

SUPLEMENTASI HORMON GONADOTROPIN PADA MEDIUM MATURASI
IN VITRO UNTUK MENINGKATKAN PERKEMBANGAN
EMBRIO STADIUM 4 SEL KAMBING BLIGON

INTISARI

Dewi Pranatasari
13/352444/PPT/00839

Penelitian ini bertujuan untuk mengetahui pengaruh suplementasi hormon gonadotropin pada medium maturasi *in vitro* terhadap tingkat maturasi, fertilisasi dan perkembangan embrio kambing Bligon yang diproduksi secara *in vitro*. Tahapan penelitian meliputi koleksi oosit, maturasi *in vitro*, fertilisasi *in vitro* dan perkembangan embrio *in vitro*. Pada tahap maturasi oosit yang telah dikoleksi dibedakan dalam dua kelompok berdasarkan medium maturasi, yaitu *tissue culture medium* (TCM) dengan suplementasi GnRH 0 IU/mL dan 25 IU/mL. Data morfologi oosit dan embrio dianalisis secara deskriptif. Data angka maturasi dan perkembangan embrio dianalisis dengan *independent sample T-test*. Data fertilisasi dianalisis secara deskriptif. Hasil penelitian menunjukkan persentase oosit *mature* untuk suplementasi GnRH 0 IU/mL dan GnRH 25 IU/mL berturut-turut adalah $54,10 \pm 25,97$ dan $54,89 \pm 26,44\%$. Pada oosit *mature* tampak ekspansi sel kumulus yang merenggang dan mengelilingi oosit. Perkembangan embrio *in vitro* stadium 2 sel dengan suplementasi GnRH 0 IU/mL dan GnRH 25 IU/mL berturut-turut adalah $13,02 \pm 11,09$ dan $27,01 \pm 16,65\%$, sedangkan untuk stadium 4 sel masing-masing sebesar $10,16 \pm 10,01$ dan $16,67 \pm 14,91\%$. Embrio yang dihasilkan pada suplementasi gonadotropin menunjukkan ukuran blastomer seragam, blastomer intak, warna blastomer terang, dan bentuk embrio bundar *spherical*. Hasil penelitian ini dapat disimpulkan bahwa suplementasi hormon gonadotropin pada medium maturasi *in vitro* tidak meningkatkan angka maturasi oosit dan perkembangan embrio 4 sel, tetapi dapat meningkatkan angka perkembangan embrio 2 sel kambing Bligon. Suplementasi hormon dapat meningkatkan kualitas maturasi dan kualitas embrio.

(Kata kunci: Fertilisasi *in vitro*, Hormon gonadotropin, Kambing Bligon, Perkembangan embrio)

**SUPPLEMENTATION OF GONADOTROPIN HORMONE INTO IN VITRO
MATURATION MEDIUM TO INCREASE 4 CELL STADIUM EMBRYO
DEVELOPMENT OF BLIGON GOAT**

ABSTRACT

Dewi Pranatasari

13/352444/PPT/00839

The study was carried out to investigate the effect supplementation of gonadotropin hormone into in vitro maturation medium on maturation, fertilization and embryo development Bligon goats produced in vitro. This research processed consist of oocyte collection, in vitro maturation, in vitro fertilization, and in vitro embryo development. At the oocyte maturation stage that had been collected divided into two groups based on the maturation medium, that was tissue culture medium (TCM) with supplementation of GnRH 0 IU/mL and GnRH 25 IU/mL. Oocyte and embryo morphology data were analyzed descriptively. Maturation rate and embryo development data were analyzed by independent sample T-test. Fertilization data was analyzed descriptively. The result showed the percentages of mature oocytes from gonadotropin supplementation 0 IU/mL and 25 IU/mL were 54.10 ± 25.97 and $54.89 \pm 26.44\%$, respectively. Expansion cumulus cells surrounding the oocytes indicated the matured oocytes. Cleavage rate of the 2 cells stage were $13,02 \pm 11,09$ and $27,01 \pm 16,65\%$; respectively, and for the 4 cells stage were $10,16 \pm 10,01\%$ and $16,67 \pm 14.91\%$. Embryos obtained from the treatment, indicated uniform of blastomeres size, tight, compact, intact, and round-spherical shape. It could be concluded that supplementation of gonadotropin hormone into in vitro maturation medium could not increase the rate of oocyte maturation and 4 cell embryo development, but it could increase 2 cell embryo development of Bligon goats. Hormone supplementation could improve of maturation and embryo quality.

(Key words: Bligon goats, Embryo development, Gonadotropin hormone, In vitro fertilization)