

12th International Congress of Endocrinology

Lisbon, August 31 - September 4, 2004

Poster Presentation - Series B - Development

P755 - Stem cell factor (SCF) and c-kit in the ovine fetal testis in normal and nutrition perturbed pregnancies.

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Background of Study: Underfeeding adult ewes to day 110 of pregnancy restricts early/mid gestation fetal nutrient supply. Overfeeding adolescent ewes with singleton pregnancies restricts placental growth and reduces fetal nutrient supply later in gestation. The underfeeding regime reduces testicular steroidogenesis. In the overfeeding regime, lamb birth weight is reduced and male offspring have reduced testicular volume and testosterone secretion. The SCF/c-kit system regulates primordial germ cell migration and spermatogenesis and may underlie these effects.

Objectives: To investigate the expression of testicular SCF and c-kit in normal and nutritionally perturbed ovine pregnancies.

Methods: Ovine fetal testes were collected from (a) normal adult ewes at days 30 (n=6), 40 (n=6), 50 (n=4), 70 (n=6) and 140 (n=7) of gestation, (b) adolescent ewes at day 100 of gestation that were offered a low (n=7) or high (n=9) intake diet throughout, the latter predicted to restrict fetal growth and (c) adult pregnant ewes fed 50% or 100% (control) of their nutritional requirements from days 0-110 (n=8 per group) Testes were Bouin's fixed and examined for SCF and c-kit by immunohistochemistry.

Results: SCF was predominant in the testis at day 30 of gestation and in the vasculature at later gestational stages. C-kit was detected throughout gestation and was predominant in germ and interstitial cells from day 70 onwards. Levels of c-kit showed a significant mid-gestation peak (days 50, 70) (P<0.05). Maternal nutrition had no effect on c-kit or SCF expression or cellular localisation.

Conclusions: c-kit and SCF are important for testicular development but do not appear to be sensitive to altered maternal nutrition and / or fetal nutrient supply.