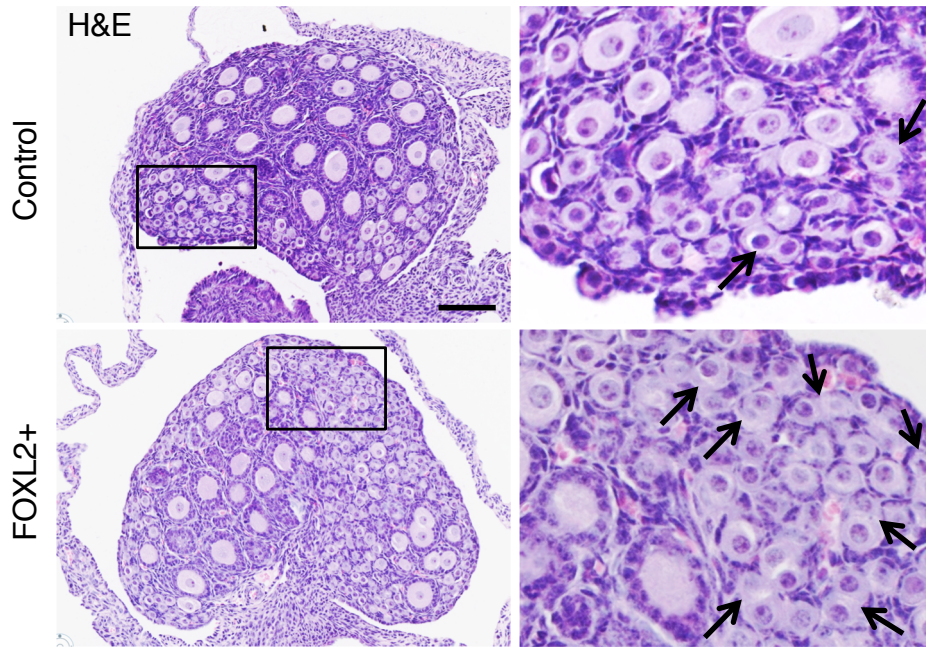


**Figure S1: FOXL2 is expressed in theca cells.**

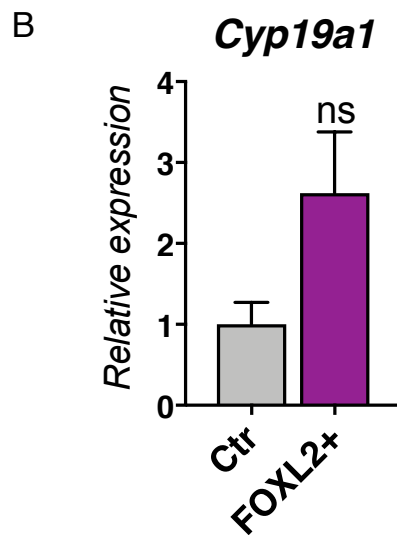
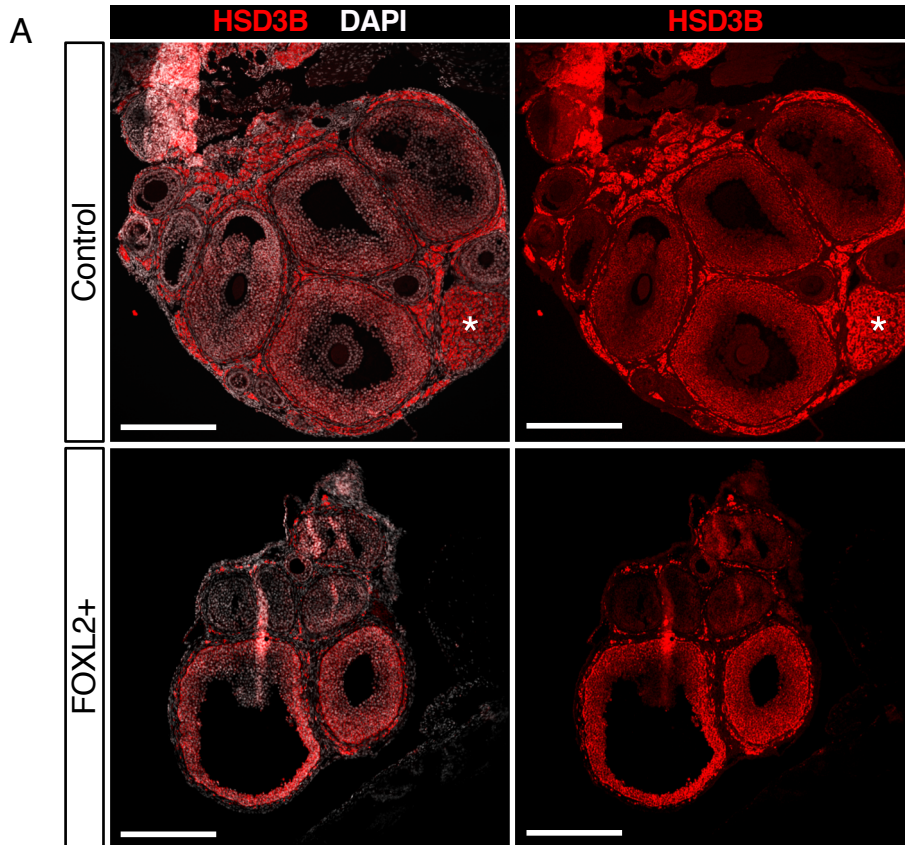
Immunofluorescence for FOXL2 and the reporter LacZ under the control of the theca cell marker Gli1 in a 6 day-old ovary. Arrowheads point to FOXL2-positive theca cells.

