



Are the GDF-9 and BMP-15 presents in testicles of the bovine fetuses?



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INTRODUCTION

Germ cells and somatic gonad cells synthesize several growth factors belonging to the TGF β superfamily which contains more than 40 multifunctional polypeptide growth factors including TGF β , activin, BMPs, GDF-9, and Anti-Müllerian Hormone (Itman et al., 2006). GDF-9 and BMP-15 are synthesized in mammalian oocytes at various stages of follicular development (McGrath et al., 1995, Dong et al., 1996). In the testicles, GDF-9 acts in the regulation of spermatogenesis (Zhao et al., 2011) and BMP-15 has a role in regulating gonadal development (Aaltonen et al., 1999), and its expression is observed in human and bovine testicles (Penetier et al., 2004) and although their signaling pathways are well known in oocytes, their role in the spermatogenic lineage is poorly understood. The aim of this work was to evaluate whether these proteins are present during testicular development in bovine fetuses.

MATERIALS AND METHODS

Testicles were collected from 25 bovine fetuses between 4 and 8 months, determined by measurements of crown-rump length (CRL). The testicles were fixed in 10% formalin for 24 hours and subjected to routine histological processing and paraffin embedding. Hematoxylin and Eosin staining was performed to assess the testicular structure and for immunolocalization, the primary polyclonal antibody anti-GDF-9 (SC-514933, 1:50) and the anti-BMP-15 antibody (SC-271824, 1:50) were used according to the manufacturer's instructions. The slides were counterstained with hematoxylin and mounted with Entellan for analysis under a photomicroscope (NIKON Eclipse Ci-E, Nikon Corporation, Tokyo, Japan) coupled to a digital camera (NIKON DS-Ri, Nikon Corporation, Tokyo, Japan), being evaluated the aspects of immunostaining and the cell type marked at different fetal ages.

RESULTS

The histological structure of the testes was observed with the presence of seminiferous cords (without tubular lumen) containing germ cells (gonocytes) and Sertoli cells, however, the immunostaining of GDF-9 and BMP-15 in the analyzed testicles was not observed.

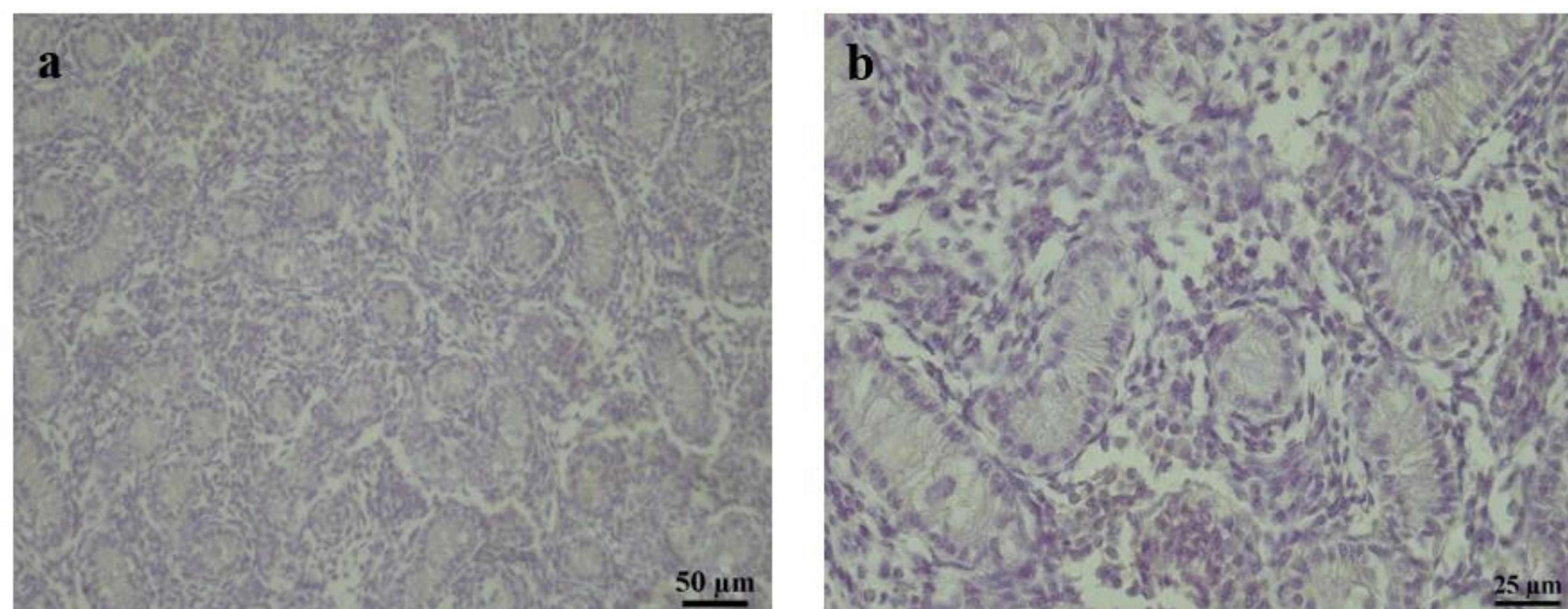


Figure 1 – Immunohistochemistry for GDF-9 (a) and BMP-15(b) in bovine fetal testis showing a negative immunomarcation.

CONCLUSION

No observation of GDF-9 and BMP-15 proteins is suggestive that these proteins were not present in the gonadal development of bovine fetuses at the evaluated ages, agreeing with the literature that cites their expression only during the meiotic activity of germ cells.

Keywords: GDF-9, BMP-15, testis bovine fetus