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

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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).