Title of Article: Efficiency of Intracellular Cryoprotectants on the Cryopreservation of Sheep Oocytes by Controlled Slow Freezing and Vitrification Techniques.

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Abstract

Oocyte cryopreservation has encompassed various technical difficulties and thus remained a challenge to many cryobiologists. The effect of three widely used cryoprotectants and two cryopreservation techniques on the post thaw recovery rate of morphologically normal sheep oocyte, their fertilizability and developmental competence were analyzed. Ethylene glycol, propylene glycol and Dimethyl Sulfoxide (DMSO) at concentrations 5.5 M +1 Msucrose, 5.0 M+1.5 Msucrose and 4.5 M+0.5Msucrose were used for vitrification, whereas for controlled slow freezing 1.5 M was used. Post thaw recovery and cleavage rate of 88.13, 93.20, 85 and 17.92, 20.84, 15.21% was obtained using controlled slow freezing, whereas vitrification yielded 89.8, 88.14, 91.33 and 21.54, 29.05, 16.38%. Propylene glycol and ethylene glycol were found to be more efficient cryoprotectants, showing a promising developmental capacity, irrespective of the technique employed. Though the rate of cleavage and blastocyst formation still remained well below the control levels, the study clearly indicates that the type of cryoprotectant and the method adopted, have a significant effect on cryopreservation; i.e. the rate of maturation, fertilization and development.