EFFECT OF RU486, A PROGESTERONE ANTAGONIST, ON UTERINE PROGESTERONE RECEPTOR, EMBRYONIC DEVELOPMENT AND OVARIAN FUNCTION DURING EARLY PREGNANCY IN PIGS

Daniel Joseph Mathew
Drs. Matthew C. Lucy and Rodney D. Geisert, Thesis Advisors

ABSTRACT

Progesterone (P4) down-regulates the progesterone receptor (PGR) exclusively within the epithelium of the pig uterus near d 8 of the estrous cycle and pregnancy. How P4 down-regulates the PGR is not understood but is considered necessary for establishment of pregnancy. Progesterone is suggested to increase expression of a cytokine, RANKL, in the uterine epithelium that can activate nuclear factor-kappa B (NF-κB). Nuclear factor-kappa B is a transcription factor thought to block expression of the PGR, resulting in PGR down-regulation. To test this hypothesis, gilts were injected with a P4 antagonist, RU486, on d 3, 4 and 5 (T1) or on d 6 and d 7 (T2) of pregnancy. The uterus was removed on d 8 and d 12 and the endometrium measured for PGR and RANKL mRNA expression as well as activation of NF-κB within the uterine epithelium. Treatment of gilts with RU486 increased PGR mRNA expression, indicating that P4 does down-regulated the PGR. Expression of RANKL was greater in gilts injected with RU486 and activation of NF-κB was not different between treatments on d 8, indicating that RANKL and NF-κB may not be involved in PGR down-regulation. Activation of NF-κB did increase on d 12 in treatments that were conducive to normal conceptus development, possibly triggered by conceptus release of interleukin-1 beta (IL-1β).