

Follicular Fluid Proteins and Cells Study on Small, Medium, and Large Follicles of Large White Pig

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Abstract : Our project was aimed at morphology of oocytes, follicle cells and follicular fluid proteins study of Large White pig (at local slaughter house in Nakhon Pathom Province). The porcine oocytes and follicular fluid of healthy small follicles (1-2 mm), medium follicles (3-6 mm in diameters) and large follicles (7-8 mm and 10 mm in diameter) were aspirated and collected from the ovary by sterile technique. Then, the oocytes and the follicle cells were separated from the fluid. The oocytes were round shape and surrounded by zona pellucida with numerous layers of cumulus cells. Based on the number of cumulus cell layers surrounding oocytes, the oocytes were classified into 5 types, which were intact-, multi-, partial-cumulus layer oocyte, completely denuded oocyte and degenerative oocyte. The collected oocytes showed high percentages of intact- and multi-cumulus cell layers in the small follicles (53.48%) medium follicles (56.94%) and large follicles (56.52%) which have high potential to develop into mature oocytes in vitro. Proteins from follicular fluid of 3 size follicles were separated by SDS-PAGE and LC/MS/MS. The molecular weight of follicular fluid proteins from the small follicles were 24, 60-65, 79, 110, 140, 160, and > 220 kDa. Meanwhile, the follicular fluid protein from medium and large follicle contained 52, 65, 79, 90, 110, 120, 160, 190 and > 220 kDa. Almost all proteins played important roles in promoting and regulating growth and development of oocytes and ovulation. This finding was an initial tool for in vitro testing and applied biotechnology research. Acknowledgements: The project was funded by a grant from Silpakorn University Research & Development Institute (SURDI) and Faculty of Science, Silpakorn University, Thailand.

Keywords : follicular fluid protein, LC/MS/MS, porcine oocyte, SDS-PAGE, reproductive biology

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