

Supplementary Fig. 1

PAS staining of wild type and *Boule* mutant testes. Representative wild type (left column) and mutant (right column) sections. Metaphase cells are clearly visible in stage XII homozygous tubules, magnified in the inset. Apparent round spermatids with visible acrosome structures are present in mutant stage II-III, magnified in the inset. By stage IX, multinucleate giant cells populate the lumen of mutant tubules (asterisks). No elongating spermatids are seen in mutant tubules, though they are abundant in the wild type. Me, metaphase spermatocyte; 2 spc, secondary spermatocytes; R spd, round spermatid; E spd, elongating spermatid; LP, late pachytene spermatocyte.

Supplementary Fig. 2**Expression of known spermiogenesis regulators in adult *Boule* mutants.**

Immunohistochemistry of Crem, Tpap, Rnf17, Miwi and Vasa in testis sections of wild type (left) and mutant (right) adult mice. All proteins show normal expression in spermatocytes (arrowheads) and round spermatids (arrows) of *Boule*^{-/-} sections, demonstrating that their translation is unaffected in mutants. The transcription factor Crem is predominantly nuclear, faintly in pachytene spermatocytes (arrowheads) and strongly in round spermatids (arrows). Tpap, Rnf17 and Miwi expression is cytoplasmic in pachytene spermatocytes (arrowheads) and round spermatids (arrows). Vasa is expressed in all germs cells. Scale bar, 5um.

Supplementary Fig. 3

Expression of known spermiogenesis regulators in p24 mice. Immunohistochemistry of Crem, Tpap, Rnf17, Miwi and Vasa in testis sections of heterozygote (left) and mutant (right) 24-day

old mice. Protein expression is indistinguishable between heterozygotes and *Boule*^{-/-} mice.

Spermatocytes (arrowheads) and round spermatids (arrows) are emphasized. Scale bar, 5µm.

