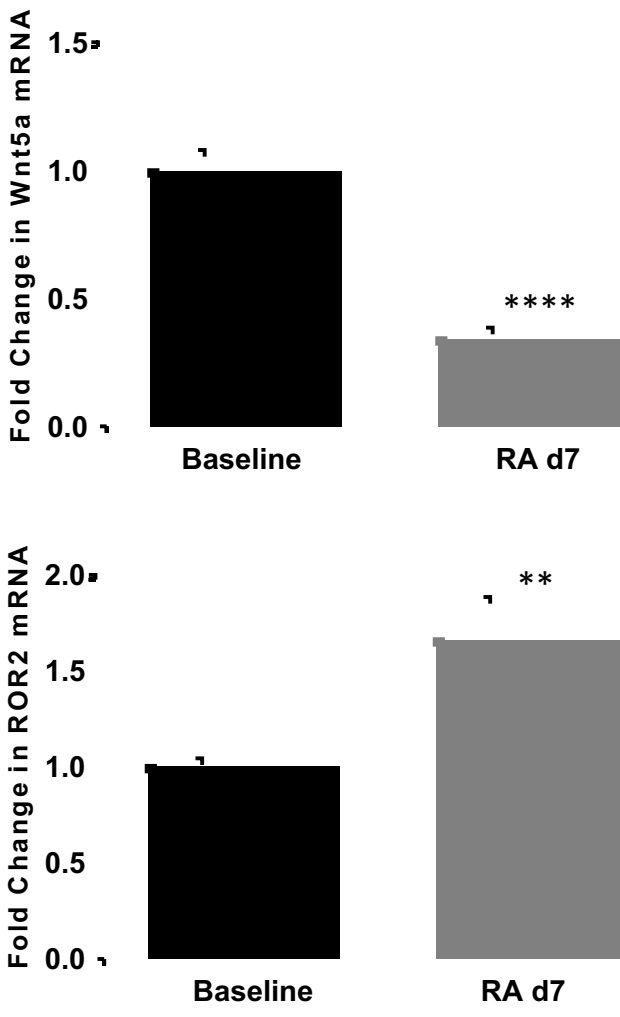
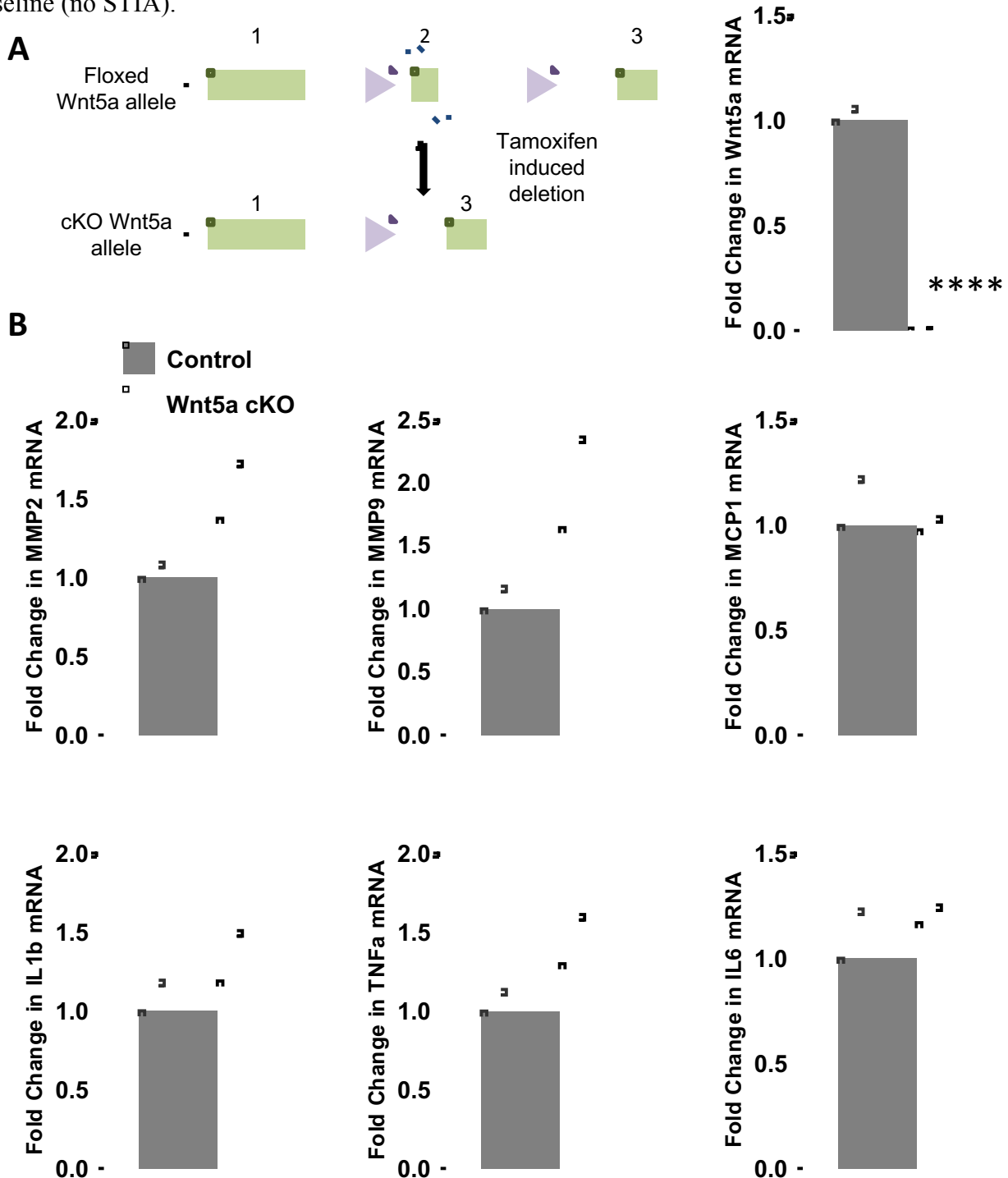


**Figure S1:** Normalized mRNA expression from paw joints isolated from healthy Control mice prior to STIA induction (Baseline) and littermate controls 7 days following STIA induction (RA d7) for Wnt5a and ROR2. \*\*\*\* indicates  $p \leq 0.0001$  and \*\* indicates  $p \leq 0.01$



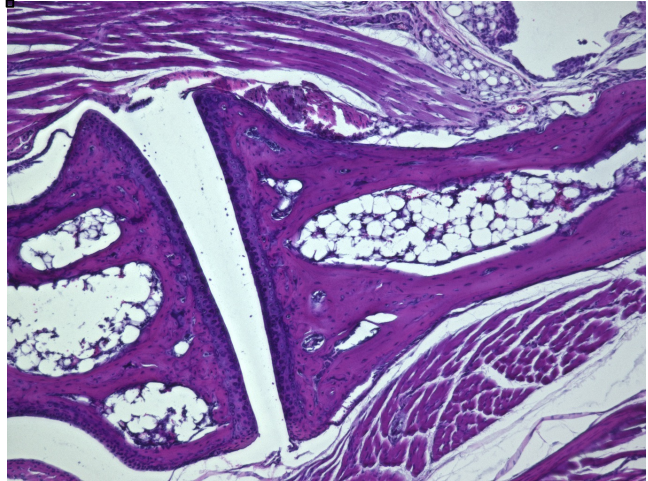
