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Effect of vascular endothelial growth factor 165a on initiation of porcine primordial follicle development under the short-term culture system

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Mammalian folliculogenesis is a complex process, which determines the availability of viable oocyte for successful fertilization. Initiation of mammalian primordial follicle development is poorly understood. Vascular endothelial growth factor 165a (VEGFA165a) is a well-known angiogenic factor, which stimulate the vascular bed formation under excess androgen conditions in cows with cystic ovarian lesions. Therefore, studies on the role of VEGFA in ovarian follicle activation are indispensable. The objective of the current study was to determine the effect of VEGF165a on porcine primordial follicle development *invitro*. This preliminary data was obtained from short-term (72 hours) *in vitro* culture of porcine ovarian cortical stripes under 5% CO_2, with humidified atmospheric conditions. The effect of three different VEGFA165a dose regimes (0.1ng/ml, 1ng/ml and 10ng/ml) was tested. The lowest dose regime (0.1ng/ml) showed the highest viable follicle counts, compared to the 1ng/ml or 10ng/ml regimes. Accelerated follicle degeneration was shown under the dose regime of 10ng/ml. This study provides evidence for the effect of low VEGFA165a concentrations on follicle viability in porcine tissues under short term culture conditions even though the results were not statistically significant ($p>0.05$). In conclusion, it is evident in this study that the lowest concentrations of VEGF165a has increased the follicle viability while higher concentrations implicitly increased follicle degeneration.

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