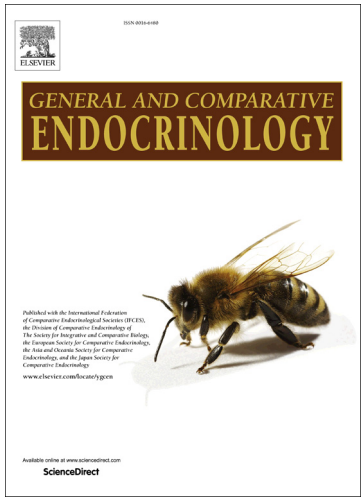
Accepted Manuscript



Seasonal ovarian immunolocalization of neuropeptide Y and its role in steriodogenesis in Asian catfish, *Clarias batrachus*

Priyadarshini, Bechan Lal

PII: S0016-6480(17)30251-4
DOI: https://doi.org/10.1016/j.ygcen.2017.10.002
Reference: YGCEN 12774

To appear in: *General and Comparative Endocrinology*

Received Date: 31 March 2017
Revised Date: 27 September 2017
Accepted Date: 6 October 2017

Please cite this article as: Priyadarshini, Lal, B., Seasonal ovarian immunolocalization of neuropeptide Y and its role in steriodogenesis in Asian catfish, *Clarias batrachus*, *General and Comparative Endocrinology* (2017), doi: https://doi.org/10.1016/j.ygcen.2017.10.002

Seasonal ovarian immunolocalization of neuropeptide Y and its role in steriodogenesis in Asian catfish, *Clarias batrachus*

Priyadarshini and Bechan Lal

Department of Zoology, Institute of Science, Banaras Hindu University, Varanasi-221 005, India

lalbhu@yahoo.co.in

Abstract

The present study was undertaken to examine the cellular localization and potential steroidogenic role of neuropeptide Y (NPY) in the ovary of the freshwater catfish, *Clarias batrachus*. NPY-immunoreaction was observed in the follicular cells (granulosa and thecal cells) in the growing ovarian follicles, and the intensity of staining increased steadily from the initiation of follicular development until follicles were fully grown. Thereafter as follicles matured the stain intensity decreased. Positive correlations were found between NPY expression and the ovarian levels of 17β-estradiol, testosterone, and activities of 3β-hydroxysteroid dehydrogenase (3β-HSD) and 17β-hydroxysteroid dehydrogenase (17β-HSD) in the ovary. *In vitro* NPY treatment stimulated the production of the two steroids and the activities of two enzymes. This is the first report of NPY immunoreactivity at the cellular level in the fish ovary and implicates this orexigenic peptide in the modulation of ovarian steroidogenesis.

Key words: NPY; sex steroids; granulosa cells; thecal cells; 3β-HSD; 17β-HSD; ovarian follicles

1. Introduction

The reproductive success of any animal is closely linked to its nutritional status and energy imbalance has been considered as one of the major factors for reproductive dysfunctions in vertebrates (Schneider, 2004). Both, over as well as under-nutrition, result in reproductive failure