

Supporting Information

Figure S1. Targeted inactivation of the mouse *Sycp2l* gene. **(A)** Diagram representing the wild-type *Sycp2l* locus, targeting vector, and targeted allele. *Sycp2l* is located on Chr 13 and consists of 21 exons. In the targeted allele, deletion of exons 8-14 (encoding residues 191-383) leads to a frameshift in the transcript. A floxed PGK-neo gene was used as a drug selection marker, and TK (thymidine kinase) as a negative selection marker. **(B)** Absence of SYCP2L protein in *Sycp2l*^{-/-} ovaries. Western blot analysis was performed using 20 µg protein of extracts from the ovaries of 10 dpp wild-type, *Sycp2l*^{+/-}, and *Sycp2l*^{-/-} mice. ACTB serves as a loading control. **(C)** Absence of SYCP2L protein in *Sycp2l*^{-/-} ovaries. Ovarian sections from 10 dpp wild-type and *Sycp2l*^{-/-} mice were immunostained with anti-SYCP2L and anti-STK31 antibodies. STK31 is expressed in the cytoplasm of oocytes {{1253 Zhou,J. 2014;}}. DNA was stained with DAPI. A subset of oocytes are indicated by arrows (wild-type) and arrowheads (*Sycp2l*^{-/-}). Scale bars, 25 µm.

Figure S2. Lack of localization of SYCP2L to the synaptonemal complex in leptotene and zygotene oocytes. Spread nuclei of oocytes from wild-type embryonic ovaries were immunostained with anti-SYCP2 and anti-SYCP2L antibodies. DNA was stained with DAPI. Leptotene and zygotene oocytes were obtained from E15.5 mouse ovaries. Late diplotene oocytes were obtained from E18.5 ovaries. Scale bar, 10 µm.

Figure S3. Centromere localization of mouse SYCP2L protein in NIH 3T3 cells. Cells were transfected with an expression vector encoding a V5-SYCP2L fusion protein. V5-SYCP2L and centromeres were identified by immunostaining with an anti-V5 antibody and CREST antiserum, respectively. Nuclear DNA was stained with DAPI. The cell in the upper left corner expressed

SYCP2L, whereas the cell in the lower right corner was negative for SYCP2L and served as a control.

Scale bar, 20 μm .

Figure S4. Blood FSH and LH levels in females. Blood was collected from 8-, 12-month, and 14-month-old *Sycp2l*^{-/-} and control (wt and *Sycp2l*^{+/-}) female mice. n, number of females per genotype. **(A)** Blood FSH concentration. **(B)** Blood LH concentration.