Fig. S1

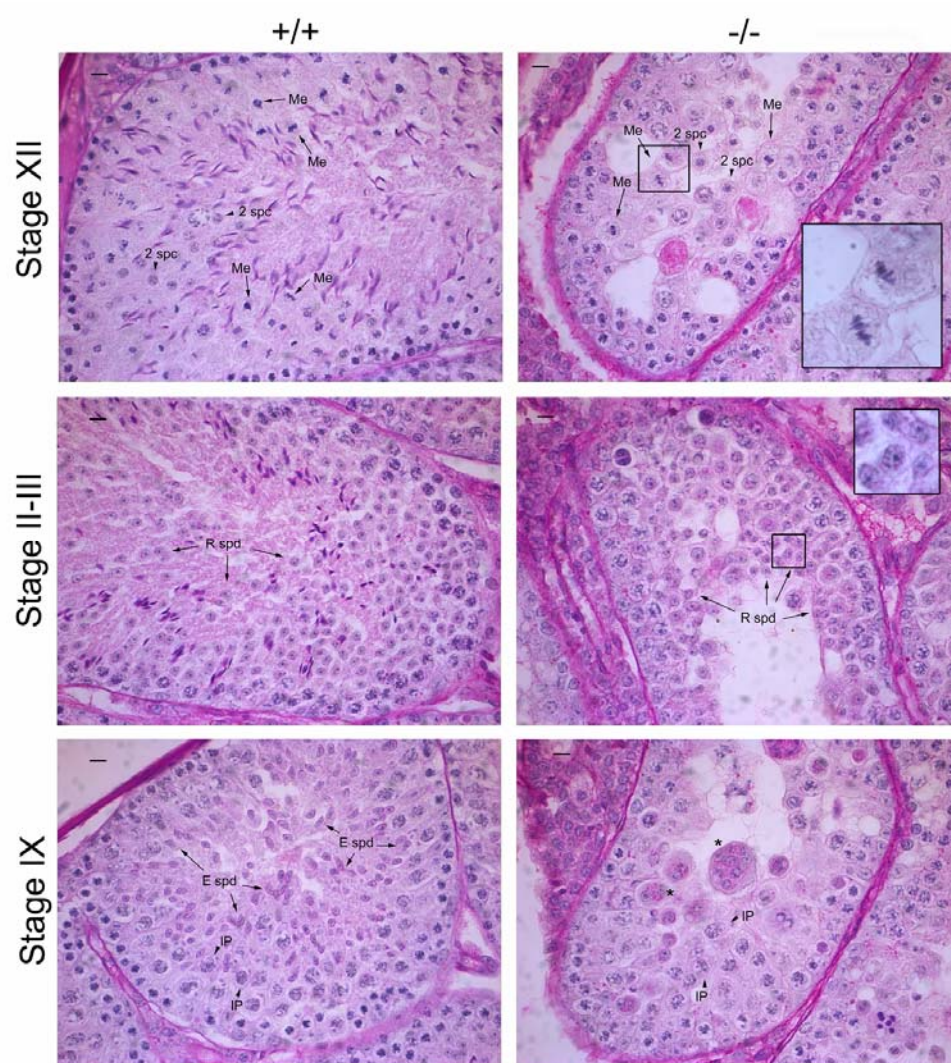


Fig. S2

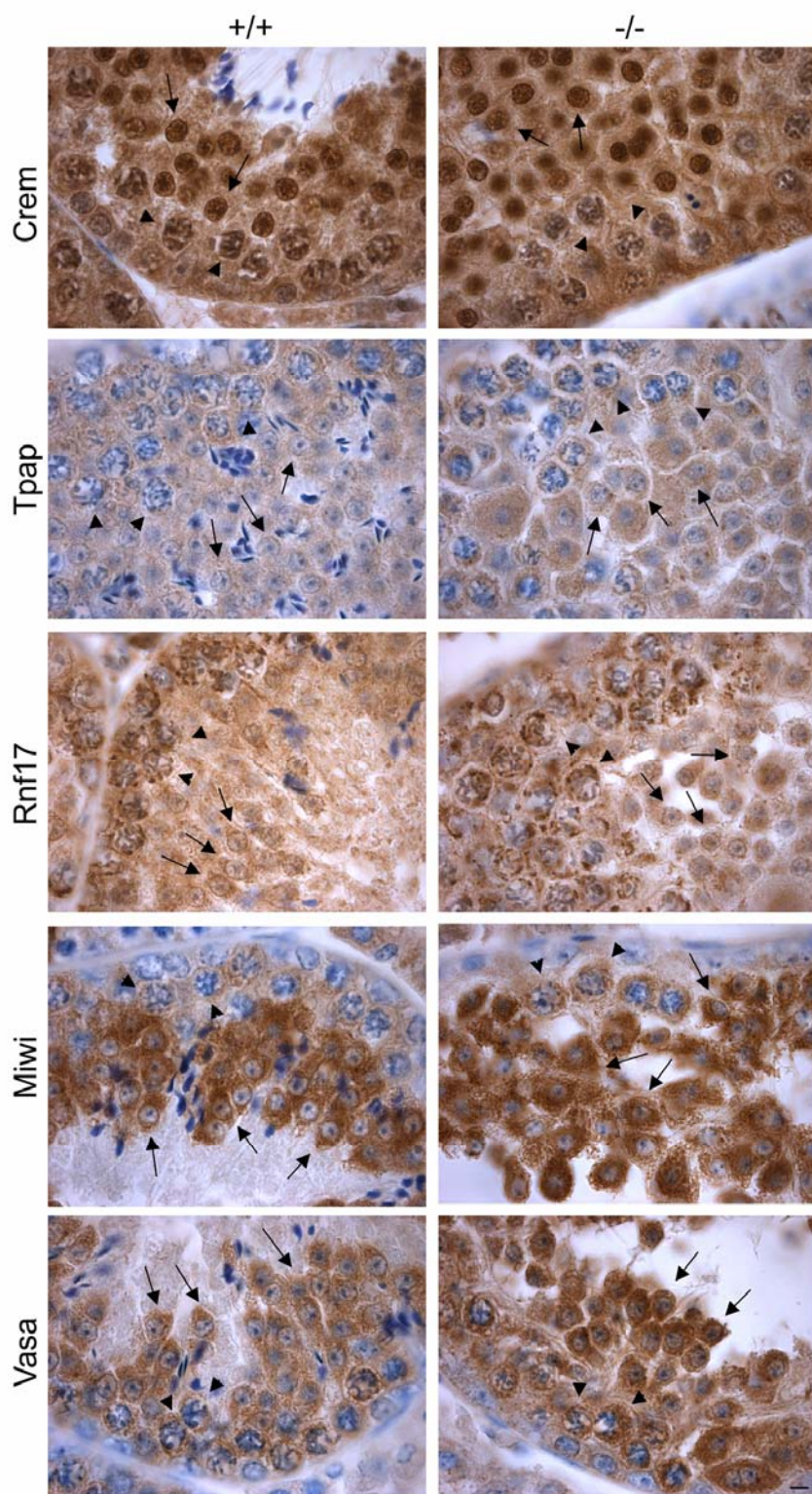


Fig. S3

