



Title	Immunohistochemical distribution of RFamide in the brain of the <i>Xenopus laevis</i>
Author(s)	NAKAYAMA, Megumi
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INFORMATION

Hokkaido University conferred the degree of Bachelor of Veterinary Medicine to the following 33 graduates of the School of Veterinary Medicine on March 23, 2001.

The authors summaries of their theses are as follows :

Immunohistochemical distribution of RFamide in the brain of the *Xenopus laevis*

Megumi Nakayama

*Laboratory of Anatomy, Department of Biomedical Sciences,
School of Veterinary Medicine, Hokkaido University, Sapporo 060-0818, Japan*

Many studies have established that peptides containing RFamide at the carboxyl terminal are present in the nervous and endocrine systems, and act as neurotransmitters and/or hormones. Most of the studies about the RFamide family, however, were carried out in invertebrates and lower vertebrates. Few studies dealt with the distribution and function of RFamide in higher vertebrates above amphibian. Recently, a new member of RFamide, C-RFamide, was isolated from the crucian carp, *Carassius*. The present study was designed to elucidate the localization the C-RFamide in the brain and endocrine systems of *Xenopus laevis* by immunohistochemistry.

C-RFamide-like immunoreactivity was demonstrated extensively in various regions of *Xenopus laevis* brain, with the highest density in the diencephalon. Immunoreactive neuronal perikarya were located in the preoptic area and the hypothalamic paraventricular region. Most of the immunoreactive cells in the hypothalamus were bipolar in shape and located close to the ventricles. These bi-

polar neurons extended an apical process to reach the third ventricle, while projected the axon towards the median eminence, where the axon terminals gathered around the primary capillary plexus of the hypophyseal portal system. The bipolar neurons in the hypothalamus may receive information from the cerebrospinal fluid with their apical process and transmit it to the median eminence and other areas of the brain. It is also suggested that in *Xenopus laevis*, a C-RFamide-like substance functions as a neurohormone to regulate the secretion of pituitary hormones. Biochemical analysis showed that C-RFamide had more than 65% sequence homology with prolactin-releasing peptide (PrRP). In addition, nerve fibers containing the immunoreactivity were abundant in the preoptic area and the nucleus septi in the telencephalon, where fibers formed dense networks. Another immunoreactivity for C-RFamide was recognized in the pars intermedia of the hypophysis and pancreatic endocrine cells, suggesting that C-RFamide has a role as a hormone out of the central nervous system.