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COMPONENTS OF THE DOPAMINE SYSTEM IN THE NEUROENDOCRINE COMPLEXES OF THE SNAIL ATRIUM

O. A. Bystrova,¹ A. N. Shumeev,² M. G. Martynova^{1,*}

¹ Institute of Cytology RAS, St. Petersburg, 194064, and

² Institute of Zoology RAS, St. Petersburg, 199034;

* e-mail: mgmart14@mail.ru

The catecholamine dopamine (DA) is an important neurotransmitter and hormone involved in many physiological processes and stress reactions in both vertebrates and invertebrates. The present study was designed to investigate the presence and distribution of the dopamine system' elements — tyrosine hydroxylase (TH), dopamine-beta-hydroxylase (DbetaH) and type 1 DA-receptors (DA-R1) — in the cells of neuroendocrine complexes (NEC) of gastropoda mollusk *Achatina achatina* which consist of great granular cells (GCs) and tightly contacted with them nerve fibers. The investigation was carried out by the methods of histochemistry, immunofluorescence staining and immunoelectron microscopy. The glyoxylate-induced fluorescence indicative of catecholamines was localized in the GCs and nerve fibers. TH-like and DbetaH-like immunoreactivity was also revealed both in nerve fibers and granules of GCs. DA-R1-positive material was only found in nerve fibers; no labeling was observed in the GCs. Furthermore, it has been shown that application of exogenous dopamine induced enhanced degranulation of the atrial GCs *in vivo*. Taken together, the data obtained here suggest dopamine system participation in the operation of the snail atrial NEC.

Key words: granular cells, dopamine, tyrosine hydroxylase, dopamine-beta-hydroxylase, dopamine receptors