

Poster presentation

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Immunohistochemical analysis of cGKI expression in the murine brain and eye

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The cGMP-dependent protein kinase type I (cGKI) is involved in the modulation of neuronal plasticity and learning in the hippocampus and cerebellum. The expression and potential function of cGKI and its isoforms, cGKI α and cGKI β in other brain regions is not completely resolved. We immunohistochemical study to elucidate the distribution of cGKI protein in the CNS and eye of the mouse. The specificity of the cGKI antibody was controlled by using tissue sections of cGKI knockout mice. Expression of cGKI protein was confirmed in cerebellar Purkinje cells, hippocampus, and dorsomedial hypothalamus. However, we also detected a number of additional cGKI-positive regions, e.g. deep cerebellar nuclei, cerebral cortex, subcommissural organ, various hypothalamic regions, olfactory bulb, pituitary gland, and retina. Immunostaining with isoform-specific antibodies indicated that the cGKI α isoform is prominent in the cerebellum and medulla, whereas cGKI β is predominant in the cortex, hippocampus, hypothalamus, and olfactory bulb. These results suggest that the distribution and potential function of cGKI in the mammalian brain is broader than previously reported.