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Types of Calretinin-containing Retinal Ganglion Cells in Mouse Retina : Single Cell Injection after Immunocytochemistry

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Calcium-binding proteins are involved with numerous functional roles in the retina. We previously reported the types of parvalbumin-immunoreactive (IR) retinal ganglion cells (RGC) in the mouse retina using a newly developed single cell injection technique after immunocytochemistry (Kim and Jeon, *Invest. Ophthalmol. Vis. Sci.* 47, 2757-2764). In the present study, we aimed to describe the types of calretinin-containing RGC in mouse. Calretinin-containing RGC were first identified by immunocytochemistry and then were iontophoretically injected with a lipophilic dye DiI. Then confocal microscopy was used to characterize the morphologic classification of the calretinin-IR ganglion cells on the basis of the dendritic field size, branching pattern, and stratification within the inner plexiform layer. The results indicate that at least 10 different types of ganglion cells express calretinin in the mouse retina. They were heterogeneous in morphology : monostratified to bistratfied, small-to-large dendrite field size, and sparse-to-dense dendritic arbors. These results shows that the combined approach of cell morphology and the selective expression of calretinin will provide critical data for further knowledge of physiological properties of the RGCs. (This work was supported by the Korea Research Foundation Grant funded by the Korean Government (KRF-2006-311-E00370))

Key words: Caletinin, Types, retinal ganglion cells, immunocytochemistry, single cell injection

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Ligand-bound SXR and ER can Transactivate Liver X Receptor Response Element (LXRE) in HepG2

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The liver x receptors (LXRs) bind to their heterodimeric partner retinoic x receptor (RXR) and interact with response element, LXRE, on target promoters of responsive genes and regulate their transcription upon activation by ligands. The LXRE contain non-consensus half-site and LXR has also been demonstrated to heterodimerize with PPAR-alpha suggesting possible regulation by other related nuclear receptors. This study examined the effects of estrogen receptor (ER) and steroid and xenobiotic receptor (SXR) on LXRE transactivation in response to different ligands in HepG2 cells. HepG2 cells were transiently transfected with $(LXRE)_3$-tk-luciferase reporter and expression plasmids of ER and SXR. Treatment with rifampicin and corticosterone promoted SXR-mediated transactivation of LXRE-reporter gene 16-fold and 38-fold respectively as compared with ethanol treatment. Whereas, 17-beta-estradiol marginally stimulated the ER-mediated transactivation (only 1.3-fold). In addition, combined treatment with estrogen plus rifampicin or corticosterone resulted in less than 50% transactivation by rifampicin and corticosterone alone. These results suggest that SXR and ER can transactivate LXRE in ligand-dependent manner.