

P-3 Correlation between Survivin Protein Expression in Bovine Follicular Oocytes and Their In-vitro Developmental Capacity

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Objectives: This study was to examine whether there were different survivin expression according to bovine cumulus-oocyte complexes (COCs) or in pre-implantation embryo quality using polyclonal antibodies prepared from recombinant survivin protein.

Methods: Exp. 1) Expression of survivin mRNA and protein during in-vitro development of bovine follicular oocytes. Exp. 2) Comparison of survivin protein, apoptotic genes expression and in vitro development between good quality and poor quality bovine COCs. Exp. 3) Comparison of survivin protein and apoptotic genes expression between in-vitro produced good quality and poor quality bovine blastocysts.

Results: Expression of survivin mRNA and protein in each sample was analyzed by real-time quantitative RT-PCR and immunocytochemistry. When the survivin protein expression was analyzed at all bovine developmental stages, there were significant decrease after fertilization, increase after the 8-cell stage and then steeply significant increases from the morular stage ($p < 0.05$). In determination of survivin gene expression according to bovine COCs quality, good COCs group indicated significant high expression and moreover other anti-apoptotic gene bax inhibitor was also significant high expressed, while pro-apoptotic gene (bax, caspase-3) was significantly down compared to poor COCs group ($p < 0.05$). Also, in vitro development rates were also significant differences between COCs quality ($p < 0.05$). In addition, when we examined the survivin expression by blastocyst quality, good blastocyst group presented significantly higher than poor one ($p < 0.05$).

Conclusion: These results indicate that there is a correlation between survivin protein expression in bovine follicular oocytes and their in-vitro developmental capacity. Thus survivin may be a good candidate marker for the selection of embryo quality.