120 h after culturing in the RECM + EAA + Vt medium. Developmental speed of rat embryos to the blastocyst stage was faster about one day than other treatment. These results suggested that the addition of vitamins and essential amino acids to the chemically defined medium enhanced rat embryo development following round speratid injection.

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Cryopreservation of Mouse IVF Zygotes by Vitrification

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Vitrification has been focused as a simple and rapid alternative to the conventional freezing methods for the cryopreservation of mammalian embryos. This study was carried out to determine the optimal condition for successful vitrification of mouse zygotes, 1-cell embryos, using EFS40 which contained 40% (v/v) ethylene glycol (EG), 30% (w/v) ficoll and 0.3 M sucrose in DPBS. Mouse IVF zygotes were vitrified by two freezing methods. The survival rates of 1-cell zygotes were assessed as cleavage to the 2-cell stage and development into the hatching blastocysts at 5 day. In the one-step method, embryos were directly exposed to the vitrification solution at 25℃ for 1 min. Survival and development rates of zygotes were 85.5% and 31.9%. In the two-step method, embryos were equilibrated with a dilute 20% EG for 1, 3, 5 min. before 1 min. exposure to EFS40, respectively. However, the rates of development (17.7, 3.3, 0%) were lower than that of one-step method. The highest survival rate (95.9%) was obtained by one-step method which exposes embryos in EFS40 for 30 sec. and 63.8% of 2-cell developed into hatching blastocysts. In the cell number of Total and ICM using differential labelling technique, there are no significant differences in the cell number of Total and ICM between blastocysts developed in vitrified-thawed embryos (63.2 ± 16.9, 13.5 ± 4.0) and control blastocysts (54.0 ± 15.2, 12.3 ± 4.6). Therefore, these results show that mouse zygotes can be successfully cryopreserved by this proposed vitrification method.

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냉동 보존후 생쥐 배아의 발생에 관한 연구

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최근 불임 환자의 치료로써 보조생식술이 보편화됨에 따라 임신율을 높히기 위한 연구가 이루어지고 있다. 특히 성선자극호르몬 방출호르몬 유도체(gonadotropin-releasing hormone agonist, 이하 GnRHa로 약함)를 사용하여 과배란 유도를 시행한 후 많은 수의 난자를 얻는 것이 가능하여졌고, 질식초음파를 이용하여 다수의 난자를 채취할 수 있게 되었다. 이에 따라 다수의 배아를 자궁내에 이식하여 다태임신의 빈도가 높아져 조기진통, 조산등의 태아 및 모체측의 합병증이 의학적인 문제로 대두되고 있다. 이에 체외수정시술시 이식에 필요한 배아가 적정수를 초과하는 경우 배아의 보존이 문제가 되고 있어 이의 해결책으로 배아의 냉동보존이 이용되고 있다.

냉동보존후의 배아는 냉동 및 해빙의 과정을 거치는 동안 손상을 받아 배아 발생 및 임신율에 영을 받게된다. 냉동보존 후 배아의 생존률에 영향을 주는 인자로는 첫째, 배아 세포막의 투과성 및