

## P-8 Identification of Differentially Regulated Genes in Bovine Blastocysts using an Annealing Control Primer System

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**Background & Objectives:** The identification of embryo-specific genes would provide insights into early embryonic development. However, the current methods employed to identify the genes that are expressed at a specific developmental stage are labor intensive and suffer from high rates of false positives. In the present study, we used a new differential display method, to analyze differentially expressed genes (DEGs) in bovine blastocysts produced in vitro.

**Method:** Here we employed a new and accurate reverse transcription-polymerase chain reaction (RT-PCR) technology that involves annealing control primers (ACPs) to identify the genes that are specifically or prominently expressed in bovine early blastocysts and hatched blastocysts produced in vitro.

**Results:** Using these techniques, a total of nine expressed sequence tags (ESTs) of genes that were differentially expressed in hatched blastocysts, as compared to blastocyst embryos, were cloned and sequenced. The cloned genes or ESTs (C1-C9) all exhibited significant sequence similarity with known bovine genes (99~100%; FTL, RPS12, LAPT4a, and RPL12) or ESTs (80~94%; AIBP, CULLIN-1, HDLP, COX5a, and RECS1) of other species. As revealed by real time RT-PCR, these genes were regulated upstream in the hatched blastocyst stage during early implantation.

**Conclusions:** These results suggest that this new, PCR-based differential display RT-PCR technique is a very useful tool for the identification of stage-specific genes of preimplantation embryos.

## P-9 생쥐 수정란에서 발현되는 IGFs와 Apoptosis간의 연관성에 관한 연구

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**Background & Objectives:** 체외에서 수정한 수정란은 체내에서 수정한 수정란에 비하여 apoptosis가 높게 나타나고, 발생하는 속도가 느리다. 이러한 양상은 체외의 여러가지 요인으로 수정란에서 성장인자들이 잘 발현되지 않는다는 것을 시사한다. 수정란은 다양한 성장인자들의 리간드와 수용체를 발현할 수 있으며, 그 내인성 성장인자들이 다양한 형태로 수정란의 발생을 조절한다고 알려져 있다. 특히, IGFs를 배양액에 첨가하면 높은 난할율과 포배기 배아 발생율을 얻을 수 있다는 보고가 있으나, 수정 환경에 따른 성장인자들의 발현과 apoptosis 사이의 상관관계에 관한 연구는 현재로서는 미흡하다. 따라서, 본 연구는 체내외에서 수정한 생쥐 수정란의 IGF-I과 -II의 발현양상을 조사하고, 이들과 apoptosis