

THOMAS MCINTOSH and BRUCE ANTHONY. Department of Chemistry/Biochemistry West Virginia Wesleyan College Buckhannon, WV 26201. The effect of various alcohol dosages on neural vesicle packaging and GABA receptor expression..

Abusive alcohol consumption has negative effects on proliferation, differentiation and migration of neuronal stem cell in both fetal development and adult neural plasticity. IN both cases, loss of neurons and astrocytes alters synaptic transmission in dopaminergic and GABAergic synapses within the limbic system. This is particularly evident within areas of the amygdala and nuclear accumbens. It is known that alcohol causes an imbalance between GABA and glutamate-NMDA transmission, and could cause altered levels of neurotransmitter reuptake or insensitivity to regular GABA levels. In this study, the effects of binge and chronic alcohol exposure to neuronal stem cell were observed. We examined synaptic vesicle packaging and GABAergic receptors on fully differentiated neurons. E₁₄ Rat Cortical Stem Cells were grown, and differentiated, then exposed to alcohol in various doses. The expected results were to observe alterations in the density of synaptic vesicles, and an alteration in GABAergic receptor expression. These results would suggest that both chronic and binge drinking of alcohol causes alterations in synaptic transmission as well as neuron numbers.