

Stimulation Pattern-Dependent Plasticity at Hippocampal CCK-Positive Interneuron to Pyramidal Cell Perisomatic Inhibitory Synapses

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Abstract

© 2016, Springer Science+Business Media New York. Long-term plasticity plays an important role in the functional construction of neuronal networks. While anatomical wiring provides essential hardware for brain function, activity-dependent plasticity works as an adjustable software interface allowing sensory induced modification of transmission efficacy at given synaptic connections. In contrast to the vast majority of excitatory synapses, at distinct types of inhibitory GABAergic connections, the link between the pattern of activity and the subsequent change of synaptic strength has not been well characterized. Here, we examined frequency and stimulation pattern dependence in long-term synaptic depression at CCK+/CB1R inhibitory perisomatic synapses in the hippocampal CA1 region, and we found that successful LTD induction depends on the pattern of stimulation rather than the number of stimuli.

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Keywords

CCK, GABAergic, Hippocampus, Plasticity

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