

## Production of Porcine Embryos in Different Culture Medium

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Early development of porcine oocytes fertilized *in vitro* was examined in different culture conditions. Porcine ovaries were collected from local slaughter-house. Cumulus-oocytes complexes were aspirated from 2 to 6 mm follicles. The collected oocytes were cultured for *in vitro* maturation in NCSU-23 medium with 5 mM hypotaurine, 0.57 mM cysteine, 10% porcine follicle fluid, 10 IU/ml PMSG and 10 IU/ml hCG for 42~44 hrs. The frozen-thawed spermatozoa were washed by centrifugation 2 times at 1,500 rpm in D-PBS with 5.56 mM glucose, 0.33 mM Na-pyruvate, 100 IU/ml penicillin, 100 $\mu$ g/ml streptomycin and 1mg/ml BSA. The fertilization medium used mTBM with 2 mM caffeine and 2 mg/ml BSA and adjusted to a pH of 7.2 to 7.4. The final concentration of spermatozoa was adjusted to  $2.5 \times 10^6$  cells/ml motile sperm during fertilization *in vitro*. At 8hrs h after insemination, the oocytes were transferred into NCSU-23 medium with 5.0 mM hypotaurine and 4 mg/ml BSA and cultured for 7 days. In first experiment, the mean numbers of oocytes collected from 20 ovaries were 674.4 oocytes, and 4.1(27.6), 12.5(84.0), 25.4(171.6) and 57.9%(390.8) for A, B, C and D grade in morphological classification. In the second experiment, when culture medium was supplemented with various concentrations of EGF, the proportions of oocytes cleaved were 56.9, 55.7, 61.9 and 54.7% for 0, 5, 10 and 20ng/ml EGF. The higher proportions(15.1%) of oocytes developed to morular stage were obtained at concentration of 10ng/ml than 0 and 5ng/ml EGF ( $P < 0.05$ ). However, the proportions of embryos developed to blastocyst stage were not significantly different among concentrations of EGF. In another experiment, when the medium supplemented with catalase was used, the proportions of oocytes cleaved were higher in the concentration of 0 unit (56.5%, 61/108) than 100 and 1,000 unit/ml of catalase ( $P < 0.05$ ). Although the developmental capacity of embryos was improved by medium with 0 unit/ml compared with 100, 500 and 1,000 units/ml of catalase in oocytes developed to morula and blastocyst stages, were not significantly different among concentrations of catalase.

Key words) *Catalase, EGF, Embryos, In vitro development, Porcine*