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## **Effect of oviduct epithelial cell coculture on bovine *in vitro* fertilization**

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The aim of this study was to investigate the effect of bovine oviduct epithelial cells(BOEC) and macromolecules/proteins from its conditioned medium on sperm capacitation using *in vitro* fertilization technique.

Oviduct epithelial cell monolayers were prepared according to modified procedures of Chian and Sirard(Biol. Reprod. 52:156-162, 1995). Macromolecules/proteins from oviductal conditioned medium(OM) were recovered by ultrafiltration, which desalted and concentrated macromolecules greater than 5 kDa. Forty two percent of the proteins from the conditioned medium were recovered, and 250 $\mu$ g/ml of OM were added to IVF media(IVF-TALP). The medium for BOEC culture(TCM199 with 10% FBS) was replaced with IVF-TALP(with or without OM) 2h before *in vitro* fertilization. Matured oocytes and sperm were coincubated for IVF on BOEC monolayer. After 18h insemination, oocytes were completely denuded in HEPES-TALP and cultured in CR1<sub>aa</sub> with 5% FBS. At 42h post insemination, the cleavage rate were examined. The results were shown in Table 1.

This study shows that sperm capacitation may be synergistically induced by means of both physical attachment to BOEC and exposure to macromolecules from BOEC conditioned medium.

Table 1. Development of bovine oocytes fertilized by spermatozoa cocultured with BOEC and/or OM<sup>a</sup>.

Group	Replicates	No. of oocyte	No(%) of cleaved oocytes	No(%) of cMo, BI <sup>b</sup>	% of cMo, BI/cleaved
OM+BOEC	8	137	83(60.6) <sup>A</sup>	18(13.1) <sup>D</sup>	21.7
BOEC	8	136	72(52.9) <sup>AB</sup>	14(10.3) <sup>DE</sup>	19.4
OM	8	138	59(42.8) <sup>B</sup>	12( 8.7) <sup>DE</sup>	20.3
TALP	8	130	37(28.5) <sup>C</sup>	7( 5.4) <sup>E</sup>	18.9
TALP+heparin <sup>c</sup>	8	185	113(61.1) <sup>A</sup>	24(13.0) <sup>D</sup>	21.2

a: OM-Oviductal macromolecule concentrate; BOEC-Bovine oviduct epithelial cells.

b: cMo- Compacted morulae; BI- Blastocysts.

c: Sperm were capacitated by heparin.

A-E: Different superscripts in the same column differ significantly(A-C:  $p < 0.01$ , DE:  $p < 0.05$ ).