



Oral Presentation

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## As a diagnostic tool; TGF- $\beta$ superfamily

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### **Abstract**

In recent years, interesting advances have been made in research on the elucidation of intraovarian control mechanisms that coordinate many follicular activities from the occurrence of follicles to follicular growth, deviation, maturation, ovulation and corpus luteum formation. Primordial follicle formation, the transition of follicles to primary and secondary stages, is observed in the early stages of folliculogenesis in mammals. In this process, while the follicle pool is consist of the follicles are prepared to move on to the next growth stages. Abnormalities of follicle formation are a major threat to the size of the antral follicle pool. The disruptions experienced during the follicular developmental stages may cause the follicles not reach sufficient maturity and to prematurely deplete the follicle reserve. Transforming Growth Factor- $\beta$  (TGF- $\beta$ ) superfamily is a large group of molecules which are regulating many cellular processes. TGF- $\beta$  superfamily member growth factors; It is responsible for regulating basic biological processes such as cellular growth, differentiation and apoptosis. These proteins play an active role in primordial follicle development, granulosa and theca cell proliferation, follicular atresia, gonadotropin receptor development, oocyte maturation, luteinization and corpus luteum formation. Prominent members of this superfamily in reproductive biology can be listed as TGF- $\beta$ 's, Bone Morphogenic Proteins (BMP), Growth Differentiation Factors (GDF), activins, inhibins and Anti-Müllerian Hormone (AMH). Today, in addition to human medicine, especially inhibins, AMH, BMP-6 and GDF-9 are frequently used in veterinary medicine, both in scientific research and clinical field that as an indicator of various reproductive markers. These members of the TGF- $\beta$  superfamily; It plays a guiding role in the evaluation of fertility-related parameters such as ovarian reserve and oocyte quality, in the determination of dysfunctional follicular disorders, in the diagnosis of pathologies such as granulosa cell tumors and ovarian remnant syndrome, in multiple ovulation and embryo transfer studies in assisted reproductive technology. The aim of the present study is to reveal the importance of the TGF- $\beta$  superfamily in terms of fertility and its usability in gynaecological cases.

**Keywords:** feline, canine, growth factor

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