

# Infertility-Causing Haploinsufficiency Reveals TRIM28/KAP1 Requirement in Spermatogonia

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## **Summary**

In this article, Tan et al. show haploinsufficiency of TRIM28/KAP1 causes premature degeneration of the seminiferous epithelium in young adult mice. The requirement of proper TRIM28 levels is cell-autonomous and specific to spermatogonial stem cells, previously shown to be devoid of TRIM28 expression. They instead reveal Trim28's vital role in spermatogonia to maintain proper stem cell homeostasis.

## **Abstract**

Spermatogenesis relies on exquisite stem cell homeostasis, the carefully balanced self-renewal and differentiation of spermatogonial stem cells (SSCs). Disturbing this equilibrium will likely manifest through sub- or infertility, a global health issue with often idiopathic presentation. In this respect, disease phenotypes caused by haploinsufficiency of otherwise vital developmental genes are of particular interest. Here, we show that mice heterozygous for *Trim28*, an essential epigenetic regulator, suffer gradual testicular degeneration. Contrary to previous reports we detect *Trim28* expression in spermatogonia, albeit at low levels. Further reduction through *Trim28* heterozygosity increases the propensity of SSCs to differentiate at the cost of self-renewal.

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Figure

