not vary with sex however transcript abundance varied within and between sexes. For example, in males with a "high expression" pattern, mRNA levels were higher in the OB, TEL and HT than in the rest of the brain and pituitary. Furthermore, CYP19A2 mRNA levels in the OB, TEL and HT tended to be higher in males than in females. In situ hybridizations of CYP19A1 failed to develop a signal in the brain or pituitary but were detectable by PCR. CYP19A1 was highly expressed in the medium-sized follicles with significantly lower levels in the large follicles, small follicles, and oogonia. The differential expression of the aromatase genes, particularly CYP19A2 in the brain, suggests that the two aromatase genes play important and different roles in the reproductive behaviour and/or physiology of bony fish, as has been demonstrated for the single gene in mammals.

395. A FETAL INFLUENCE ON RELAXIN GENE EXPRESSION IN THE CORPUS LUTEUM OF THE TAMMAR WALLABY. Laura J Parry[1,2] and Helen M Gehring[1,2]. [1]Howard Florey Institute, University of Melbourne, Parkville, Victoria, Australia; [2]Department of Zoology, University of Melbourne, Parkville, Victoria, Australia.

In the tammar wallaby, the lifespan of the corpus luteum (CL) is not extended by the presence of a conceptus and the luteal phase in unmated animals is similar in duration to the 26-day gestation. Moreover, the oestrous cycle is not interrupted by pregnancy. Regardless of whether or not the animal is pregnant, there is a CL on one ovary, whereas the other ovary has a developing follicle throughout the luteal phase. The important difference between the two reproductive cycles is the absence of a conceptus in the nonpregnant cycle. The peptide hormone relaxin (RLX) is synthesized in the tammar CL from day 6 of gestation until term but its expression in unmated animals is not known. The aim of this study was to measure RLX mRNA levels in the CL of pregnant and unmated tammar wallabies to determine if the conceptus influences RLX gene expression. Tissues were obtained from 5 equivalent stages of the pregnant and nonpregnant cycle (n=4 per stage). Real time PCR with tammar specific RLX primers and a FAM-labelled probe in an ABI PRISM 7700 Sequence Detector was used to quantify RLX mRNA levels. Relaxin gene expression was significantly ($P<0.01$: ANOVA) upregulated in the CL of both pregnant and unmated tammars on day 10 of each cycle. In pregnant animals, RLX mRNA levels remained high until day 26, one day before expected births. In contrast, RLX mRNA levels in unmated animals decreased from day 18, and were significantly ($P<0.05$) lower compared with pregnant animals at all remaining stages of the nonpregnant cycle. As the yolk placenta forms between days 18-19 in pregnant animals, it is likely that a placental factor is influencing RLX gene expression. Interestingly, removal of the conceptus on day 20 gestation did not significantly affect RLX mRNA levels compared with sham operated controls, which suggests that the critical signalling phase is between days 18-20 gestation. Our data show that the onset of ovarian RLX gene expression is not dependent on the presence of a conceptus but that a placental factor may be important for maintenance of RLX synthesis.

396. ULTRASOUND MONITORING AND SERUM PROGESTERONE AND RELAXIN CONCENTRATIONS THROUGHOUT GESTATION IN A SUMATRAN RHINOCEROS (*Dicerorhinus sumatrensis*). Terri L Roth[1], Jenny L Kroll[1], Helen L Bateman[1] and Bernard G Steinetz[2]. [1]Center for Conservation and Research of Endangered Wildlife, Cincinnati Zoo & Botanical Garden, Cincinnati, OH; [2]NYU School of Medicine, Nelson Institute of Environmental Medicine, Tuxedo, NY.

The critically endangered Sumatran rhinoceros is one of the most difficult species to breed in captivity. For the first time in 112 years, a pregnancy established in a captive animal successfully developed to term. The objective of this study was to characterize embryo and fetal development and serum progesterone and relaxin concentrations throughout gestation. The female rhino was conditioned to allow rectal and transabdominal ultrasound examinations and blood collection from the ear. Due to a history of five previous early embryo losses, the female was supplemented with oral progesterone (altrenogest; .044 mg/kg) from Day 16 to 465 of pregnancy. Serum progesterone concentrations were evaluated by EIA. Relaxin concentrations were evaluated by RIA using I^{125} radiolabeled porcine relaxin. The assay was validated for the species by confirming linearity with pooled serum and milk samples. Rectal ultrasound examinations every 10 days allowed embryo and early fetal monitoring until Day 83 when the fetus descended over the pelvic brim. No early developmental differences were observed compared to the previous failed pregnancies. Transabdominal ultrasound scanning through mammary tissue allowed intermittent fetal visualization until Day 223 when the fetus shifted cranially. During a rectal exam on Day 405, the fetus was imaged a final time prior to delivery on Day 475. Progesterone concentrations rose to luteal levels (mean ± SD; 1.47 ± 0.58 ng/ml) 10 days after breeding and remained there until Day 59. Progesterone then gradually increased above luteal levels, experienced a decline from days 122 to 150, and then continued to rise to ≥6.0 ng/ml by Day 199. From Days 199 to 472, progesterone concentrations averaged 9.49 ± 2.82 ng/ml (range, 6 - 16 ng/ml). By 24 h post-partum, progesterone was basal. Relaxin concentrations were basal (<1 ng/ml) for the first 6 months of gestation, rising to a plateau of 2.71 ± 1.17 ng/ml by Day 304 and spiking to >800 ng/ml two weeks before parturition. These are the first data documenting the dynamics of embryo and fetal development and the progesterone and relaxin profiles associated with a successful Sumatran