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Major Professor: Milo Wiltbank

Degree Objective: Endocrinology and Reproductive Physiology

Background: Animal Science BS (2016), University of Wisconsin-Madison

Current Research Project:

Maternal recognition of pregnancy is critical to prevent regression of the corpus luteum (CL). Should the CL fail to be maintained the pregnancy will fail due to insufficient progesterone production. Prostaglandin F2-alpha is known to cause regression of the bovine corpus luteum in non-pregnant animals, while the presence of interferon tau from an elongating embryo serves to act as the signal to enable maternal recognition of pregnancy and prevent luteolysis.

The mechanism by which interferon tau prevents luteolysis has not been fully elucidated, though pathways involving PGF-2α regulation play a role in this process. Whether interferon tau results in increased secretion of factors such as PGE which blocks the action of PGF-2α at the CL, reduces the frequency or intensity of PGF-2α pulses from the uterus, or directly blocks PGF-2α at the CL to rescue the CL is unknown, though evidence for each path exists. By taking blood samples over the course of luteolysis we hope to characterize the natural PGF-2α pulses in pregnant and open animals by measuring PGFM, the metabolite of PGF-2α. Additionally, acquisition of CL biopsies throughout luteolysis will permit comparison of gene expression via RNA-seq in the CL of pregnant and non-pregnant animals.

By more fully understanding the processes involved in maintenance of the CL, informed strategies to promote CL maintenance in early pregnancies can be developed, increasing bovine reproductive efficiency.

Honors:

Grants Received:

Publications:

National Presentations:

Accepted for poster presentation:

Megan A. Mezera, Alvaro García-Guerra, Aurea M. O. Canavessi, Pedro L. J. Monteiro Jr, Roberto Sartori, Brian W. Kirkpatrick, Milo C. Wiltbank. "Trio, a Novel Bovine High Fecundity Allele: Acquisition of Dominance of Smaller Follicles" Society for the Study of Reproduction. July 13-16 2017. Washington DC. Abstract n. 200

Other Presentations:

Teaching and Mentorship:

ERP Service: