Expression of Anti-Müllerian Hormone in Equine Granulosa Cell Tumors

Barry A. Ball, DVM, PhD, Diplomate ACT; Alan J. Conley, BVSc, PhD; and Irwin K. M. Liu, DVM, PhD

Immunoreactive anti-Müllerian hormone (AMH) is expressed within the granulosa cell component of equine granulosa cell tumors (GCTs), and bioactive AMH can be detected in sera from mares with GCTs. AMH represents a useful biomarker for granulosa cell tumors in the mare, and development of a sensitive immunoassay for equine AMH will have applications in detection of equine GCTs and in understanding normal folliculogenesis. Authors' address: Department of Population Health and Reproduction; School of Veterinary Medicine, University of California, Davis, CA 95616; e-mail: baball@ucdavis.edu (Ball). © 2008 AAEP.

1. Introduction
Anti-Müllerian hormone (AMH) is a glycoprotein that is secreted by the Sertoli cells of the testis from the time of sexual differentiation in the fetus through puberty and causes regression of the Müllerian ducts in the male. AMH is also expressed in granulosa cells of pre-antral and small antral follicles in the ovary after birth. In addition, AMH is expressed in granulosa cell tumors (GCTs), and determination of circulating AMH concentrations has been used in women for their diagnosis. The objective of the studies described here was to evaluate the expression of AMH in equine GCTs and in normal equine ovaries and to detect circulating AMH in mares with GCTs based on a bioassay.

2. Materials and Methods
Equine GCTs (n = 27) and normal equine ovaries (n = 10) were fixed in buffered neutral formalin, embedded in paraffin, and sectioned for immunohistochemistry (IHC) with a polyclonal primary antibody directed against a C-terminal peptide antigen from human AMH. After incubation with the primary antibody, slides were incubated with a biotinylated second antibody before detection using the Vectastain ABC detection kit.

3. Results and Discussion
Immunoreactive AMH was present in all 27 GCTs examined, and bioactive AMH was detected in sera from all four mares with GCTs. AMH was detected in the granulosa cells of small antral follicles but was decreased in larger follicles from normal ovaries. These data indicate that AMH is a useful biomarker for GCTs and for normal follicular development in mares.
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Footnote

*Vectastain ABC detection kit, Vector Laboratories, Burlingame, CA 94010.