

In vitro Effects of Porcine Follicular Fluid Proteins on Cell Culture Growth in Luteal Phase Porcine Oviductal Epithelial Cells

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Abstract : The follicular fluid proteins of healthy medium size follicles (4-6 mm in diameters) and large size follicles (7-8 mm in diameter) of large white pig ovaries were collected by using sterile technique. They were used for testing the effect on primary in vitro cell culture growth of porcine oviductal epithelial cells (pOEC). Porcine oviductal epithelial cells of luteal phase was culture in M199 and added with 10% fetal calf serum 2.2 mg/mL, NaHCO₃, 0.25 mM pyruvate, 15 µg/mL and 50 µg/mL, gentamycin sulfate at high humidified atmosphere with 5% CO₂ in 95% air atmosphere at 37°C for 96 h before testing. The optimized concentration of pFF of two follicle sizes (at concentration of 2, 4, 20, 40, 200, 400, 500, and 600 µg proteins) in culture medium was observed for 24 h using MTT assay. Results were analyzed with a one-way ANOVA in SPSS statistic. Moreover, pOEC was also studied in morphological characteristic on long-term culture. The results of long-term study revealed that pOEC showed 70-80 percentage of healthy morphology on epithelial-like character and contained 30 percentage of an elongated shape (fibroblast-like morphology) at 4 weeks of culture time. MTT assay reviewed an increase in the percentage of viability of pOEC in 2 treated of follicular fluid groups. Two treatment concentration groups were higher than control group (p < 0.05) but not in positive control group. Interestingly, at 200 µg protein of 2 treated follicular fluid groups were reached the highest cell viability which is higher than a positive control and it is significantly different form control group (P < 0.05). These cells are developed and had fibroblast elongate shape which is longer than the cells in control group and positive control group. This report implies that pFF of medium follicle size at 200 µg proteins and large follicle size at 200 and 500 µg proteins could be optimized concentration for using as a supplement in culture medium to promote cell growth and development instead of growth hormone from fetal calf serum. It could be applied in cell biotechnology researches. Acknowledgements: The project was funded by a grant from Silpakorn University Research and Development Institute (SURDI) and Faculty of Science, Silpakorn University, Thailand.

Keywords : in vitro, porcine follicular fluid protein (pFF), porcine oviductal epithelial cells (pOEC), MTT

Conference Title : ICABB 2018 : International Conference on Applied Biology and Biotechnology

Conference Location : Zurich, Switzerland

Conference Dates : January 15-16, 2018