PHYSIOLOGY AND ENDOCRINOLOGY SYMPOSIUM
Oviduct and Uterine Function

23 Immunohistochemical localization of granulocyte-macrophage colony stimulating factor (GM-CSF) and transforming growth factor-β1 (TGF-β1) in the reproductive tract of cyclic cows. A.A.S. de Moraes*, F. F. Paula-Lopes, N. Chegini, and P. J. Hansen, *University of Florida, Gainesville.*

Objectives were to localize GM-CSF and TGF-β1 in the uterus and oviduct of the cyclic cow. Cows were slaughtered at d 0 (estrus; n=4), d 7 (n=4) and d 14 (n=3) to collect endometrium, ampulla and isthmus. Tissues were fixed in 4% formalin, embedded in paraffin and 5 μm sections prepared. Presence of GM-CSF and TGF-β1 were evaluated immunohistochemically using either a monoclonal antibody to bovine GM-CSF or a rabbit polyclonal antiserum raised to a 30 amino-acid peptide corresponding to the NH_2-terminal of human TGF-β1, followed by processing using the Vectastain® ABC kit (Vector Laboratories). GM-CSF was detected in all sections - intensity of reaction product was similar across days of the estrous cycle. For endometrium, GM-CSF immunostaining was most intense in the luminal epithelium, especially in the apical portion of cells. There was also intense immunostaining in some glands and in distinct, isolated cells in the stroma that presumably represent leukocytes. There was diffuse reaction product throughout the remainder of the stroma. Also, GM-CSF was localized to epithelium in ampullary and isthmic regions of the oviduct, with intensity being greater for ampulla. Diffuse stromal immunostaining was also present. Patterns of TGF-β1 localization were similar to GM-CSF except that there were no differences in immunostaining intensity between luminal and glandular endometrial epithelium or between ampullary and isthmic epithelium. The patterns of GM-CSF and TGF-β1 expression in the bovine reproductive tract are consistent with the expression of those proteins in the reproductive tract of other species and imply that they could play a role in early pregnancy. (Support: Florida Dairy Checkoff Program and Conselho Nacional de Pesquisa-Brazil).

Key Words: GM-CSF, TGF-β1, Bovine, Reproductive tract

24 Enhancement of swine uterine secretions by exogenous progesterone administration. M. R. Garcia* and W. E. Trout, *University of Missouri, Columbia.*

In swine, progesterone (P4) is known to induce the synthesis and secretion of P4-dependent uterine proteins. These include retinol-binding protein (RBP), uteroferrin (UF), and uterine plasmin/trypsin inhibitor (UPTI). The objective of this study was to increase P4-dependent uterine protein secretion by exposing the uterus to P4 for an extended period of time. A single injection of P4 in sesame oil was administered in doses of 50, 100, or 200mg to forty-eight gilts on either day 2 or 3 of the estrous cycle. Control gilts (n=7) were injected with corn oil on days 2 and 3 of the estrous cycle. On days 11 and 12 of the cycle, all gilts received an injection of estradiol valerate (5mg/day) to induce uterine secretion followed by hysterectomy on day 13. Uterine secretions were recovered by flushing each horn with 30ml of physiological saline. RBP, UF, and UPTI were determined by the absorbance of retinol at 325nm, by RIA, and by trypsin inhibition assay, respectively. The day of P4 administration did not affect the secretion of the histotrophs examined, therefore, the data were pooled by P4 dose. P4 doses of 50 and 100mg did not alter uterine protein secretion when compared to controls, however, 200mg of P4 increased ($p<.05$) the concentration of RBP in uterine flushings. Concentrations of UPTI in uterine flushings paralleled retinol-binding protein, however, treatment effects were not significant. In conclusion, exogenous P4 administration increased uterine secretion of retinol-binding protein in response to estrogen challenge.

Dose (mg/day)	n	Retinol (ng/ml)	Uteroferrin (ug/ml)	UPTI (ug/ml)
0	7	620[a] ± 62	95 ± 12	390 ± 59
50	16	639[a] ± 51	81 ± 11	422 ± 48
100	16	595[a] ± 42	86 ± 10	370 ± 40
200	16	850[b] ± 54	91 ± 9	492 ± 37

Means within a column with different superscripts differ, $P<.05$.

Key Words: Retinol-binding protein, Pregnancy