

Effects of Canine Serum Obtained from Different Estrus Cycle on *In Vitro* Maturation of Canine Oocytes

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Physiology of reproduction in the canine significantly differs from that in other species. Canine oocytes are ovulated at prophase of the first meiotic division and undergo maturation in the distal part of the oviduct at least 48 to 72 hr. Because of the difference, the efficiency of *in vitro* maturation (IVM) of canine oocyte is still very low. The present study was conducted to evaluate the effects of canine serum on *in vitro* maturation of canine oocytes. Oocytes were recovered by slicing ovaries collected after ovariectomy in bitches with various estrous cycle stage (follicular, luteal or anestrus stages) and cultured in tissue culture medium (TCM)-199 supplemented with various concentrations of canine serum collected from various estrous cycle. The anestrus, estrus and diestrus serum were collected from different sets of healthy bitches categorized into three estrous cycle stage by progesterone concentration and vaginal cytology. Serum treatments were: oocytes cultured in TCM-199 supplemented with 10% canine serum of anestrus, estrus or diestrus stages (Experiment 1) and the medium supplemented with 0 (control), 5, 10 or 20% canine serum of estrus (Experiment 2). The result in Experiment 1 showed that maturation of canine oocytes recovered from the follicular stage to metaphase II (MII) was significantly higher ($P < 0.05$) in medium

supplemented with estrous serum (14.2%) compared to that found in anestrus (7.1%), diestrus serum (7.4%) or the control (3.5%). In Experiment 2, oocytes collected from the follicular stage and matured with 10% estrus serum (11.5%) showed significantly higher ($P < 0.05$) maturation rate to MII (11.5%) compared to 5 or 20% estrus serumsupplemented (1.3, 5.1%) or the control group (1.0%). In conclusion, our study demonstrated that supplementation of the culture medium with 10% canine estrous serum showed the beneficial effects on IVM of canine oocytes collected from the follicular stage.

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