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Efficiency of Female-Derived Donor Cells on High Postnatal Survival in Pig Cloning

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The present study was conducted to investigate the developmental competency between male- and female-somatic cell derived nuclear-transferred porcine embryos, and the productive and survival efficiency of cloned male and female piglets. The potential of eggs receiving somatic cells to develop into blastocysts was not different among donor cells of different origins. However, the mean cell number of *in vivo* female and male blastocysts (83.8 ± 46.2 to 99.2 ± 55.7) was higher than *in vitro* culture of NT groups (31.4 ± 8.29 to 33.2 ± 10.15). A total of 11,535 nuclear-transferred embryos (1- to 8-cell stage) were surgically transferred into 66 surrogate gilts. Among fourteen pregnant gilts four recipients aborted during the period of conception. Five pregnant gilts delivered fifteen female piglets, and the other five recipients gave rise to birth 22 male piglets. The average birth weigh of the cloned piglets was 1.28 ± 0.33 kg (0.48~1.83 kg) in female piglets and 0.84 kg ± 0.25 (0.45~1.25 kg) in male piglets. Alive cloned pigs were nine in female piglets (60.0%) and four in male piglets (18.2%). According to these results, survival rates and birth weight of female cloned piglets was higher than those of cloned male piglets. This study suggests that female fetal fibroblast cells as a nuclear donor has more capability on production of alive cloned piglets than male.

Key words: *Cloned pig, Nuclear transfer, Embryo transfer, Pig*