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A novel method to produce cloned mouse using a preimplantation gene diagnosis

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The first cloned mouse from adult somatic cells was successfully reported in 1998.Although 15 years passed after that, the successful rate of full-term development from somatic cell nuclear transfer (SCNT) is still low. It has been reported that SCNT embryos have distinctive characteristics and we found that gene expression pattern of SCNT blastocysts is largely different from in vivo fertilization embryos. In this study, we considered and tried to examine whether good embryos that might develop to term normally, could be selected before embryo transfer by gene expression pattern. First, we tried to establish the procedure to produce monozygotic twin embryos from a single SCNT egg, because once gene expression level was examined in SCNT embryos, the analyzed embryos were died and the same embryos cannot use for embryo transfer anymore. It is essential to produce monozygotic twin embryos from one SCNT egg. Next, we tried to diagnose the SCNT embryos before embryo transfer using the twin; the one embryo for gene analysis and the other for embryo transfer after the diagnosis of the pair of it. We will discuss the problem of SCNT in the mouse, and propose a novel method to produce a normal young by this preimplantation diagnosis.

Biography

Yoko Kato has completed her Ph.D at the age of 29 years by Prof.Tsunoda from KinkiUniversity and worked as visiting scientist at Prof. Azim Surani's laboratory in U.K. for ahalf year and at Prof. Richard Schultz's laboratory in U.S.A. for one year. She is now a professor of Kinki University from 2009. She has published more than 90 original papers,40 review papers in scientific journals and 10 book chapters. Her research group succeeded to produce cloned bovine for the first time from adult somatic cells by nuclear transfer in 1998.

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