

عنوان مقاله:

Protein expression changes of HCN1 and HCN2 in hippocampal subregions of gerbils during the normal aging process

محل انتشار:

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خلاصه مقاله:

Objective(s): Hyperpolarization-activated cyclic nucleotide-gated (HCN) channels play essential roles in various hippocampal functions, including regulation of long-term potentiation, synaptic plasticity, and hippocampal-dependent cognitive process. The objective of this study was to investigate age-related changes in HCN1 and HCN2 protein expressions in gerbil hippocampus at various ages. **Materials and Methods:** In this study, the protein expressions of HCN1 and HCN2 were compared in the hippocampus at the ages of 1, 3, 12, and 24 months using Western blot analysis and immunohistochemistry. **Results:** Immunoreactivity of both HCN1 and HCN2 was shown primarily in cells of the pyramidal cell layer in the hippocampus proper and in cells of the granule cell layer in the dentate gyrus. HCN1 and HCN2 protein expression levels and immunoreactivity were significantly increased at three months (3 M) of age compared with those at 1 M of age. After that, both HCN1 and HCN2 expression levels in the hippocampus were gradually decreased with age. **Conclusion:** Our results show that the normal aging process affects the expression levels of HCN1 and HCN2 in hippocampal cells in gerbils. There are marked reductions in HCN1 and HCN2 expressions in the aged hippocampus compared to the young hippocampus. Such reductions might be related to .aging in the hippocampus

کلمات کلیدی:

Aging, Dentate gyrus, Granule cells, HCN channel, Hippocampus proper, Pyramidal cells

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