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Oral Sessions

Implication of leukemia inhibitory factor in the formation of stress adaptation in mice

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Recent studies suggest that oligodendrocyte disruptions in the central nervous system can impact potentially to mood regulation in human psychiatric disorders. Leukemia inhibitory factor (LIF) has been shown to be involved in myelination. In the present study, we investigated whether LIF are involved in the formation of stress adaptation. A single exposure to restraint stress for 60 min induced a decrease in head-dipping behavior in the hole-board test. This emotional stress response was not observed in mice that had been exposed to repeated restraint stress for 60 min/day for 14 days, which confirmed the development of stress adaptation. In contrast, mice that were exposed to restraint stress for 240 min/days for 14 days did not develop the stress adaptation, and continued to show a decrease in head-dipping behavior. Major myelin proteins including myelin basic protein and myelin-associated glycoprotein expression were decreased in the hippocampus of stress-maladaptive, but not stress-adaptive, mice. Under these conditions, protein levels of LIF was significantly increased only in the hippocampus of stress-adaptive mice. These results indicate that increased LIF in the hippocampus may contribute to the development of stress adaptation.