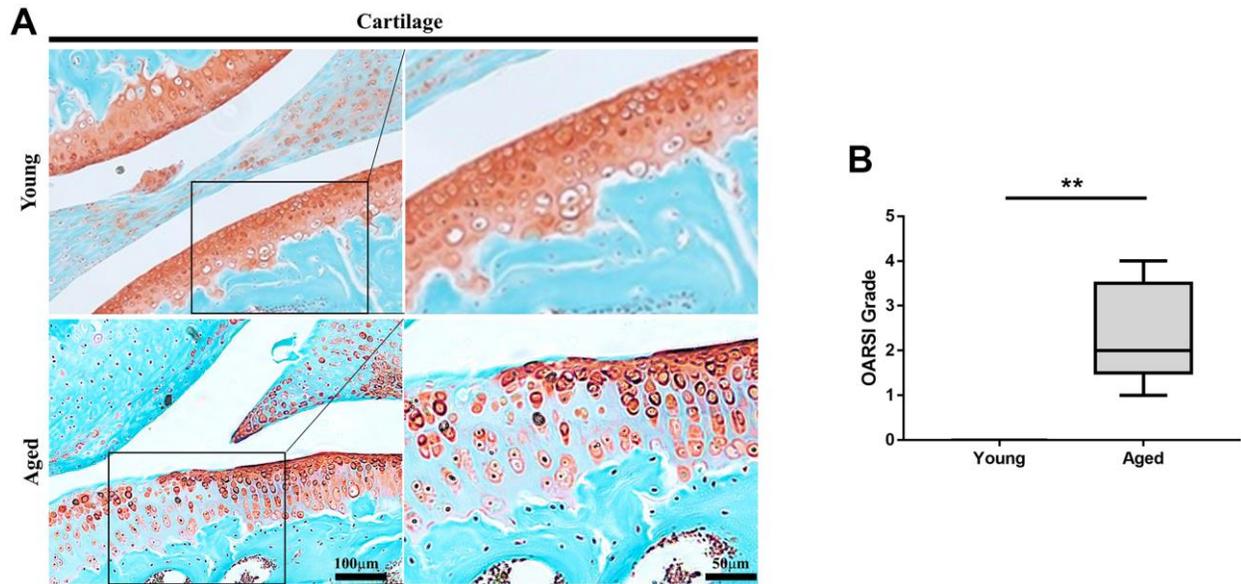
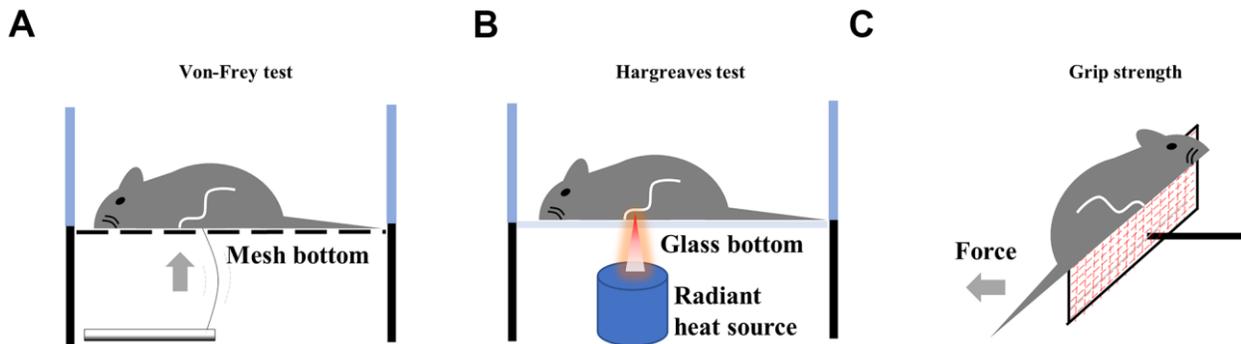


