Development of Ovine Embryos Derived from Oocytes Matured 
in vitro in the Absence of C02

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The purpose of the study was to determine the effect of C02 during In Vitro Maturation (IVM) and subsequent development into morula/blastocyst stages in sheep and to develop a method of in vitro maturation in ruminant animals.

Oocytes from abattoir ovaries were collected by methods of aspiration and spraying of media using a^18-G needle with aspiration medium of hepes-199 (H199) + 0.4% BSA + 50 μg/ml Heparin. The oocytes were divided into 3 groups and treated separately as follows: T1) oocytes were cultured in an eppendorf containing maturation medium (Bicarbonate-199 + 10% FCS + 10 μg/ml FSH + 10 μg/ml hCG +1 μg/ml Estradiol) overlaid with mineral oil. The IVM medium was equilibrated in 5% C02 incubator prior to culture of the oocytes then matured in the absence of C02; T2) oocytes were cultured in a petri dish containing maturation drops (as T1 medium) overlaid with mineral oil it was equilibrated in 5% C02 incubator prior to culture then matures in 5% C02 incubator. All cultures were maintained at 38°C in a humaditified incubator for 24 hours. The mature oocytes were fertilized in BO (Brackett and Oliphant) medium with concentration of approximately 12 x 10^6 sperm/ml for 6 hours and cultured in synthetic oviductal fluid (SOF) supplemented with amino acids (AA) and bovine serum albumin (BSA) at 38°C in humidified incubator with 5% C02 for 7 days.

The result showed that there was a highly significant effect of C02 during oocytes maturation on the percentage of cleaved oocytes (P<0.01). However, oocytes matured in the absence of C02 did not affect on either the percentages of morula/blastocyst or the rates of morula/blastocyst. This study suggests that ovine embryos derived from oocytes matured in vitro in the absence of C02 can be developed in vitro morula or blastocyst stages.