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cAMP response of cultured Sertoli cells from immature and adult hamsters. Effect of hypophysectomy and cryptorchidism

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The ability of FSH to stimulate cAMP accumulation in Sertoli cells cultured from either hamsters or rats declines with the age of the animal. Hypophysectomy or bilateral cryptorchidism of immature rats prevents this normal age-related decline in Sertoli cell response to FSH. However, neither hypophysectomy nor cryptorchidism of adult rats can restore the Sertoli cell response to that of the immature animal. In contrast, the Sertoli cell response to FSH in the adult golden hamster, a photoperiodic animal, can be restored to that of an immature animal during short photoperiod-induced testicular regression. Thus, the purpose of these experiments was to determine if the Sertoli cell response to FSH would also be restored to that of an immature animal when testicular regression was induced by other means, namely, hypophysectomy or bilateral cryptorchidism. As in the rat, hypophysectomy or cryptorchidism of immature hamsters resulted in decreased testicular growth and a cAMP response to FSH in cultured Sertoli cells, which remained at the high level of an immature animal. However, in contrast to the rat, hypophysectomy or bilateral cryptorchidism of the adult hamster resulted in not only testicular regression, but also a restored ability of FSH to stimulate cAMP accumulation in Sertoli cells cultured from these animals. Indeed, the magnitude and specificity of the Sertoli cell cAMP response to agents was the same in Sertoli cells cultured from testes undergoing testicular regression induced by either short photoperiod (ie, natural means), hypophysectomy, or cryptorchidism. (ABSTRACT TRUNCATED AT 250 WORDS)

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