Stress can induce psychiatric diseases and animal models of stress are used to study central nervous processes that may occur in the brains of depressed patients. Alterations in dendrites and spines of neurons in hippocampus and medial prefrontal cortex have been observed after stress in several species. These stress effects may change the integrity of neurons and impair information transfer between brain regions. Here we report that stress also affects neuronal axons. We investigated expression of M6a, a membrane glycoprotein encoded by a gene which is associated with a form of depression detected in schizophrenic patients GPM6A (1). Our previous studies have shown that M6a expression is downregulated by stress in the hippocampus and that an antidepressant treatment prevents its downregulation (2, 3).

We provide data that M6a is specifically expressed in axons of glutamatergic neurons, and that stress reduces M6a expression in the hippocampus but not in the prefrontal cortex (4, 5).

**Conclusions**

The present study shows for the first time that chronic stress reduces expression of a glycoprotein that is located in the axon membrane of glutamatergic neurons. Reduced M6a expression might in particular affect the integrity of the projections from the granule cells to the CA3 pyramidal neurons. This coincides with previous findings showing that chronic stress changes the morphology of the giant mossy fiber terminals. The observed changes may contribute to the inhibition of long-term potentiation that has been recorded in the hippocampus after stress.

**References**