

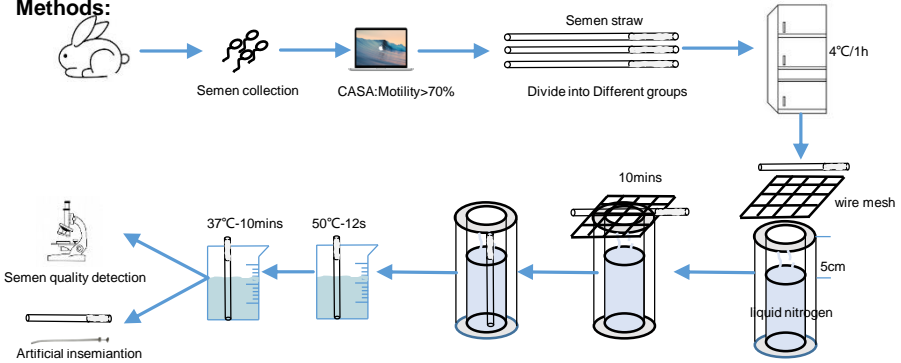
# Cryopreservation of Rabbit sperm using dimethyl sulfoxide in combination with trehalose and hyaluronic acid

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**Context** :Rabbit sperm cryopreservation with minor damages and functional loss is a great challenge, and there is not a reliable cryoprotectant for the commercial application yet. The present study evaluated the effects of disaccharides (sucrose and trehalose) and hyaluronic acid on rabbit sperm cryopreservation, when were added to a dimethyl sulfoxide (DMSO) containing extender. The result showed that the supplement of 0.05 mol/L trehalose increased the motility ( $P < 0.05$ ), progressive motility ( $P < 0.05$ ), and acrosomal integrity ( $P < 0.05$ ) of frozen sperm after thawing, and 800  $\mu\text{g}/\text{mL}$  hyaluronic acid significantly raised the acrosomal integrity ( $P < 0.05$ ). Finally, artificial inseminations were conducted and the fertility rate was 53.9%.

## Methods:



## Results:

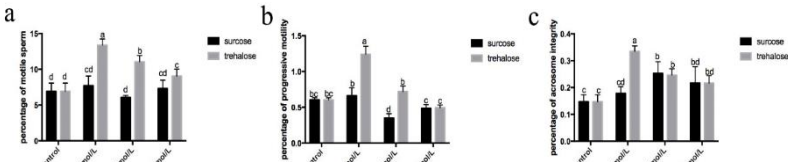


Figure 1: The effects of sucrose and trehalose on the motility and acrosomal integrity of cryopreserved/thawed sperm (n=3)

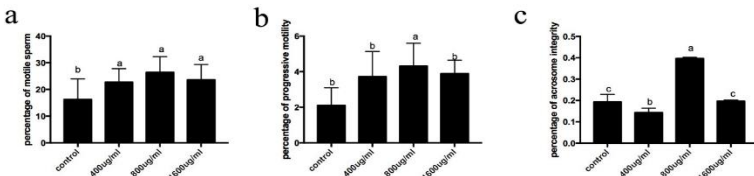


Figure 2: The effects of hyaluronic acid on motility and acrosomal integrity of cryopreserved/thawed sperm (n=3)

Table 1: Reproductive performance of rabbit does after insemination with fresh semen or frozen semen

Reproductive performance	Semen	
	Fresh	Frozen
% Fertility (N/Total)	80.5 (95/118) <sup>a</sup>	53.9 (62/115) <sup>b</sup>
Total born (mean ± SD)	7.87±0.665 <sup>a</sup>	5.45±0.536 <sup>b</sup>
aLive born (mean ± SD)	7.29±0.7 <sup>a</sup>	4.78±0.565 <sup>b</sup>

## Take home message :

- 1, The Supplement of 0.05 mol/L trehalose increased the motility ( $P < 0.05$ ), progressive motility ( $P < 0.05$ ), and acrosomal integrity ( $P < 0.05$ ) of frozen sperm after thawing.
- 2, The supplement of 800  $\mu\text{g}/\text{mL}$  hyaluronic acid raise the acrosomal integrity .