

terials were fixed 2.5% glutaraldehyde and 1% osmium tetroxide. Subsequently, they were dehydrated and embedded in Epon. After the embedded biopsies were sectioned and stained, they were observed under light, transmission and scanning electron microscopy (LM, TEM and SEM). The results obtained in these experiments were summarized as follows. 1) For LM, the biopsied materials at D4 (secretory phase) were appeared that the stromal layer was extended by increased connective tissues and the endometrial glands and vessel were fully developed compared with D0 (proliferative phase). 2) For TEM, the mouse endometrium was consisted of 3-layers, a simple polarized columnar epithelial cells, basement membrane and stromal cells. At D4, the distribution of microvilli, endoplasmic reticulum, Golgi body, lipid and glycogen deposits, secretory granules and surface area were increased. 3) For SEM, the degree of folding and microvilli of surface of mouse epithelial cells was became more and more, and at D4 the appearance of pinopodes as a specific marker of uterine receptivity was found. Therefore, these results indicated that mouse endometrium was dramatic morphological changes during periimplantation period and will give support to the establishment of *in vitro* 3-dimensional culture system of mouse endometrial cells.

P-12 Fast and Efficient One-Step Dilution Method of Vitrified Bovine IVM/IVF/IVC Blastocysts

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This study was to find the easier and more effective dilution technique of vitrified bovine IVM/IVF/IVC blastocysts for the field trial. For vitrification, *in vitro* produced blastocysts were exposed in glycerol (G) and ethylene glycol (EG) mixture and 10% FBS add in mDPBS (10% (v/v) G for 5 min, 10% G plus 20% (v/v) EG for 5 min, and 25% G plus 25% EG (v/v) for 30 sec), placed in nitrogen vapor for 3 min, and plunged into LN₂. At thawing, straw was placed in air for 10 sec, in water of 25°C until all ice had disappeared. And then they were placed in 25°C and 36°C water according to the different dilution time treatment groups. 1) When the *in vitro* survival of vitrified bovine blastocysts according to different dilution time was examined, the results of the 1 min dilution group (\geq re-expanded: 86.6, hatched: 56.6%) were higher than those of other treatment groups (2 min; 93.7, 37.5%, 2.5 min; 76.4, 29.4%, 3 min; 88.8, 36.1% and 3.5 min; 83.7, 8.1%). 2) When *in vitro* survival of the vitrified groups according to different developmental stage was examined using the 1 min dilution method at thawing, the results of expanded blastocyst (56.3%) and early hatching blastocyst (57.1%) were significantly higher than that of early blastocyst (36.6%) ($p < 0.05$). 3) Also, when the *in vitro* survival of the vitrified groups according to different developmental age was investigated, the results of day 7 (60.0%) and day 8 blastocysts (60.0%) were significantly higher than those of day 9 blastocysts (29.4%) ($p < 0.05$). Therefore, these results demonstrated that 1 min dilution method at thawing is suitable for the field trial of the vitrified day 7 or day 8 bovine expanded/ early hatching blastocysts.