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Validation of a serum immunoassay to measure progesterone and diagnose pregnancy in the West Indian manatee (Trichechus manatus).

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Source

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Abstract

The objective was to validate a high-sensitivity chemiluminescent assay of serum progesterone concentrations for pregnancy diagnosis in manatees. Assay analytical sensitivity was 0.1 ng/mL, with mean intra- and inter-assay coefficients of variation of 9.7 and 9.2%, respectively, and accuracy had a mean adjusted R(2) of 0.98. Methods comparison (relative to Siemen's Coat-A-Count RIA) demonstrated r=0.98, Deming regression slope of 0.95, and an intercept of 0.01. Based on ROC analysis, a progesterone concentration >or=0.4 ng/mL was indicative of pregnancy. Assay results were not significantly altered by two freeze-thaw cycles of samples. Characteristic progesterone concentrations during pregnancy were Months 1-4 (1.7-4.7 ng/mL), 5-8 (approximately 1.0 ng/mL), and 10 and 11 (0.3-0.5 ng/mL), whereas two late-pregnant females with impending abortion had progesterone concentrations of 0.1 ng/mL. Among pregnant females, maximum progesterone concentrations occurred in autumn (3.9+/-1.8 ng/mL), and were greater during all seasons than concentrations in non-pregnant females (0.1-0.2 ng/mL). Progesterone concentrations were also significantly higher in pregnant females than in non-pregnant females and males. This highly sensitive, specific, and diagnostic assay will be valuable for monitoring pregnancy and abortion in manatees.

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