Figure S1. Localization of ectopically expressed Nanos2 protein in female germ cells

Female gonadal sections from Nanos2-expressing mouse embryos at E16.5 were immunostained with anti-Nanos2 (green) antibody and TRA98 (red). DNA was labeled using DAPI counterstaining (blue) and the images were merged. Nanos2 localizes in the cytoplasm. Scale bar, 20μm (for all panels).
**Figure S2. Localization of the Scp3 protein in female embryonic germ cells**

Female gonadal sections from E12.5 to E16.5 wild-type mouse embryos were immunostained with an anti-Scp3 (green) antibody. DNA was labeled by DAPI counterstaining (blue). Axial core formations could be observed after E14.5, whereas the Scp3 signals remain as small nuclear dots in the premeiotic germ cells at E12.5-E13.5. Scale bar, 20µm (for all panels).
Figure S3. The transcription of Stra8 in the presence or absence of Nanos2
(Upper panels) Female gonadal sections from Nanos2-expressing mice at E13.5 were stained with anti-Nanos2 (green) antibody (left panel) and a Stra8 intron probe (red) (middle panel). DNA was labeled by DAPI counterstaining (blue). (Lower panels) Male gonadal sections from Nanos2(+/−) (left) and Nanos2(−/−) (right) littermates at E14.5 stained with the Stra8 intron probe (magenta). DNA was labeled by DAPI counterstaining (green). Note that nuclear dots are evident in normal female and Nanos2(−/−) male germ cells but are undetectable in normal male and Nanos2-expressing female germ cells (arrowheads). Scale bars, 20μm (for each set of panels).
Figure S4. The dimethylation of Histone H3K9 is gradually reduced in male gonocytes in the presence of Nanos2.

Male gonadal sections from E12.5, E14.5, E16.5 (A-F) and E15.5 (G-J) mouse embryos were immunostained with anti-H3K9me2 (green) antibody and TRA98 (red). The H3K9me2 signals in the germ cells are gradually decreased in wild-type (A-F, G, I) embryos but up-regulated in Nanos2(-/-) germ cells (H, J). Arrowheads indicate the germ cells.

Scale bars, 20µm (for each set of panels).
Figure S5. Expression patterns of Dnmt3L and TDRD1

The relative expression levels of Dnmt3L (A) and TDRD1 (B) in E13.5-E16.5 Nanos2(+/-) and Nanos2(-/-) male gonads as determined by real-time RT-PCR. The blue lines represent the expression levels of each gene in Nanos2(+/-) mice, whereas the red lines represent those in Nanos2(-/-) mice. For each sample, a normalization factor was calculated using G3PDH as a reference gene. All samples were normalized prior to calculating the ratio of expression for each gene.
Figure S6. The genes required for female germ cell development are up-regulated in the Nanos2-/- male gonad.

The relative expression levels of the Figα (A) and Nobox (B) genes in Nanos2+/− and Nanos2-/- male gonads at E16.5 as determined by real-time RT-PCR. For each sample, a normalization factor was calculated using the G3PDH reference gene. All samples were normalized prior to calculating the ratio of expression for each gene.
Figure S7. Nanos2<sup>+/−</sup>Bax<sup>+</sup> male germ cells disappear after birth

Sections of testes from 1 week-old (upper 4 panels) and 2 week-old (lower 4 panels) Nanos2<sup>+/−</sup>Bax<sup>+</sup>, Nanos2<sup>−/−</sup>Bax<sup>+</sup>, Nanos2<sup>+/−</sup>Bax<sup>−/−</sup> and Nanos2<sup>−/−</sup>Bax<sup>−</sup> mice were immunostained with TRA98 and counterstained with hematoxylin. Note that the number of germ cells in the Nanos2<sup>+/−</sup>Bax<sup>+</sup> mice is greater than that in the Nanos2<sup>+/−</sup>Bax<sup>−/−</sup> mice at 1 week after birth, but that these cells gradually disappear and reach levels that are equivalent to the Nanos2<sup>+/−</sup>Bax<sup>−/−</sup> mice until 2 weeks after birth. Scale bars, 100µm (for each row of panels).