

EXPRESSSIONAL PATTERN OF GELATINASE MATRIX METALLOPROTEINASE (MMP) IN GOAT UTERUS

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Executive Summary:

Homeostasis of the extracellular matrix (ECM) is maintained, in part by, the action of a specific class of proteolytic enzymes known as the matrix metalloproteinases (MMPs). The endometrium, which lines the largely muscular uterine body, is a highly specialized tissue that has evolved to support the dynamic events required to establish and maintain pregnancy. Tissue remodeling of endometrium is broadly defined as the structural reorganization or renewal of living tissue, which depends on the breakdown and reformation of the ECM. The aim of this study was to examine the impact of hormonal influence on the expression of matrix metalloproteinases (MMPs) in goat endometrial tissue. The goat uterus was collected from local abattoir in Dhaka city from July-2021 to March-2022. In the laboratory, the tissue was separated from caruncular and intercaruncular region of the goat endometrium. The endometrial tissue was used for gelatin zymography to identify MMP proteins. Zymograms of the tissue supernatant showed that MMP-9 was rarely expressed in goat endometrium and both pre and mature form of MMP-2 are differentially expressed in estrous group. Total MMP-2 protein expression was found higher in caruncular tissue in estrous cycle group. Caruncular tissues are better able to react to hormonally driven MMP production. Reproductive hormones estrogen (E2) and progesterone (P4) significantly influenced the clearance of MMP-2 since E2 and P4 is the prime hormone of the follicular and luteal stage respectively. In conclusion, E2 and P4 probably control the endometrial remodeling through MMPs in the goat endometrium.

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