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Production of Cloned Pigs and Cats from Adult Somatic Cells by Chemically Assisted Removal of Maternal Chromosomes

Xi-Jun Yin

Institute of Animal Embryo Engineering, Yanbian University, Long Jing, 133400, Ji Lin, China
e-mail: yinxj33@msn.com

Enucleation of a recipient oocyte is critically important to cloning efficiency. The present study demonstrated that brief treatment of *in vitro*-matured porcine Oocytes with demecolcine results in a membrane protrusion that contains a condensed chromosome mass, which can be easily removed by aspiration. This simple, chemically assisted method for removing maternal chromosomes enabled the production of a large number of nuclear transferred porcine(1, 2) and cat eggs(3, 4). The development of eggs whose chromosomes were removed by this procedure following transfer of somatic cell nuclei to the blastocyst stage was not significantly different among groups activated using different procedures (6% to 11%) and was also not different among donor cells of different origins (3% to 9%), except for cumulus cells (0.4%) in porcine experiments. After transfer of nuclear-transferred eggs that received somatic cells to surrogate mother produced healthy cloned piglets, cats and transgenic cats. The chemically assisted method for removing maternal chromosomes that allow for the relation of the majority cytoplasm components and without reducing MPF levels within metaphase oocytes, may lead to increase somatic cell cloning efficiency.

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