Poster #28

Feline Embryo Culture: Detection of Estrogen Receptor Alpha and Progesterone Recptor in In Vitro Produced Embryos, Uterus and Ovary

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The in vitro production of cat embryos has been reported by several laboratories and kittens have been born after transfer of these embryos. However, evidence indicates that in vitro derived embryos exhibit altered expression of developmentally important genes. The aim of this preliminary study was to evaluate the expression profile of estrogen receptor alpha (ERα) and progesterone receptor (PR) in domestic cat female reproductive tissue and in vitro produced (IVP) embryos. Embryos were produced in vitro as described by Gomez et al. (Theriogenology **60**:239-251, 2003). RNA was isolated and reverse transcribed from IVP embryos, uterine and ovarian tissues and then subjected to real time PCR to evaluate expression of ERα and PR. Both genes were successfully amplified from ovarian and uterine tissues. ERα was detected from pools of IVP embryos. Transcripts were cloned and confirmed by sequencing to be homologous to known sequences of the respective genes. A 234 bp transcript and a 263 bp transcript of ERα (accession #s AY349164 and AY462090; GenBank) corresponding to the hormone and DNA binding domains of the human ERα gene were identified along with a 110 bp sequence of PR (accession # AY462089; Genbank). To our knowledge, this is the first description of ERα or PR cloning in the domestic cat. In summary, we have demonstrated that real time PCR is effective for the assessment of gene expression in feline tissues and embryos. Furthermore, these experiments provide the basis for future studies on the effect of exogenous estrogen on gene expression in cultured cat oocytes and embryos.

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