Fig. S2

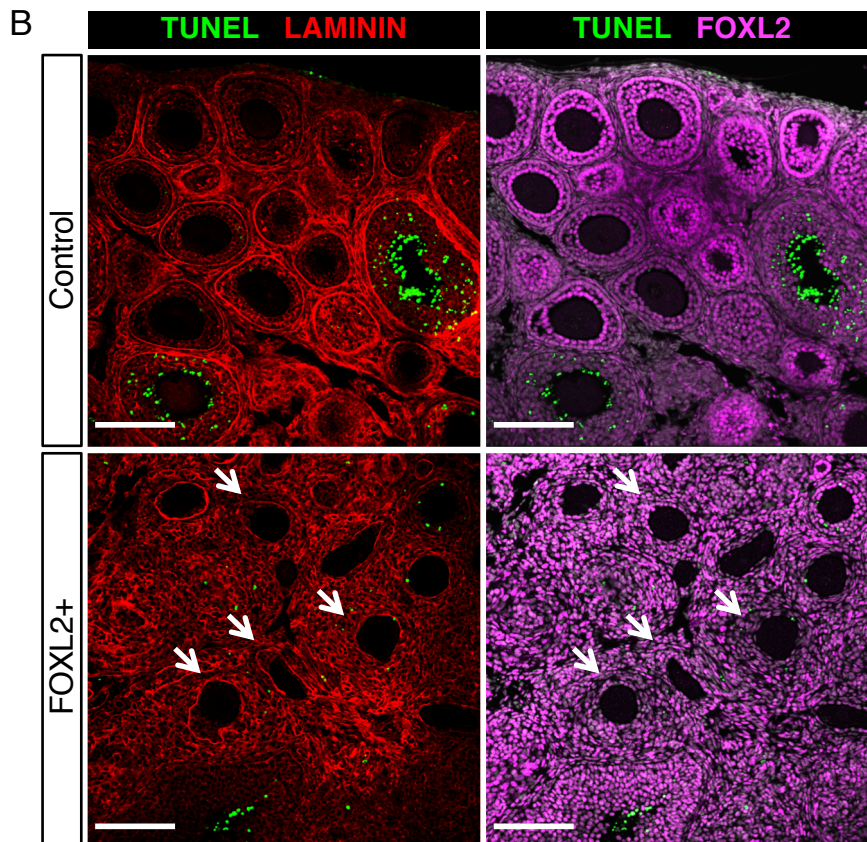
