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Effect of concentration and exposure duration of cytochalasin B on parthenogenetic development of porcine follicular oocytes

Hyun-Jong Kim, Dong-Soo Son, Sun-Ho Choi, Sang-Rae Cho,
Chang-Yong Choe, Yung-Gun Kim, Man-Hye Han, Il-Sun Ryu,
In-Cheul Kim, Il-Hwa Kim¹ and Kyung-Soon Im²

National Livestock Research Institute, RDA

¹*Department of Veterinary Medicine, Chungbuk National University*

²*Department of Animal Biotechnology, Seoul National University*

The effect of cytochalasin B on cleavage and development of in vitro matured porcine follicular oocytes was studied to optimize the treated cytochalasin B concentration and duration. The follicular oocytes were collected from slaughtered pig ovaries and matured for 65 hours. The matured oocytes were activated by 7% ethanol (v/v) in DPBS and the activated oocytes were subjected to cytochalasin B concentration of 2.5, 5 and 7.5 $\mu\text{g}/\text{ml}$ for 3, 5 and 7 hours, and then the treated oocytes were cultured in NCSU23 with 0.4% BSA for 7 days. The cleavage rates were not different significantly in each treatment. However, the oocytes treated by 5 $\mu\text{g}/\text{ml}$ for 5 hours yielded a significantly higher morula rate (19.7%) than oocytes treated by 2.5 $\mu\text{g}/\text{ml}$ for 3 and 5 hours (9.4%). The sum rate of 2.5 $\mu\text{g}/\text{ml}$ concentration (10.5%) by hour was also significantly lower than those of 5 (18.0%) and 7.5 $\mu\text{g}/\text{ml}$ concentration (14.6%). The blastocyst rate in oocytes treated 5 $\mu\text{g}/\text{ml}$ for 3 (9.4%) and 5 hours (9.0%) was significantly higher than the rate in oocytes treated 2.5 $\mu\text{g}/\text{ml}$ for 3 hours (0%). The sum rate of 5 $\mu\text{g}/\text{ml}$ concentration also significantly higher than those of 2.5 and 7.5 $\mu\text{g}/\text{ml}$ concentration. The results demonstrated that the treatment of oocytes with cytochalasin B of 5 $\mu\text{g}/\text{ml}$ for 3~5 hours was the optimal concentration and duration for parthenogenetic activation and blastocyst formation of in vitro matured porcine oocytes.

Keywords: *Parthenogenetic activation, Cytochalasin B, Porcine, Follicular oocyte, 7% ethanol*