

## **Bovine Embryos and Prostaglandins (PG) Induce Progesterone (P4) Secretion by Granulosa Cells In Vitro**

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Contradictory results on the interaction of P4 and PG secretion with embryo survival during early pregnancy demand further studies. A co-culture system with granulosa cells and IVM/IVF embryos in presence or absence of PG was carried out to study embryo competence. Granulosa cells were cultured in vitro, alone (group A, n=4) or with embryos (group B, n=7) for 2 weeks. In both groups, the effect of PG synthesis inhibition with indomethacin (I), PGE2 (I+PGE) or PGF2 $\alpha$  (I+PGF) was evaluated for P4 synthesis by granulosa cells and for embryo development. A control treatment without I or PG ran simultaneously in each group. Daily P4 levels (ng mL<sup>-1</sup>) in culture media were measured by RIA. In group A, P4 levels increased differently among treatments when compared to day 0 (D0=1.4) with significant differences ( $P\leq 0.04$ ) at D2 (I+PGE=18.4), D3 (control=24.4; I+PGF=21.7) and D8 (I=32.9) and afterwards for all treatments. In group B, after D4, P4 levels were higher ( $P\leq 0.05$ ) than the same treatments in group A. In group B, control P4 showed a two-phase increase (D4-5 and D11-D14), with a stabilisation period (D6-D9). The second increase, associated with hatched embryos, was absent in the other treatments of group B. Indomethacin, I+PGF and I+PGE treatments resulted in a lower ( $P\leq 0.05$ ) blastocyst quality and production rates. Results show that P4 production by granulosa cells became progressively higher with the incubation time but it was delayed by indomethacin. Regardless of indomethacin, PGE2 and embryos stimulated P4 synthesis by granulosa cells.

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