Observation of Fertilized Bovine Oocytes
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Oocytes were extracted from bovine ovaries by perforation of the follicle wall. Oocytes extracted were chosen for culture based on the cumulus-oocyte complex (COC), graded by the density of cumulus cells on a scale of A-D, in vitro fertilization (IVF) was performed on COC’s rated A or B. Healthy COC were placed into a maturation media for incubation at 29 degree C with a 5 percent CO2 air mixture for twenty four hours. After the maturation period the chosen oocytes were fertilized by IVF using frozen/thawed semen from one bull.

- 24 hours after IVF the zygotes were observed for sperm penetration and the fertilization rate was obtained. First cleavage can be easily observed, which creates two distinct blastomeres within the trophoblast.
- 36 hours after fertilization a third and fourth blastomere develops within the trophoblast dividing along symmetrical planes of cleavage. Cleavage between the blastomeres is known as holoblastic cleavage, or total cleavage between cells.
- A third set of cell divisions creates eight individual cells within the trophoblast. Each cell is roughly the same in size and continues to divide the remaining cytoplasm into smaller portions for the next blastomeres to be developed.
- A fourth stage of cell division creates the morula 72 hours after initial fertilization, which consists of 16 distinct individual cells within the trophoblast.
- Another cell division occurs 96 hours after fertilization and forms a blastocyst, a small cavitation is also visible in early blastocyst development.