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Modification of Sertoli Cell Responsiveness to FSH by Cryptorchidism and Hypophysectomy in Immature and Adult Rats

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Cryptorchid or hypophysectomized rats were used as models to examine the possible relationships between germ cell development and gonadotropins in the age-related decline in the responsiveness of the cyclic nucleotide system of rat Sertoli cells to FSH. Neither cryptorchidism nor hypophysectomy of adult rats can restore the ability of Sertoli cells to respond to FSH. Thus the age-related decline in cAMP response to FSH appears to be irreversible by depletion of postmeiotic germ cells in the presence or absence of gonadotropins. In contrast, cryptorchidism or hypophysectomy of immature rats prevents the normal age-related change in FSH responsiveness, suggesting that the change in responsiveness is not directly related to changes in gonadotropins or to the presence of developing germ cells. It is hypothesized that the decline in responsiveness to FSH may be physiologically important and may be a prerequisite for the completion of meiosis.

Key words: rat, cryptorchidism, hypophysectomy, cAMP, Sertoli cell

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