

### **103. CLONING AND EXPRESSION OF THE OVARIAN PROLACTIN RECEPTOR (PRLR) IN THE TAMMAR WALLABY (*MACROPUS EUGENII*)**

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Prolactin, a lactogenic hormone primarily synthesized by the anterior pituitary, has an inhibitory effect on luteal function during embryonic diapause in the tamarin wallaby. Hypophysectomy during lactational and seasonal quiescence in the tamarin results in reactivation of the corpus luteum (CL), but prolactin treatment in these animals delays reactivation (1). Early binding studies demonstrated prolactin receptors (PRLRs) in the CL, mammary gland and adrenal gland (2, 3). The concentration of PRLRs in the CL was higher 7 days post coitum (blastocyst in diapause) compared with mid pregnancy, which suggests that reactivation of the CL involves a reduction in luteal PRLRs (3). However, it is not known at which stage of early pregnancy this decrease occurs. Therefore, the aim of this study was to first obtain the cDNA sequence of the tamarin wallaby PRLR and determine the expression of PRLRs in a variety of tissues by RT-PCR. Subsequently, the temporal expression of PRLRs in the CL was examined on days 0, 3, 5, 7 and 10 after removal of the pouch young (RPY) using quantitative real time PCR. Partial nucleotide and derived amino acid sequences of the tamarin PRLR cDNA molecule were first obtained from RNA extracted from the mammary gland, using RT-PCR strategies with different combinations of oligonucleotide primers based on the brushtail possum PRLR sequence (4). Two PCR clones of 270 and 750 bp were sequenced and shown to encode a 321 amino acid fragment, with 96% homology compared with possum PRLR cDNA and between 79–83% homology compared with PRLR genes of eutherian species. Using tamarin specific primers in RT-PCR, PRLR gene transcripts were detected in all tissues examined, with the highest expression observed in the CL, adrenal gland, uterine tissue, cervix, mammary gland and nipple. Luteal PRLR mRNA concentrations were significantly higher in CLs taken at days 0 and 3 RPY, and decreased on days 5, 7 and 10 RPY. These data support the hypothesis that reactivation of the quiescent CL is associated with a rapid reduction in PRLR expression in the ovary.

(1) Hearn (1973) *Nature* **241**: 207–208. (2) Sernia, Tyndale-Biscoe (1979) *J. Endocrinol.* **83**: 79–89. (3) Stewart, Tyndale-Biscoe (1982) *J. Endocrinol.* **92**: 63–72. (4) Demmer (1999) *Mol. Cell. Endocrinol.* **148**: 119–27.