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Analysis of GABA receptor expression in differentiated embryonic neuronal stem cells after treatment with opioids, methamphetamine, and alcohol. During normal CNS plasticity, neuronal stem cells assist in recovery of damage to neurons as well as induce strengthening of neurological pathways. Drugs of abuse have been shown to reduce overall stem cell numbers and may inhibit proper plastic. This suggests that abstinence recovery from drug abuse would be slowed or inhibited by this stem cell impact. In this study, we treated stem cells, either before or after differentiation, with single doses of μ -opioid agonist (DAMGO), methamphetamine, or alcohol. We examined changes in GABA expression and cell type differentiation to determine the extent of change to cellular numbers and specific GABA expression. Changes suggest that alteration may affect neuroplasticity and long-term recovery for addictions. Research sponsored by WV-INBRE grant P20GM103434.