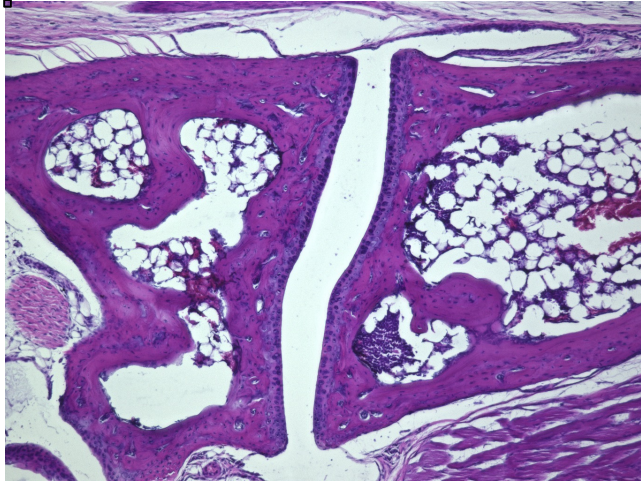
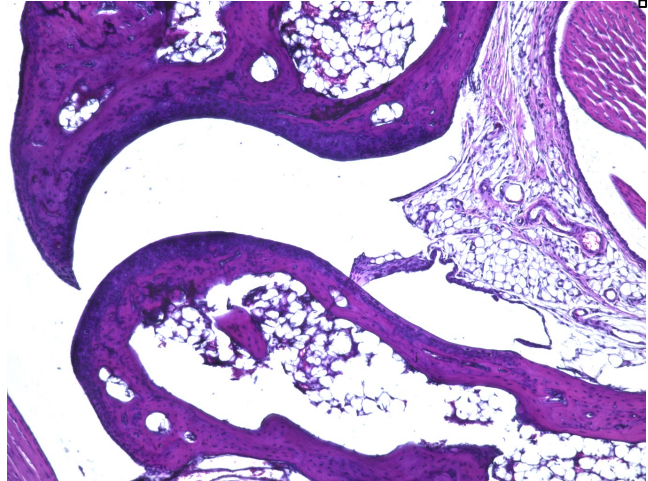
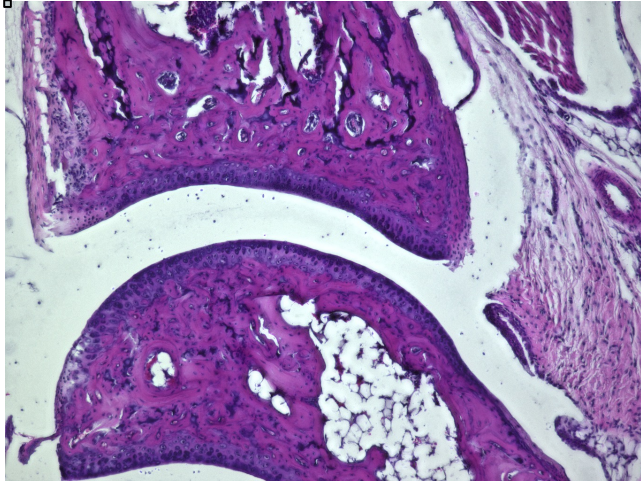
**Figure S2:** *Characterization of baseline Wnt5a cKO mice.* (A) Allele structure of the Wnt5a cKO mice indicates the position of the floxed sites around Wnt5a Ex2. Wnt5a cKO was verified by mRNA analysis of the paw joints, and the levels of Wnt5a were