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New insights on equine ovarian physiology

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Ovarian physiology in domestic animals is one of the main subjects in current researches. Those researches include analysis of follicular fluid, gene expression of metalloproteinases, ovarian surface epithelium function and the inflammatory hypothesis. The aim of these researches is to promote understanding of certain physiologic aspects of the ovary so that techniques of assisted reproduction and hormonal therapy can be improved. The equine follicular fluid contains substances involved in follicle activity, cell differentiation and oocyte maturation. More studies of its components may contribute to clarify physiologic mechanisms of folliculogenesis and ovulation. The main studies in this subject involve proteomics providing protein identification and elaborating hypothetical models of the relation between follicle, oocyte maturation and hormonal status trying to unveil a possible mechanism. Enzymes promoting collagen lysis such as matrix metalloproteinases can be fundamental in the process of extracellular matrix remodeling which allows changes in ovarian tissue architecture during follicular growth. It has been suggested that the production of these enzymes may be affected by the rise in circulating concentrations of LH which acts on the ovarian surface epithelium signaling their synthesis. The inflammatory hypotheses described in some proteomic studies along with the action of metalloproteinases are important researches about the ovarian physiological events.

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