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Influence of Oocyte Nuclei on Demethylation of Donor Genome in Cloned Bovine Embryos

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We recently demonstrated that satellite regions exhibit an aberrant DNA methylation in cloned bovine embryos. Here, we examined, using bisulfite -sequencing technology, whether the inefficient demethylation of cloned donor genomes could be rescued by the presence of oocytic nuclei. Both *Aci*I digestion and sequencing analyses showed that satellite sequence was demethylated more efficiently in cloned tetraploid blastocysts than in diploid clones. When methyl -CpG density (the number of methyl-CpG sites per string) was scored, a significant decrease was observed in tetraploids ($P<0.001$). These results suggest that unknown mechanisms provided by oocytic nuclei could assist the demethylation of satellite sequences in tetraploid clones.

(Key Words) epigenetic, nuclear transfer, bisulfite, reprogramming.