reliably reduced by at least 90% in all cre + animals. \*\*\*\* indicates  $p \leq 0.0001$ . Primers specific to Exon 2 were used to assess deletion (relative position of binding sites indicated by blue lines in the flox diagram). (B) mRNA from d7 paws from healthy Control and Wnt5a cKO mice was analyzed for MMP2, MMP9, IL1 $\beta$ , IL6, MCP1 and TNF $\alpha$ . There was no significant difference between the levels in Control and Wnt5a cKO mice prior to induction of STIA at baseline (no STIA).



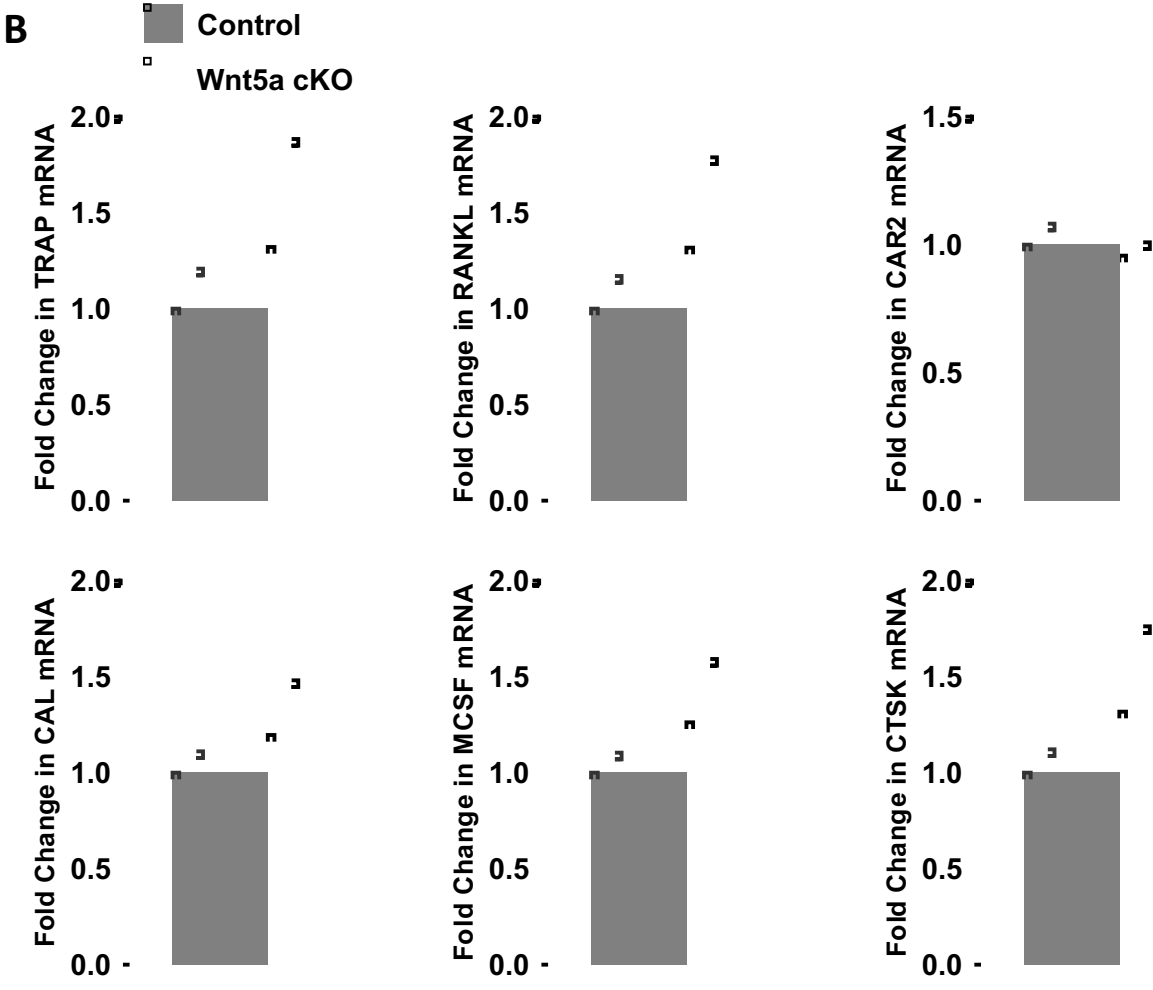
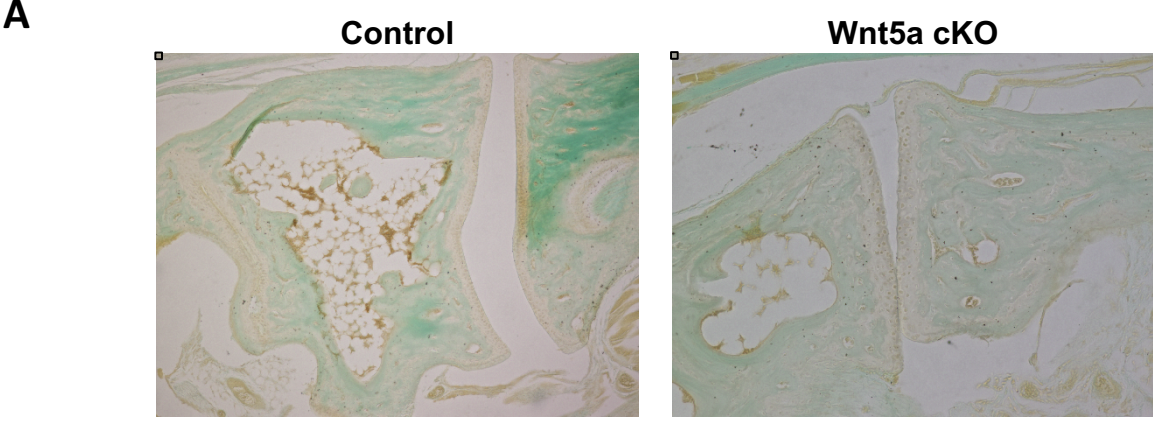
**Figure S3:** H&E staining of sections from Control (left panels) and Wnt5a cKO (right panels) in healthy ankles, prior to arthritis induction demonstrates no overt phenotype in the Wnt5a cKO at baseline.