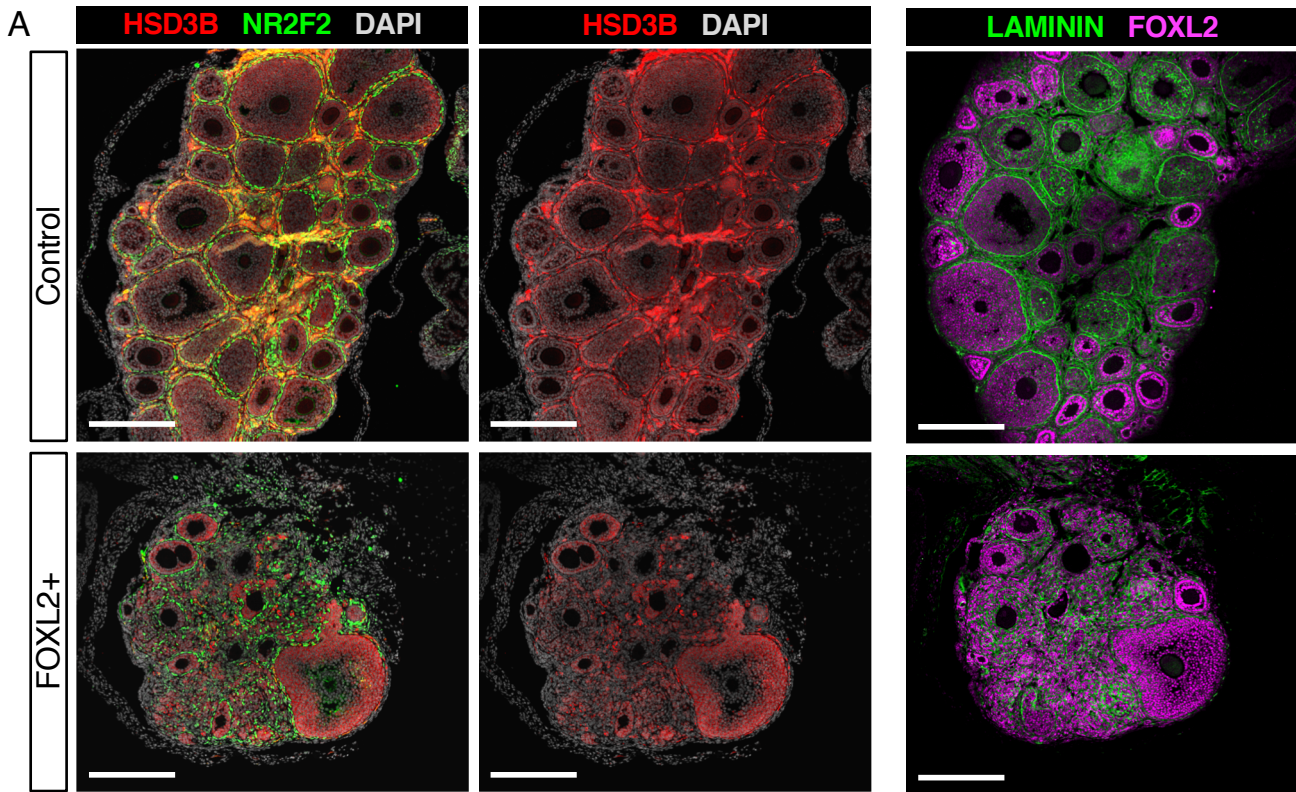


