

BULL EFFECTS ON DEVELOPMENTAL KINETICS OF IVP BOVINE EMBRYOS

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Two different effects are suggested to affect embryo developmental competence, sire effect and oocyte quality. The objective of this study was to examine sire influence on embryo developmental kinetics and competence. Three Nelore (*Bos Indicus*) bulls' semen were used in IVF. Briefly, ovaries were collected in local slaughterhouses, and follicles of diameter ranging from 3 to 8mm were aspirated. Grade 1 COCs (N=3,806) were matured in TCM199 + 10% FCS + 0.5 μ g FSH/mL + 50 μ g LH/mL + 1 μ g estradiol/mL, for 24 h at 38.5°C and 5% CO₂ in air. Live spermatozoa from different bulls were obtained by centrifugation in Percoll gradients (45 and 90%) and cultured with COCs at 2 million sperm/mL concentration in TALP medium + 10 μ g heparin/mL. After 10 h incubation, zygotes were transferred to CR2 + 10%FCS and granulosa monolayers. Embryos were evaluated in relation to time required to achieve 4th cell cycle. Fourth cell cycle embryos were separated at 48 and 90hpi and allowed to develop to blastocyst stage. Five to 8 cells' embryos before 48 hours post insemination (hpi) were classified as fast developing. Embryos between 48 and 90hpi were classified as slow developing. The number of blastocysts was assessed in the 8th day of culture. Although earlier studies suggest a sire effect on developmental kinetics and blastocyst rates, results presented herein showed no sire effect in embryos achieving the 4th cell cycle at 48 hpi (36.5 \pm 0.2%, 46.3 \pm 0.4% and 42.8 \pm 0.2%) nor of those achieving at 90hpi (10.1 \pm 0.2%, 12 \pm 0.7% and 15 \pm 0.4%). Blastocyst development suffered no bull effect, reaching very similar proportions for fast developmental embryos (61.2 \pm 0.4%, 58.4 \pm 0.6% and 58.3 \pm 0.5%) and slow developmental embryos (35.9 \pm 0.8%, 29.8 \pm 1.2% and 31 \pm 0.8%). Although these are preliminary results with only three Nelore bulls, differences between fast and slow developmental groups suggest, as reported elsewhere, a relationship between firsts cleavages and developmental competence. In this study we report the existence of a consistent lower developmental competence in slow group ($p < 0.01$), independent of sire. It is tempting to suggest that this inferior competence may originate from oocyte cytoplasm competence.

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