

INHIBITORY NEUROTRANSMITTER IN CEREBRAL CORTEX PLASTICITY

Summary

The evidence accumulated in the past fifty years indicates that γ -aminobutyric acid (GABA) is a widely distributed inhibitory neurotransmitter present in the interneurons and synaptic terminals in mammalian brain. GABA acts on at least two distinct ionotropic receptors: GABA_A and metabotropic receptor GABA_B. This paper reviews the data that pertain to the role played by GABA in neocortical plasticity. Emphasis is given to GABA synthesis, GABA in the cellular and extracellular regulation, GABA receptors and GABA interneuron distribution, analyzed by var-

ious means. These include: anatomical, electrophysiological responses, ligand binding as revealed by receptor autoradiography, and expression of GAD65, GAD67 at both mRNA and protein (immunoreactivity) levels. Possible mechanisms of involvement of GABA in plastic changes of cortical neuron's response are reviewed, and data on up- and down regulation of GABA_A receptors in neocortical plasticity are summarized. Mechanisms involving GABA in cortical plasticity of adult and neonatal animals are discussed.