

Brehm · Steger

Regulation of Sertoli Cell and Germ Cell Differentiation

Unwanted childlessness affects approximately one in six couples worldwide. According to the World Health Organization, in nearly 40% of cases the cause can be attributed to the female, in 20% to the male, in 25% to both, and in 15% the cause remains unknown. The incidence of male factor infertility in the general population is approximately 7%. The majority of these men experience irreversible idiopathic infertility and cannot father children without some form of medical intervention. Male factor infertility, in addition, may be caused by testicular germ cell cancer, which is known to represent the most common cancer among young men in Western industrialized countries. There is growing evidence that this cancer originates from fetal germ cells exhibiting an aberrant programme of gene expression and that tumour progression may be favoured by an aberrant Sertoli cell-germ cell communication. The present monograph aims to shed more light on the regulation of Sertoli and germ cell differentiation. Involving knockout and transgenic mouse models, the authors focus on (a) male factor infertility that might be related to altered maturation of Sertoli cells, (b) male factor infertility that might be due to incorrect histone-to-protamine exchange in haploid spermatids, and (c) progression of testicular germ cell cancer that might be favoured by an aberrant Sertoli cell-germ cell communication.

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