

## ANDROGENS INFLUENCE ON IN VITRO DEVELOPMENT OF PORCINE PREANTRAL FOLLICLES

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### Abstract Body

Androgens are steroid hormones synthesized within the ovary. Results of numerous animal studies and clinical reports indicate that they are crucial for normal follicular development and function. Acting via androgen receptors they increase the number of growing follicles but also contribute to follicular atresia. Literature search and our previous findings, indicate that disturbances in androgens action affect female fertility. Therefore, this study was conducted to determine whether experimentally induced androgen deficiency during *in vitro* culture of porcine ovarian cortical slices affects follicular antrum formation. Cortical slices 0.5-1.0 mm thick obtained from 5-6-months-old gilts ovaries were cultured for 8 days. The medium was  $\alpha$ -MEM including 3mg/mL BSA, 10 $\mu$ L/mL ITS and 0.1mAU/mL FSH. Experimental cultures were supplemented with testosterone ( $10^{-7}$ M) or dihydrotestosterone ( $10^{-7}$ M), and a dicarboximide fungicide with an antiandrogenic activity, vinclozolin (Vnz,  $1.4 \times 10^{-5}$ M), separately or in combinations. Cultures were terminated on days 0, 2, 4, 6, and 8. Follicle morphology, FSHR, GDF-9, KL/c-Kit and chosen autophagy markers at mRNA and protein level were assessed by RT-PCR and Western blots. Moreover the studied proteins were immunolocalized and antrum formation was examined every 2 days. The present study confirms that androgens are involved in porcine early follicular development by: (1) indicating the effect of exogenous androgens on antrum formation, (2) detecting all the investigated proteins in ovarian cortical slices, (3) showing for the first time, that an environmental antiandrogen Vnz adversely affects follicular survivability. Thus we demonstrated deleterious effects of androgen deficiency at antrum formation stage, what may negatively influence reproductive function in mammals. In the light of accumulating evidence indicating the presence of Endocrine Disrupting Compounds in the environment, it seems important to establish how these compounds that block or mimic endogenous androgens action influence the initiation of folliculogenesis within the ovary.

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