Development of the germline requires consecutive differentiation events. Regulation of these has been associated with germ cell-specific and pluripotency-associated transcription factors, but the role of general transcription factors (GTFs) remains elusive. TATA-binding protein (TBP) is a GTF involved in transcription by all RNA polymerases. During ovarian folliculogenesis in mice the vertebrate-specific member of the TBP family, TBP2/TRF3, is expressed exclusively in oocytes. To determine TBP2 function in vivo, we generated TBP2-deficient mice. We found that Tbp2(-/-) mice are viable with no apparent phenotype. However, females lacking TBP2 are sterile due to defective folliculogenesis, altered chromatin organization, and transcriptional misregulation of key oocyte-specific genes. TBP2 binds to promoters of misregulated genes, suggesting that TBP2 directly regulates their expression. In contrast, TBP ablation in the female germline results in normal ovulation and fertilization, indicating that in these cells TBP is dispensable. We demonstrate that TBP2 is essential for the differentiation of female germ cells, and show the mutually exclusive functions of these key core promoter-binding factors, TBP and TBP2, in the mouse [1)]

1)
Gazdag E, Santenard A, Ziegler-Birling C, Altobelli G, Poch O, Tora L, Torres-Padilla ME. TBP2 is essential for germ cell development by regulating transcription and chromatin condensation in the oocyte. Genes Dev. 2009 Sep 15;23(18):2210-23. doi: 10.1101/gad.535209. PubMed PMID: 19759265; PubMed Central PMCID: PMC2751983.