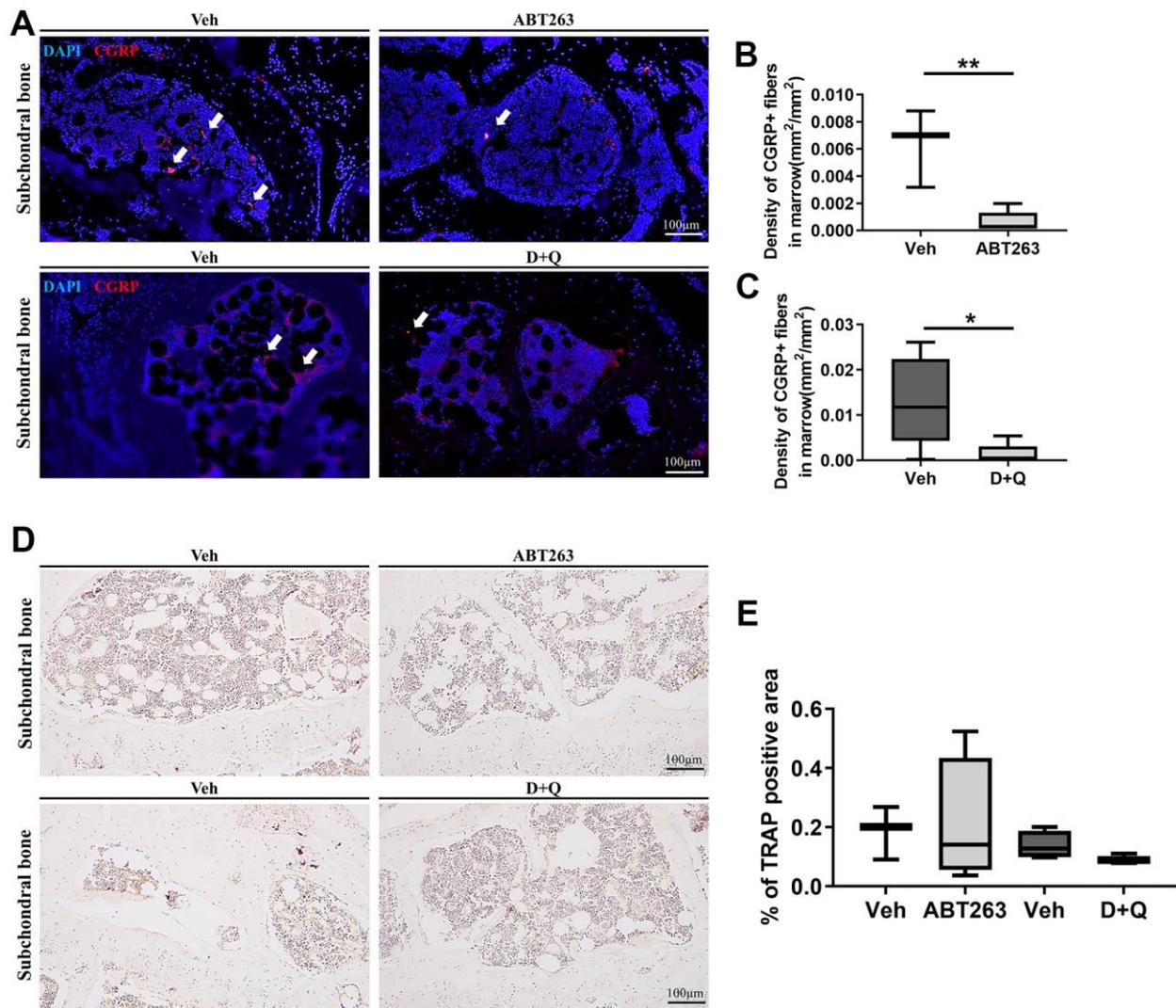
SUPPLEMENTARY FIGURES



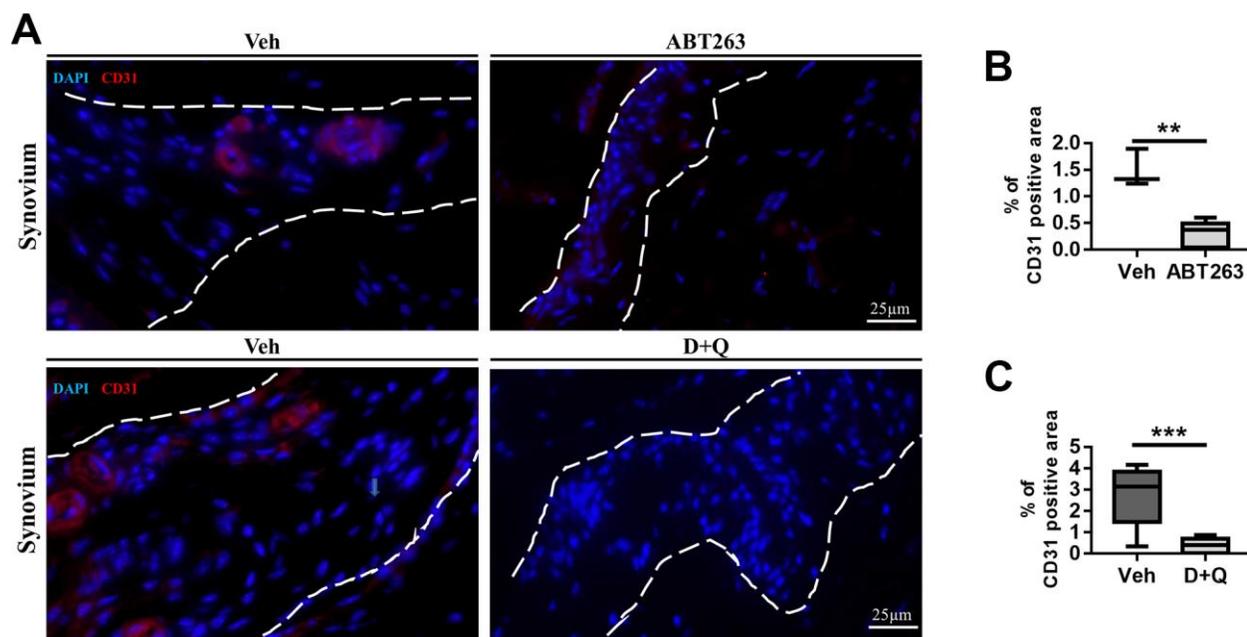
Supplementary Figure 1. Histological characterization of *in vivo* mouse spontaneous osteoarthritis model. (A) Representative Safranin-O stained sections of the articular joints of 10-weeks (Young) and 20 to 21-month (Aged)-old mice ($n = 5$ for Young, $n = 5$ for Aged). Right panels show a higher magnification of the boxed regions indicated in the left panels. (B). OARSI grades for articular joints as shown in A. Whisker plots represent the 10 and 90 percentiles, and the lines correspond to the median. ** $p < 0.01$; two-tailed Student's t-test (unpaired). Scale bars are shown in each image.



Supplementary Figure 2. The schematic diagram of the apparatus used in performing pain-associated behavioral experiment. (A) Von-Frey test, (B) Hargreaves test, and (C) Grip strength.



Supplementary Figure 3. Sprouting of CGRP+ sensory nerves in subchondral bone was decreased by ABT263 and D+Q treatment but osteoclast activity was not affected by those senolytic agents. (A) Representative immunofluorescence images for CGRP staining in subchondral bone of 21 to 22-month-old mice treated with ABT263 or