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## JOURNAL ARTICLE

# Testosterone feedback on gonadotropin secretion and gene expression in transgenic mice expressing human growth hormone gene

K. Tang, A. Bartke, C. S. Gardiner, T. E. Wagner and J. S. Yun

Department of Physiology, School of Medicine, Southern Illinois University, Carbondale.

To determine the effects of testosterone on the regulation of gonadotropins in metallothionein-1/human growth hormone (MT/hGH) transgenic mice, basal and gonadotropin-releasing hormone (GnRH)-stimulated luteinizing hormone (LH) and follicle-stimulating hormone (FSH) release from incubated pituitaries, as well as pituitary content of LH, FSH, and mRNA for their respective beta subunits, were measured in normal and transgenic males that were injected with testosterone propionate (5 micrograms/g body weight; 24 hours before autopsy), injected with oil vehicle, castrated for 10 days, or sham operated. In normal (non-transgenic) males, exogenous testosterone induced the expected suppression, and castration induced the expected stimulation of various parameters of gonadotropin synthesis and release. In contrast, in testosterone-treated and in castrated MT/hGH transgenic mice the release of LH and the pituitary levels of LH-beta mRNA did not differ from the corresponding values measured in vehicle-injected and sham-operated transgenic controls. Pituitary LH content was elevated in testosterone-treated MT/hGH transgenic mice but was not changed in castrated transgenic males. The changes in pituitary levels of FSH and FSH-beta mRNA and in FSH release in MT/hGH transgenic mice in response to testosterone and castration were different from the changes in LH and LH-beta mRNA in the same mice, but similar to the changes of FSH and FSH-beta message produced in normal mice by identical treatments. We suggest that hGH expression attenuates the effects of testosterone on the mechanisms controlling LH release, with less influence on testosterone regulation of LH synthesis. These effects of hGH expression appear to be selective for LH, without influencing the FSH control system.

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