Published-Ahead-of-Print June 14, 2006, DOI:10.2164/jandrol.106.000950
Journal of Andrology, Vol. 27, No. 6, November/December 2006

DOI: 10.2164/jandrol.106.000950

The Sycp1-Cre Transgenic Mouse and Male Germ Cell Inhibition of NF-κB

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Successful spermatogenesis requires autocrine, paracrine, and endocrine signaling throughout the testes. The seminiferous tubules contain somatic Sertoli cells in tight association with numerous germ cell populations. To address the *in vivo* biologic roles of genes during spermatogenesis, spatial and temporal restriction of gene inhibition is a useful approach. To this end, Cre-LoxP technology can produce cell-specific knockdowns of genes, allowing dissection of the underlying processes that manifest as functional deficits in whole animals. Here we report the use of the synaptonemal complex protein 1-Cre (Sycp1-Cre) to create germ cell–specific nuclear factor κB knockdown mice through floxed IκB kinaseß. We observed a LoxP gene recombination rate of approximately 43% using Sycp1-Cre, as determined by offspring genotype. In addition, we confirm that, with multiple generations, the LoxP sites fail to recombine due to epigenetic modification. This detailed examination of the meiotic Sycp1-Cre recombinase activity highlights the obstacles to germ cell–specific gene inhibition through Cre/LoxP technology in the testis. Taken together, these data demonstrate a need for early spermatogonial expression of Cre recombinase, as an alternative to meiotic Cre expression, for the creation of germ cell–specific knockout mice.

Key words: Testis, Cre/LoxP, spermatogenesis

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