**Control**

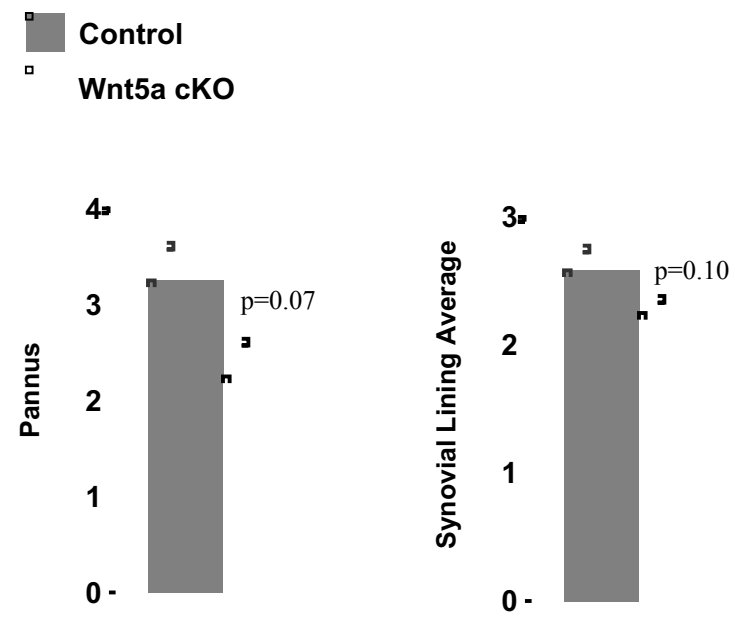
**Wnt5a cKO**



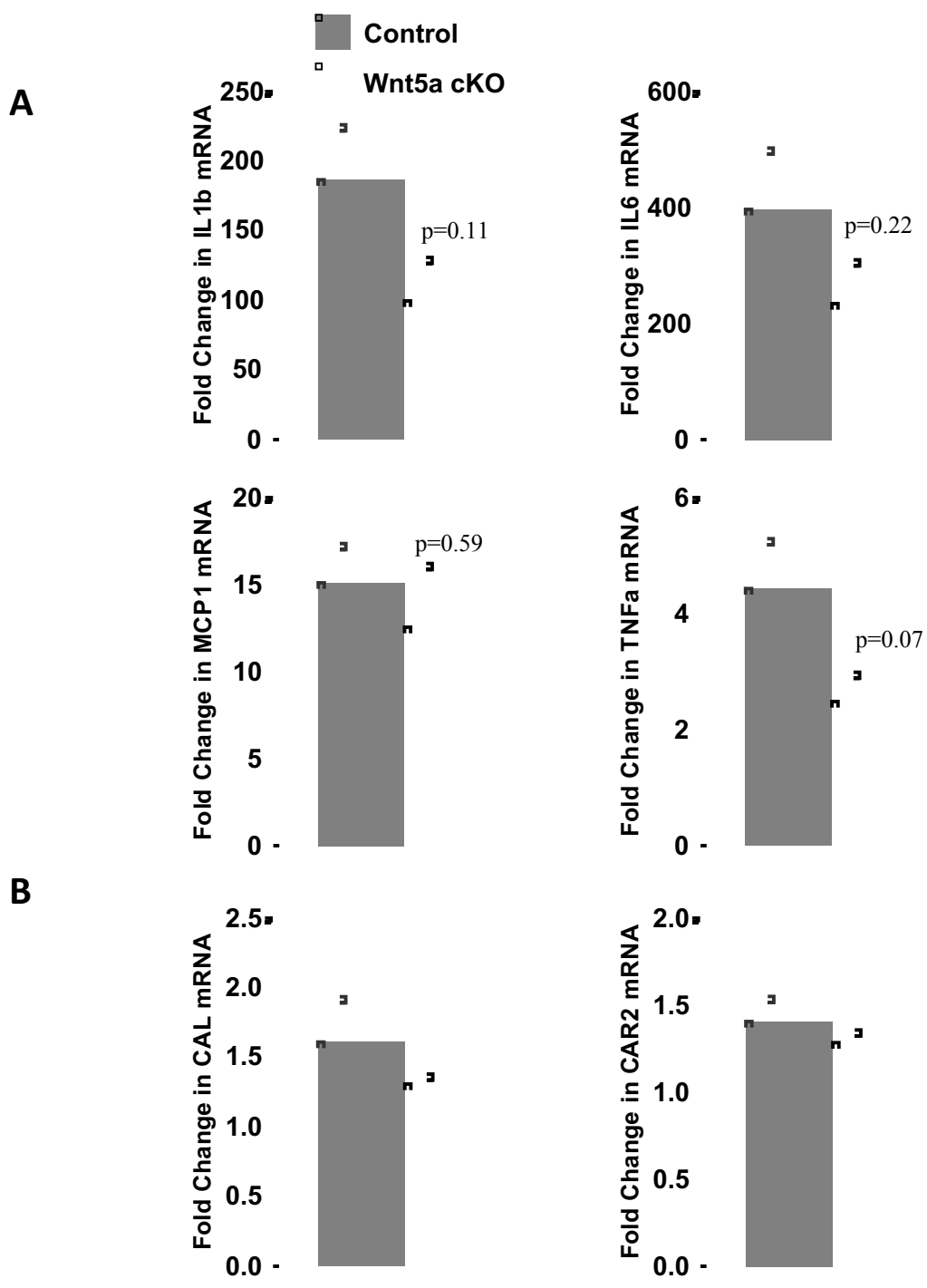
**Figure S4:** No baseline osteoclast phenotype in the *Wnt5a* cKO mice. (A) TRAP stained sections from ankles of Control and *Wnt5a* cKO mice show a lack of robust osteoclast activity in healthy bones. (B) mRNA from paws from Control and *Wnt5a* cKO mice which did not receive K/BxN serum were analyzed for markers of osteoclast differentiation and activity. There was no significant difference between the levels in Control and *Wnt5a* cKO mice.



