In situ hybridization and immunohistochemical localization of leptin hormone and leptin receptor in the seminal vesicle and prostate gland of adult rat

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Abstract

The role of leptin in the regulation of male reproductive function is still a matter of debate. Knowledge about a possible source of leptin in the seminal plasma may therefore be helpful in identifying and elucidating the physiological role of leptin hormone in male reproduction. In our investigation, the expression of leptin and its long receptor isoform (Ob-Rb) was studied in adult male Wistar rats using RT-PCR, Southern blot, in situ hybridization and immunohistochemistry. RT-PCR analysis revealed the expression of both leptin and its Ob-Rb in the seminal vesicle and prostate gland. In situ hybridization also localized the mRNA transcripts of leptin and Ob-Rb in the glandular secretory epithelial cells of prostate gland and seminal vesicle. Immunohistochemistry detected the leptin hormone in the lining epithelium of both male genital glands. In conclusion, these findings suggest that the seminal vesicle and prostate gland could be the possible sources of leptin in the seminal
plasma. This leptin might have a direct (paracrine, autocrine or both) effect on epithelial cells of the accessory male genital glands, on the spermatozoa via spermatozoan leptin receptors.

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**References**


Ogawa Y, Masuzaki H, Isse N, Okazaki T, Mori K, Shigemoto M,