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Cellular Associations Influencing the Patterns of Protein Synthesis in Pig Oocytes Undergoing Maturation

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In pig, it is not known how the associated somatic cells regulate oocyte protein synthesis during pig oocyte maturation, despite the crucial role in cytoplasmic maturation. In this study, the established analytical method was used to examine polypeptide synthesis during oocyte maturation in vitro to find how the surrounding somatic cells influence the protein synthesis of the maturing oocyte at the final stage of meiotic maturation in vitro. We tried to evaluate in 3 different cell associations (OC, O+C and O groups) for analysis of nuclear maturation. Synthesizing proteins during oocyte maturation in vitro were labeled using ^{35}S-methionine and analysis of protein carried out 2-D electrophoresis and SDS-PAGE. Oocytes were evaluated the lectin reactivity for glycocomponents of surface using UEA-1. On comparison of two different stages of oocyte maturation using SDS-PAGE, no significant changes were found between the oocytes at 0 and 5 h, thus suggesting that abundant house keeping proteins remained unchanged. Whereas the cellular and stage specific components were clearly shown although it had various proteins band size under protein synthesis. The results suggested that the cellular association or presence of the cumulus cells influenced greatly on the oocyte maturation and its protein synthesis.

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