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LS-7-P-1950 Existence and localization of COX 1 in the ovary of the giant freshwater prawn, Macrobrachium Rosenbergii

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Several physiological processes are regulated by prostaglandins (PGs). In mammals, PGE_2 is the most abundant type of prostanoid. PGE_2 is involved in many reproductive processes including ovarian follicular function, ovulation, luteolysis and parturition in numerous species.

In crustaceans, several studies reported that PGs are involved in the regulation of reproduction. However, the mode of PG biosynthesis in arthropods and enzymes involved in these pathways has remained unresolved.

The key enzymes in the synthesis of PGs from arachidonic acid is prostaglandin endoperoxide G/H synthesis or cyclooxygenases (COX). COX is present all the vertebrate and has been used as a marker enzyme for the synthesis of PGs. The aim of this study is to verify the existence of COX and therefore PGs, in the reproductive system of decapods, using female freshwater prawns Macrobrachium rosenbergii as a model. The results revealed that COX1 immunoreactivity was detected in the cytoplasm around the nuclear membrane of oocyte stage 1 and 2 by using immunohistochemistry technique. However, there was no immunoreactivity detected in oocyte stages 3 and 4. The presence of COX1 immunoreactivity in the ovary suggests that COX is involved in the synthesis of PGs, Which may exercise control over the ovarian maturation in this species.

References

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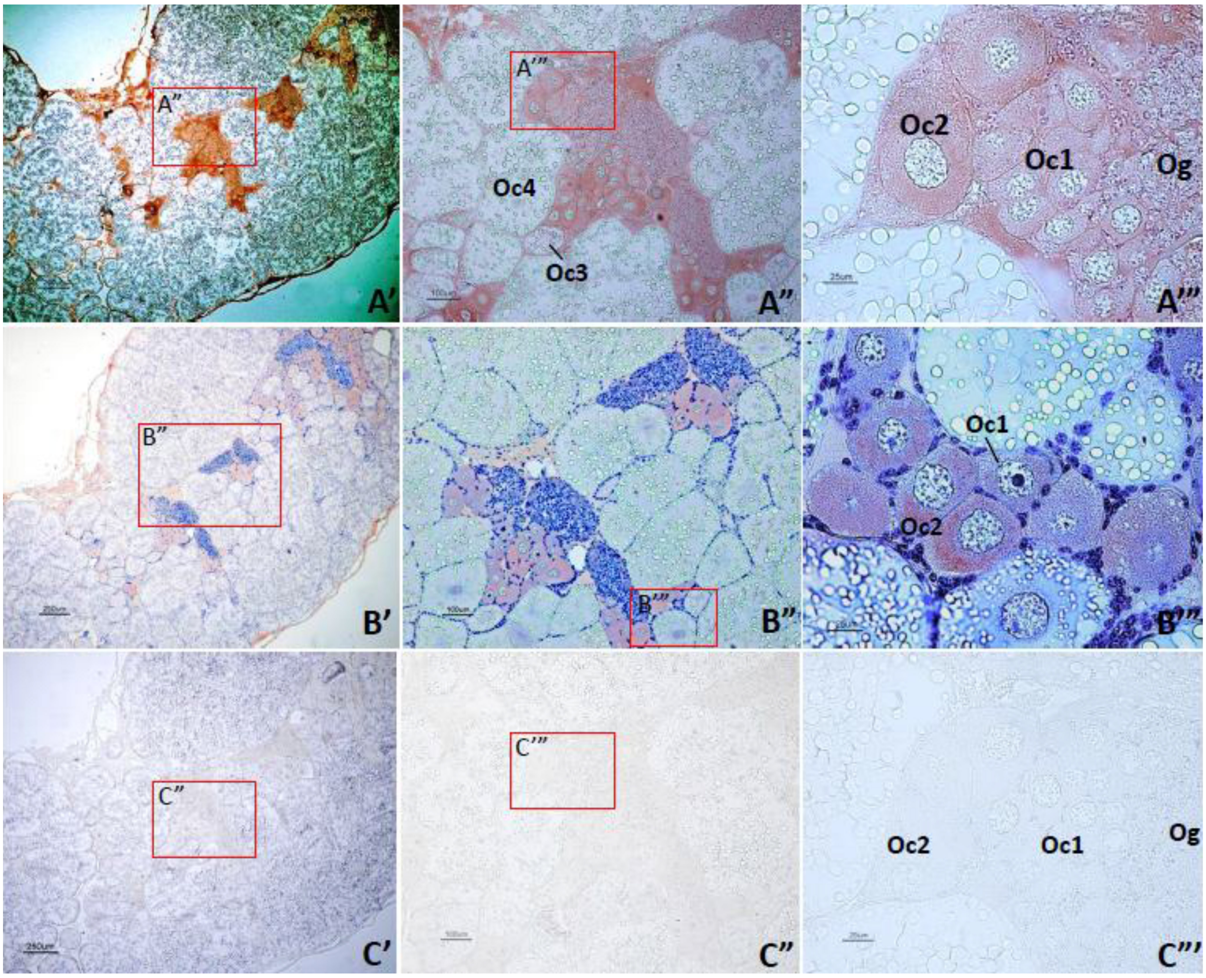

Fig. 1: Immunoperoxidase micrographs of developing oocytes of M. rosenbergii stained with COX1Ab. A and B: micrograph showing positive immunostaining at Oc1 and Oc2 in low, middle, and high magnification, respectively. C: Control section showing no immunostaining in low, middle, and high magnification, respectively.