**Figure S2: Defects in nest breakdown in FOXL2+ ovaries.**

H&E stained sections of control and FOXL2+ ovaries at P9. Right panels are higher magnification of outlined areas. Arrows show oocytes still in nests. Scale bar: 100  $\mu$ m.

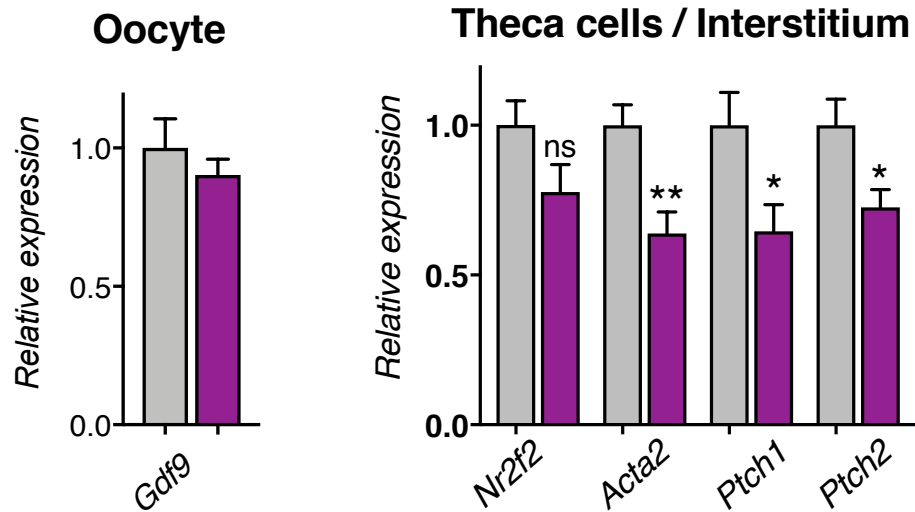


**Figure S3: Steroidogenesis in 8 week-old ovaries.** (A) Low magnification immunofluorescence for the steroidogenic enzyme HSD3B in control and FOXL2+ ovaries at 8 weeks of age. \*: HSD3B+ corpus luteum. Scale bar: 250  $\mu$ m. (B) Expression of *Cyp19a1* in 8 week-old ovaries. qPCR analysis in control and FOXL2+ ovaries at 8w. Mann-Whitney test; mean  $\pm$  SEM (n=4-6/genotype); ns: non-significant.

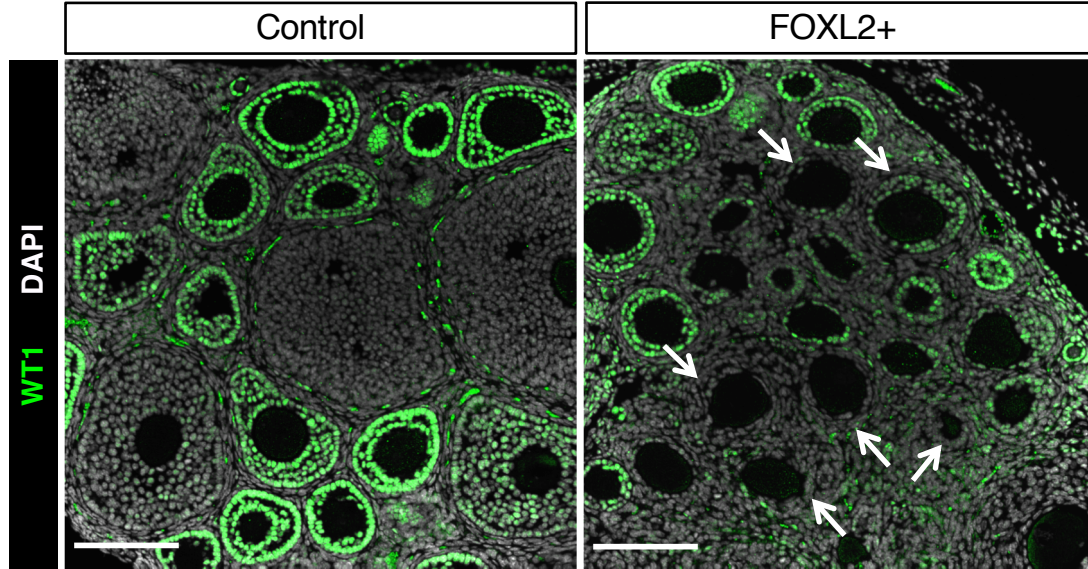


**Figure S4: Characterization of follicle integrity in 3 week-old ovaries.** (A) Low magnification immunofluorescence for HSD3B / NR2F2 and for LAMININ / FOXL2 in control and FOXL2+ ovaries at 3 weeks of age, relative to Fig.5B-C. Scale bar: 250  $\mu$ m. (B) TUNEL assay co-labeled with LAMININ and FOXL2. Abnormal follicles with irregular Laminin deposit (arrows) are not atretic follicles. Scale bar: 100  $\mu$ m.

A



B



**Figure S5: Theca cell and granulosa cell differentiation defects in FOXL2+ ovaries.** (A) Expression of genes involved in theca cell differentiation in P9 ovaries. qPCR analysis of expression of the oocyte gene *Gdf9*, and the interstitial cell genes *Nr2f2* (encoding for COUPTFII), *Acta2* (encoding for alpha smooth muscle actin) and members of Hedgehog signaling pathway *Ptch1* and *Ptch2* in control and FOXL2+ ovaries at P9. Student t-test; mean  $\pm$  SEM (n=7-8/genotype); \*P<0.05; ns: non-significant. (B) Immunofluorescence for the granulosa cell marker WT1 in 3 week-old ovaries. Arrows show follicles with weak/absent expression of WT1. Scale bar: 100  $\mu$ m