SUPPLEMENTARY INFORMATION

Osteocyte regulation of orthodontic force-mediated tooth movement *via* RANKL expression

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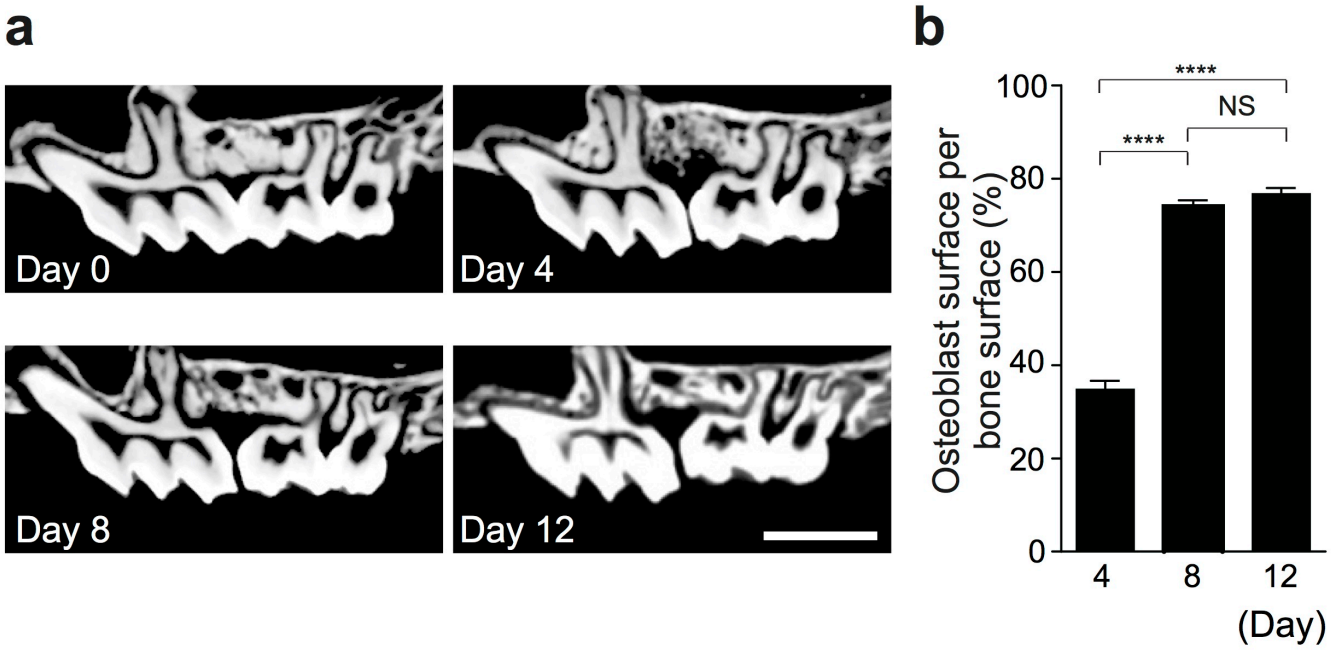
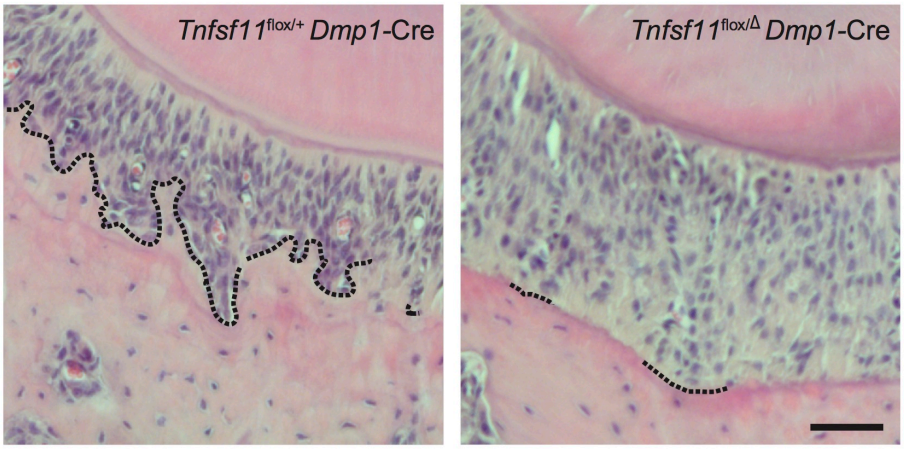
Supplementary figure legends