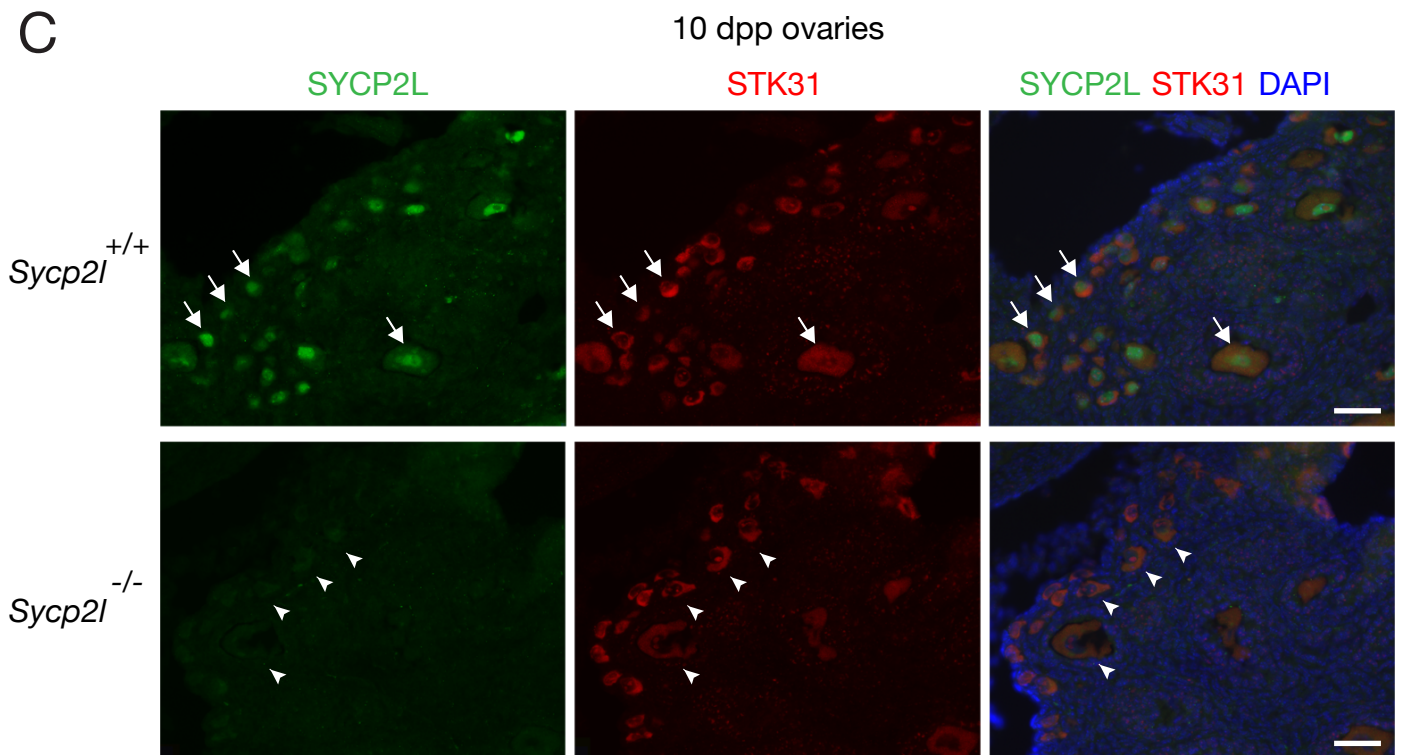
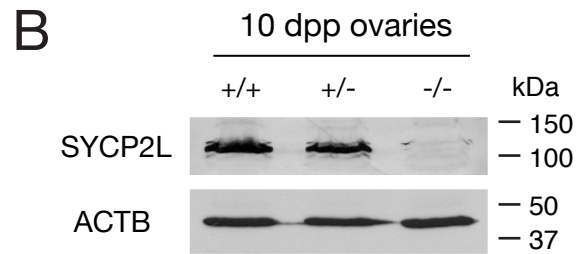
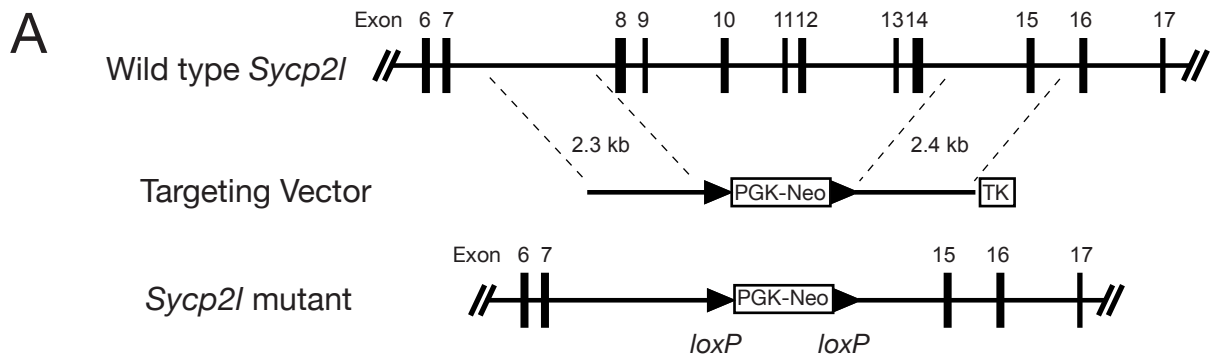


