

Effect of Follicular Fluid on in vitro Maturation and Gene Expression in Ovine Oocytes

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Abstract : The aim of the present study was to evaluate the effect of ovine follicular fluid supplementation during IVM of sheep oocytes on the resumption of meiosis, glutathione (GSH) content and expression of Bax, Bcl-2, and HSPB1 genes. Sheep ovaries were collected from Riyadh slaughterhouse, KSA. Oocytes were aspirated from 3-6 mm follicles. Ovine oocytes were cultured in maturation medium with 0% (control), 10%, 20%, 40% of ovine follicular fluid for 24 h. Results indicated that the rate of oocyte maturation was significantly ($P \leq 0.05$) decreased in 40% OFF (36.87%) versus the control (61.3%), 10% OFF (63.95%) and 20% OFF (64.08%). Supplementation of 10% OFF to IVM medium induced an intra-oocyte GSH concentration significantly higher than that found in ovine oocytes cultured with 20% OFF and 40% OFF and similar to the GSH content in oocytes cultured without FF. Real time polymerase chain reaction analysis for gene expression revealed no differences in Bax, Bcl-2, HSPB1 genes between control and 10% OFF group, whereas they were strongly expressed in 20% OFF and 40% OFF ($P < 0.05$) when compared to the control and 10% OFF. In conclusion the addition of 10% OFF to the IVM culture of sheep oocytes is recommended to support cytoplasmic maturation and increase oocytes competence.

Keywords : IVM, oocyte maturation, gene expression, follicular fluid

Conference Title : ICBCSE 2014 : International Conference on Biological and Chemical Systems Engineering

Conference Location : London, United Kingdom

Conference Dates : December 22-23, 2014