTGCTGTATCGGCTCATCTC	ACTCCTTGGGTTCCTTGCTT
Ctsk	AGGCGGCTATATGACCACTG	TCTTCAGGGCTTTCTCGTTC
Fos	TACTACCATTCCCCAGCCGA	GCTGTCACCGTGGGGATAAA
Nfatc1	GGTGCTGTCTGGCCATAACT	GAAACGCTGGTACTGGCTTC
Tfrc	TTCGCAGGCCAGTGCTAGG	TACAAGGGAGTACCCCGACAG
Actb	TCTGCTGGAAGGTGGACAGT	CCTCTATGCCAACACAGTGC