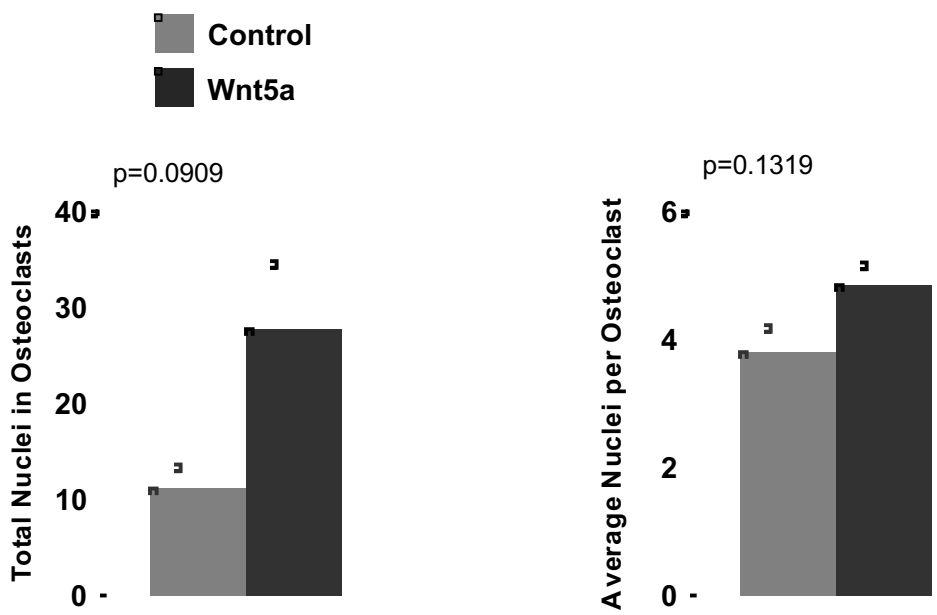
**Figure S5:** Histopathological score of Pannus formation and Synovial Lining in the STIA model.



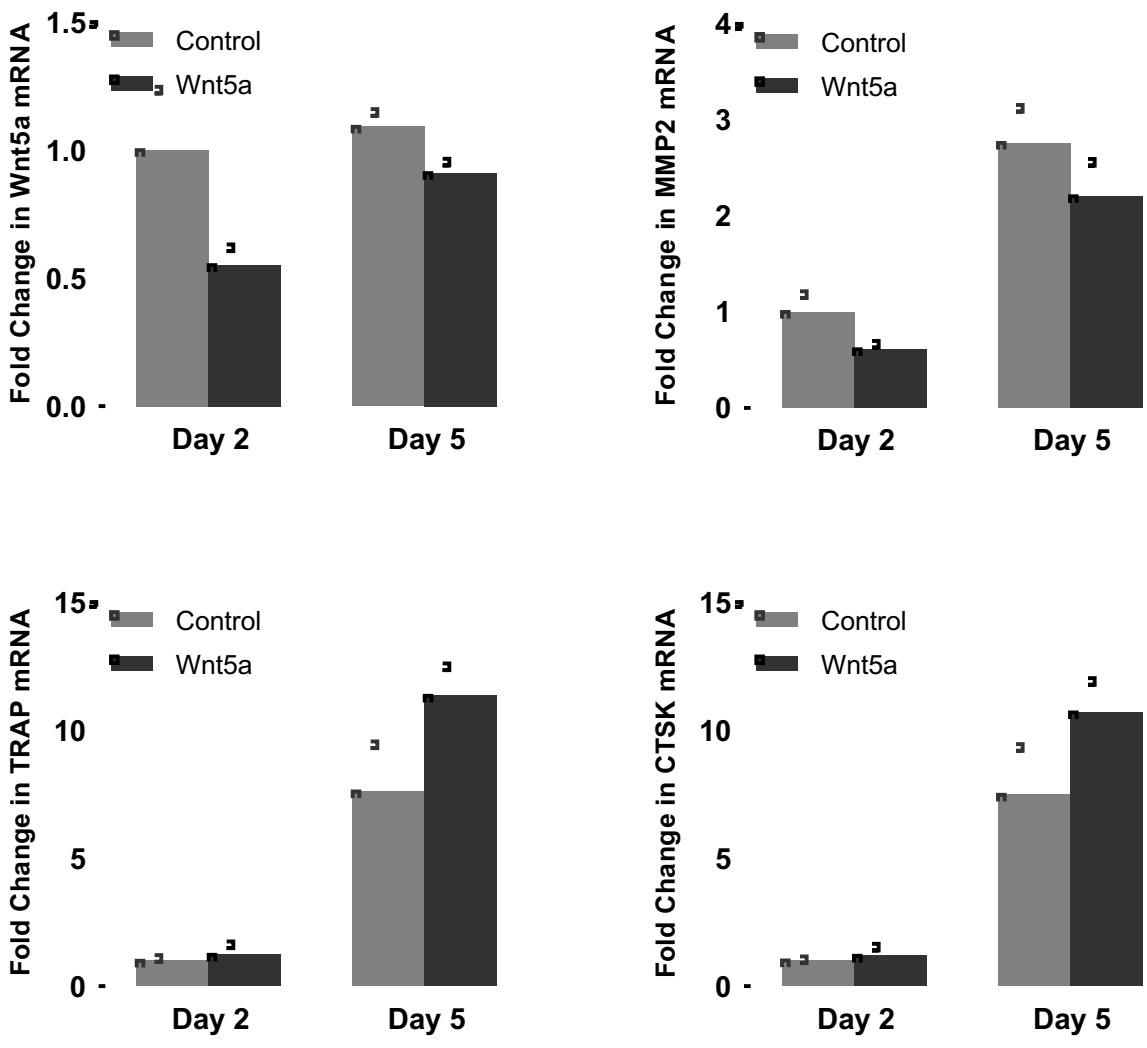
**Figure S6** Levels of arthritis modulators in control and *Wnt5a* cKO mice in the *STIA* model  
mRNA from d7 paws from Control and *Wnt5a* cKO mice was analyzed for (A) IL1 $\beta$ , IL6, MCP1 and TNF $\alpha$  and (B) CAL and CAR2. There was no significant difference between the levels in Control and *Wnt5a* cKO mice.



**Figure S7:** Characteristics of the fusing osteoclasts in the absence and presence of Wnt5a.



**Figure S8:** Osteoclast marker expression during fusion of BMDM to osteoclasts in the presence or absence of Wnt5a.





**Figure S9:** Marker expression levels during fusion of BMDM in the presence or absence of Wnt5a.