Figure S1

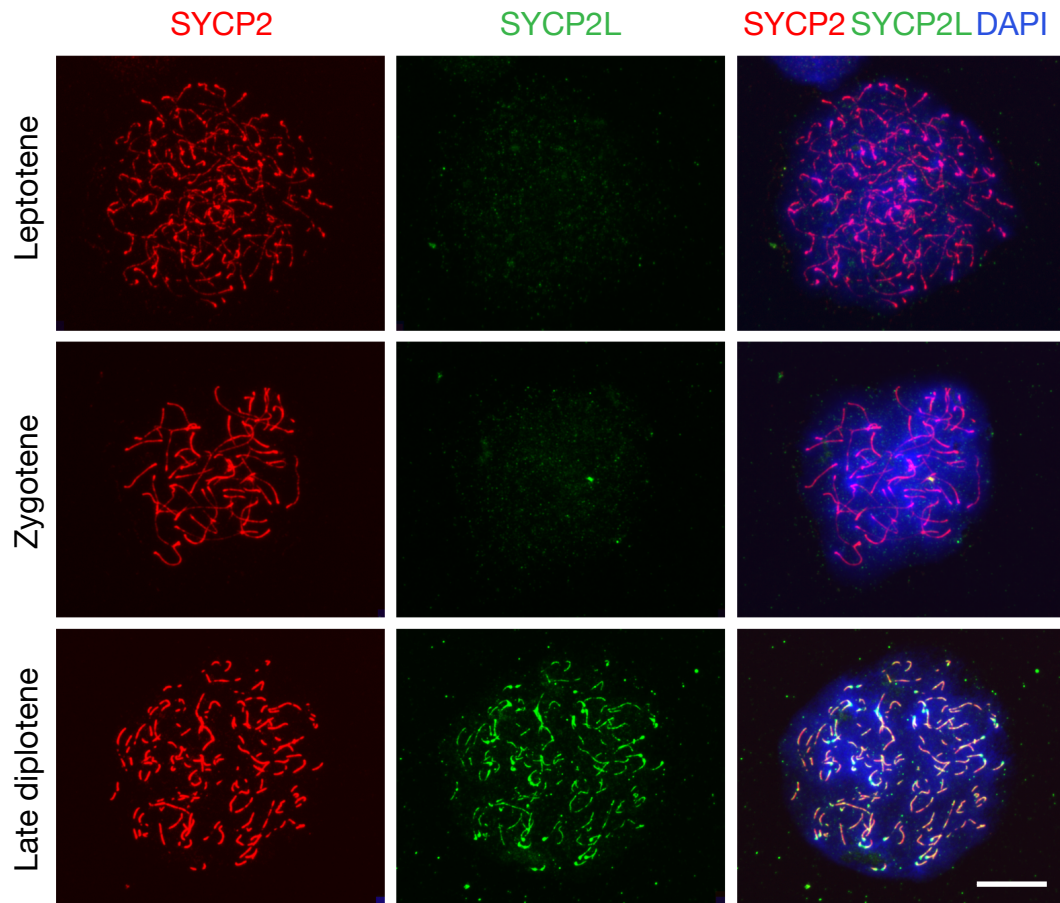


Figure S2

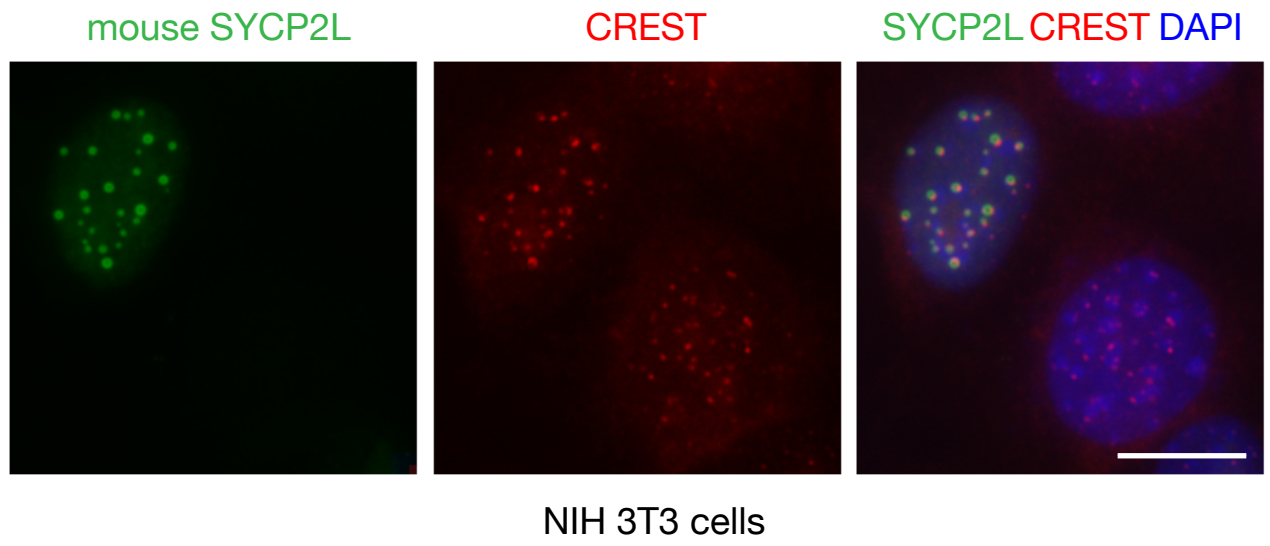