D+Q. Density of CGRP+ nerve fibers in subchondral bone marrow of (B) ABT263 ($n = 3$ for Veh, $n = 5$ for ABT263) or (C) D+Q treated aged mice joints ($n = 5$ per group). (D) Representative images of TRAP staining and (E) quantitative analysis of TRAP + area in subchondral bone of ABT263 ($n = 3$ for Veh, $n = 4$ for ABT263) or D+Q-treated aged mice ($n = 4$ for Veh, $n = 3$ for D+Q). Whisker plots represent the 10 and 90 percentiles, and the line corresponds to the median. * $p < 0.05$, ** $p < 0.01$; Unpaired Student's t-test. Scale bars, 100 μm .



Supplementary Figure 4. ABT263 and D+Q treatment attenuated synovial vasculature developed in the spontaneous OA mouse model. (A) Representative images for CD31 immunofluorescence staining in the synovium of 21 to 22-month-old mice treated with ABT263 or D+Q ($n = 3$ for Veh, $n = 5$ for ABT263 and $n = 5$ for Veh, $n = 8$ for D+Q). Dashed lines indicated a synovial membrane region. Quantification of CD31+ area as a percentage of the entire 40X area in the synovium of (B) ABT263 or (C) D+Q group. Whisker plots represent the 10 and 90 percentiles, and the lines correspond to the median. ** $p < 0.01$, *** $p < 0.001$; Unpaired Student's t-test. Scale bars, 25 μm .