

Cumulus-Oocyte Complexes and Follicular Fluid Proteins of Pig during Folliculogenesis

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Abstract : The objective of the present study was to evaluate the morphology of porcine cumulus-oocyte complexes (pCOCs) and follicular fluid during follicular development. The samples were obtained from local slaughterhouses in Nakorn Pathom Province, Thailand. Pigs were classified as either in the follicular phase or luteal phase. Porcine follicles (n = 3,510) were categorized as small (1-3 mm in diameters; n=2,910), medium (4-6 mm in diameters; n=530) and large (7-8 mm in diameters; n=70). Then pCOCs and follicular fluid were collected. Finally, we found that the oocytes can be categorized into intact cumulus cells layer oocyte, multi-cumulus cells layer oocyte, partial cumulus cells layer oocyte, completely denuded oocyte and degenerated oocyte. They showed high percentage of intact and multi-cumulus cells layer oocytes from small follicles (54.68%) medium follicles (69.06%) and large follicles (68.57%), which have high potential to develop into matured oocytes in vitro. Protein composition of the follicular fluid was separated by SDS-PAGE technique. The result shows that the protein molecular weight in the small and medium follicles are 23, 50, 66, 75, 92, 100, 132, 163, 225 and >225 kDa. Meanwhile, protein molecular weight in large follicles are 12, 16, 23, 50, 66, 75, 92, 100, 132, 163, 225 and >225 kDa. All proteins play an important role in promotion and regulation on development, maturation of oocytes and regulation of ovulation. We conclude that the results of discovery can be used porcine secretion proteins for supplement in IVM/IVF technology. Acknowledgements: The project was funded by a grant from Silpakorn University Research and Development Institute (SURDI) and Faculty of Science, Silpakorn University, Thailand.

Keywords : porcine follicles, porcine oocyte, follicular fluid, SDS-PAGE

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