Figure S3

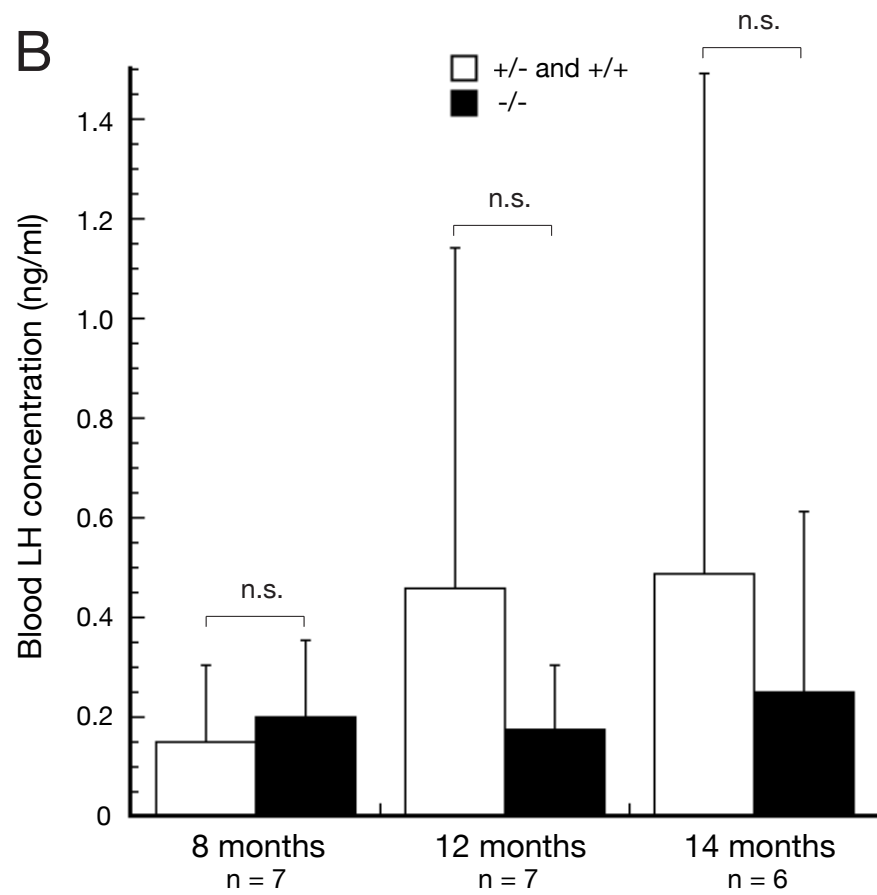
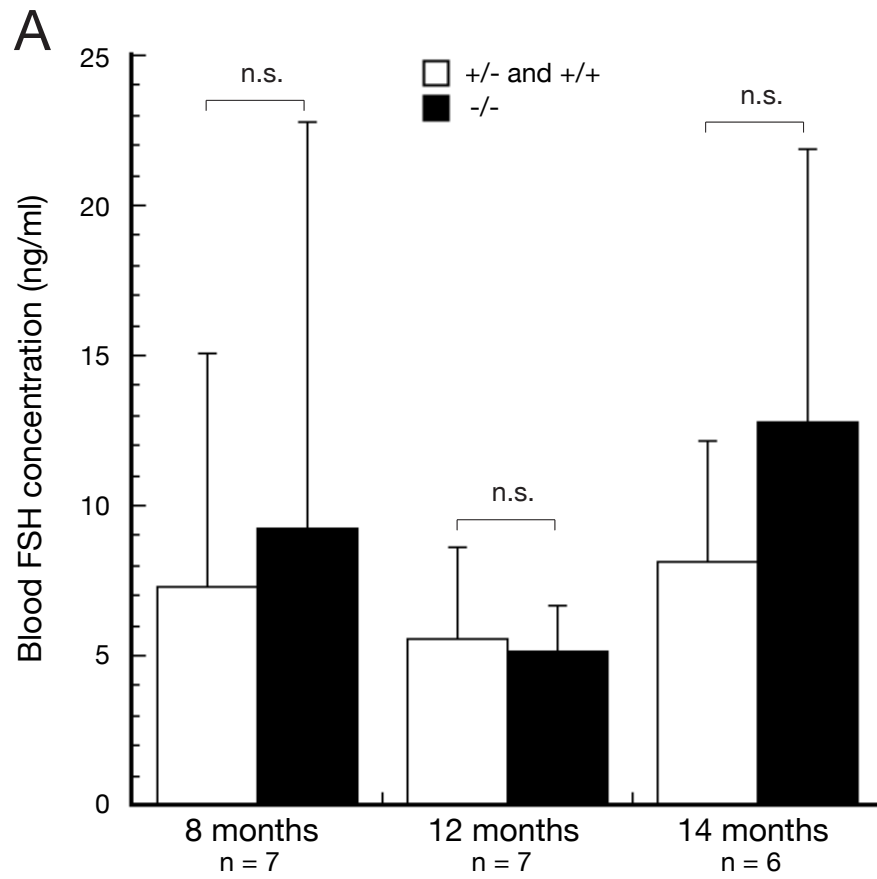


Figure S4