

Gamma (γ) Tubulin and Microtubule Assembly in Porcine Nuclear Transferred Embryos and Parthenotes

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Despite of importance of integrated events of nucleus and microtubule remodeling in nuclear transferred embryos with somatic cells, little information is available on this subject. In this study we compared chromatin, γ -tubulin and microtubule organization in porcine oocytes following somatic cell nuclear transfer and parthenogenetically activation in order to clarify nuclear remodeling process and to demonstrate centrosome inheritance during nuclear transfer. At 1 hour after fusion microtubule aster was seen near the transferred nucleus in most oocytes. Gamma-tubulin was detected in the vicinity of condensed chromosome, suggesting this is a transient spindle. The spindle divided nucleus into two mass of chromatin which developed to the pronuclear like structures. Two pronuclear like structures were than apposed by microtubular aster and formed one syngamy like nuclear structure at 15 following nuclear transfer. At 17 to 18 h after fusion, two centrosome were seen near the nucleus, which nucleates microtubules for two cell cleavage. Following electrical stimulation, γ -tubulin and microtubule matrix were noted in oocyte cortex, which seem to position the pronucleus into oocyte center. In the late pronuclear stage, considerably less γ -tubulin and microtubules were detected in the cytoplasm. At the mitotic metaphase of parthenotes, γ -tubulin was recruited to the condensed chromatin and concentrated in the spindle. These results suggested introduction of foreign centrosome during nuclear transfer, which appeared to give an important role for somatic cell nuclear reprogramming.

Key words) *γ -tubulin, microtubules, nuclear transfer, parthenotes*