

## **Influence of Stage of Maturation of Bovine Oocytes at Time of Vitrification on *In Vitro* Development and Viability**

**Dongsoo Lee, Sangkeun Kim**

College of Vet. Med., Chungnam National University

This study was carried out to verify the incidence of oocytes when vitrified at various maturation stages. Bovine cumulus-oocyte complexes were recovered from ovaries at a slaughter and then divided into five groups : control group(unvitrified oocytes), 0 hr. group (composed of oocytes vitrified before the onset of maturation) and 10, 14, and 20 hrs groups (vitrified respectively at 10, 14 and 20 hrs after the onset of maturation). The oocytes remained vitrified for 24 hrs, and then were thawed in 30°C water bath. Survival and cleavage rates were defined as development rate on *in vitro* culture and stained with aceto-orcein or FDA test.

The results obtained were summarized as follows :

1. No differences in the incidence of diploid oocytes were observed between the control, non-vitrified group(3.6%) and oocytes vitrified at 14 hrs(6.7%) or 20 hrs(1.7%). However significantly more diploid oocytes were detected after vitrification at 0 hr.(26.7%) or 10 hrs(21.7%) of maturation.
2. The survival rate of all vitrified immature oocytes(12.0%~38.0%) was low, 48.0% of unvitrified oocytes and oocytes vitrified before maturation or 0~10 hrs after the onset of maturation were higher than that of other times.
3. The *in vitro* fertilization and cleavage rates of all vitrified immature oocytes (32.3%~64.6% and 4.6%~32.3%) were low, 55.0% of unvitrified oocytes and the rate of immature oocytes were very higher than that of mature oocytes.

Key Words) *Vitrification, Viability of immature oocytes, survival rate*