

**Title:** Supplementary Movie 1

**Description:** Representative micro-computed tomography images of the femurs of 11-week-old WT female mice treated with vehicle. Scrolling goes through the XY slice-stack. Scale bar, 1,000  $\mu\text{m}$ .

**Title:** Supplementary Movie 2

**Description:** Representative micro-computed tomography images of the femurs of 11-week-old WT female mice treated with PTH. Scrolling goes through the XY slice-stack. Scale bar, 1,000  $\mu\text{m}$ .

**Title:** Supplementary Movie 3

**Description:** Representative micro-computed tomography images of the femurs of 11-week-old Slpi-KO female mice treated with vehicle. Scrolling goes through the XY slice-stack. Scale bar, 1,000  $\mu\text{m}$ .

**Title:** Supplementary Movie 4

**Description:** Representative micro-computed tomography images of the femurs of 11-week-old Slpi-KO female mice treated with PTH. Scrolling goes through the XY slice-stack. Scale bar, 1,000  $\mu\text{m}$ .

**Title:** Supplementary Movie 5

**Description:** In vitro imaging of mock MC3T3-E1-EGFP cells in contact with TRAP-tdTomato+ primary osteoclasts. Filled arrowheads indicate direct osteoblast–osteoclast contact. Scale bar: 50  $\mu\text{m}$ . Playback speed = 1,440 $\times$ .

**Title:** Supplementary Movie 6

**Description:** In vitro imaging of Slpi-overexpressing MC3T3-E1-EGFP cells in contact with TRAP-tdTomato+ primary osteoclasts. Filled arrowheads indicate direct osteoblast–osteoclast contact. Scale bar: 50  $\mu\text{m}$ . Playback speed = 1,440 $\times$ .