Effects of a 200 µg dose canine gonadotropin releasing hormone vaccination on mares
Shaundra Epperson,a Andrew Schmidt,a Jo-Anne Le Mieux,b Becky Hinz,b Timothy Hazzard,a Michelle Kutzlera
aOregon State University, Department of Animal Sciences, Corvallis, OR; bWisconsin Equine Clinic and Hospital, Oconomowoc, WI

Introduction
Equity™ (Pfizer Australia Pty, Ltd, West Ryde, NSW, Australia)) is an equine gonadotropin releasing hormone (GnRH) vaccine (containing 200 µg of GnRH peptide) labeled for estrus suppression available in Australia and New Zealand.1 Canine Gonadotropin Releasing Factor Immunotherapeutic™ (Pfizer Animal Health, Exton, PA) is a canine GnRH vaccine labeled for benign prostatic hyperplasia manufactured in the U.S. Our laboratory has previously shown that a 5X dose of the canine GnRH vaccine (1000 µg of GnRH peptide) safely suppresses estrous cyclicity in mares.2 The objective of this study was to determine if a lower dose of the canine GnRH vaccine (200 µg of GnRH peptide; the labeled canine dose) would suppress estrous cyclicity in mares. Our hypothesis was that GnRH antibody titers would be lower but still sufficient to prevent equine estrous cyclicity and behavior.

Materials and methods:
During early Spring 2010, mares with a history of extreme estrous behavior (n=18) received two (1 ml) intramuscular injections in the neck of Canine Gonadotropin Releasing Factor Immunotherapeutic™ vaccine at a 30 day interval. Jugular venous blood samples were collected at time 0, 30, 90, and 150 days. Serum progesterone was measured using the chemilluminesence assay and GnRH antibody titers were determined by an enzyme linked immunosorbent assay previously validated in our laboratory. At day 90, transrectal ultrasound examinations were performed to determine ovarian structures and a questionnaire was given to owners to determine change in behavior.

Results
There were no adverse reactions to vaccination in any of the mares. At day 90, 17/18 mares (94%) were in anestrus (defined as no follicles measuring >20 mm and no luteal tissue visible using transrectal ultrasonography and a serum progesterone concentration of <0.5 ng/ml). Sixteen owners (89%) responded that the mares’ estrous behaviors were greatly reduced since initial vaccination. During the middle of summer (at day 150), progesterone concentrations remained <0.5 ng/ml in these mares, suggesting that they were still not cycling. Forty-four percent of mares had GnRH antibody titers ≥1:16.

Conclusion
Administration of 200 µg of GnRH peptide in the canine GnRH vaccine is an effective way of immunologically preventing estrous cyclicity in most mares, even those with very low (undetectable) antibody titers. This method is especially useful for performance athletes as well as mares that express extreme estrous behavior.

Keywords: Estrous behavior, GnRH, mare, progesterone, vaccination

References