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## JOURNAL ARTICLE

# Animal model of isolated gonadotropin deficiency. I. Hormonal responses to LHRH immunoneutralization

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Five intact male mongrel dogs, characterized by an episodic secretory pattern of LH and normal serum testosterone concentrations, were actively immunized against LHRH by subcutaneous injections of 200 micrograms of a LHRH-human serum albumin conjugate at 0, 4, and 8 weeks. After 12 weeks, two dogs having the highest antibody titers to LHRH (25% and 51% binding of <sup>125</sup>I-LHRH in serum diluted 1:1000 B/Bo) had low to nondetectable serum concentrations of LH and testosterone, whereas serum FSH concentrations were significantly reduced in only one of these dogs. Immunocytochemical techniques showed that the pituitaries of these same two dogs had smaller and fewer LH immunoreactive gonadotropes than did the pituitaries of another three immunized-*nonaffected* dogs or of the five nonimmunized control dogs. The two LHRH-immunized dogs characterized by hypogonadotropism also had reduced testis (4.0 and 4.0 g) and prostate (2.1 and 1.7 g) weights when compared to control dogs (testis: 12.1 +/- 1.0 g and prostate: 9.2 +/- 1.9 g). LHRH antibody titers in three immunized dogs were demonstrable (8.1, 9.8, and 14.2% B/Bo), but effects on LH, FSH, and testosterone concentrations, pituitary gonadotropes, and reproductive tissue weights were not apparent. The similarity in hormonal and tissue responses observed between dogs effectively immunized against LHRH and men with isolated gonadotropin deficiency suggests that the LHRH-immunized dog may provide a suitable experimental model for the study of patients with isolated gonadotropin deficiency.

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