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Expression of natriuretic peptide-activated guanylate cyclases by cholinergic and dopaminergic amacrine cells of the rat retina

Essam Mohamed Abdelalim [a,b], *Chiaki Masuda* [a], *Ikuo Tooyama* [a,*]

[a] *Molecular Neuroscience Research Center, Shiga University of Medical Science, Setatsukinowa-cho, Seta, Otsu, Shiga 520-2192, Japan*
[b] *Department of Cytology and Histology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt*

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ABSTRACT

Recently, the natriuretic peptides were detected in the cholinergic and dopaminergic amacrine cells of the retina. We performed immunofluorescence labeling of rat retinal sections to examine the immunoreactivity of natriuretic peptide-activated guanylate cyclases (NPR-A and NPR-B) in the rat retina, in particular whether they were localized to dopaminergic and cholinergic amacrine cells. NPR-A and NPR-B immunoreactivity was detected in several layers of the retina including amacrine cells. In amacrine cells, both NPR-A and NPR-B were co-localized with tyrosine hydroxylase, a marker of dopaminergic cells. NPR-B, but not NPR-A, was localized to amacrine cells expressing choline acetyltransferase (ChAT), a marker of cholinergic cells. These findings suggest that natriuretic peptides have different regulatory systems in dopaminergic and cholinergic amacrine cells in rat retina.