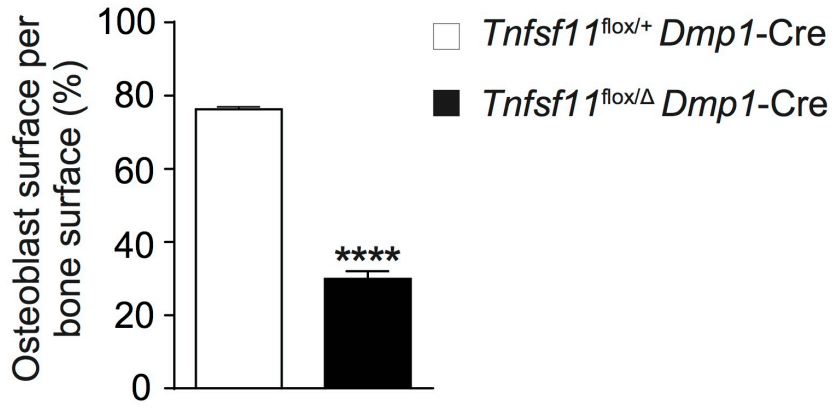
Supplementary Figure 1. Osteoblastic bone formation during orthodontic tooth movement. (**a**) Micro-CT images of sagittal sections of the maxillary bones in wild–type mice after spring insertion (0, 4, 8 and 12 days). (**b**) Osteoblast surface per alveolar bone surface (n = 3 per each time point). Scale bar: 1 mm. Error bars, means ± s.e.m.; ****P < 0.0001; NS, not significant.

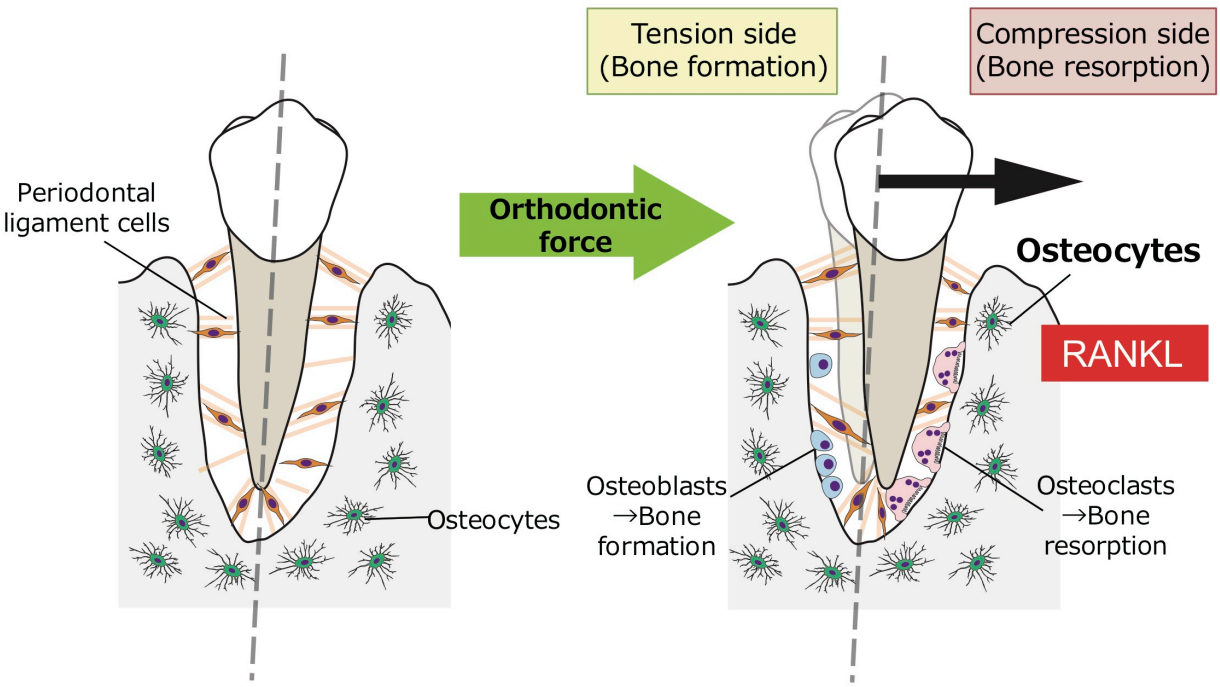
Supplementary Figure 2. Osteoblastic bone formation in osteocyte-specific RANKL deficient mice. Osteoblast surface per alveolar bone surface in each group (n = 3–4). The dotted lines denote the osteoblast surface. Scale bar: 50 μm. Error bars, means ± s.e.m.; ****P < 0.0001.

Supplementary Figure 3. Schematic diagram of orthodontic tooth movement. Osteocyte-derived RANKL regulates osteoclastogenesis during orthodontic tooth movement.


a
Day 0
Day 4
Day 8
Day 12
b
Osteoblast surface per bone surface (%)
100
80
60
40
20
0
****
NS
****
4
8
12
(Day)


Tnfsf11flox/+ Dmp1-Cre
Tnfsf11flox/Δ Dmp1-Cre


Osteoblast surface per bone surface (%)
100
80
60
40
20
0
****
Tnfsf11flox/+ Dmp1-Cre
Tnfsf11flox/Δ Dmp1-Cre


Tension side
(Bone formation)
Compression side
(Bone resorption)
Periodontal
ligament cells
Orthodontic
force
Osteocytes
RANKL
Osteocytes
Osteoblasts
→Bone
formation
Osteoclasts
→Bone
resorption