MACKINSEY MILAM AND BRUCE ANTHONY Ph.D., Department of Chemistry and Biochemistry, West Virginia Wesleyan College, Buckhannon, WV, 26201. Changes to Histone H3 and DNA synthesis from alcohol exposure of neuronal stem cells.

Fetal Alcohol Spectrum Disorders (FASD) show characteristic facial dysmorphology and often, substantial neurological defects, from alterations in stem cell proliferation and cell losses during development. Alcohol exposure to neuronal stem cell populations reduces proliferation by changing the progression of both G1 and S-phases of the cell cycle. These changes are a substantial contributing factor to phenotypes seen in Fetal Alcohol Spectrum Disorders (FASD) and in the central nervous system from adult alcoholism. Although a mechanism for proliferative changes is becoming apparent, the consequence to DNA integrity is ill defined. Our previous studies show a slowed G1 and S phase of the cell cycle and alterations to the transient increase in expression of Histone H1. Although this suggests a misguided nucleosome formation, little is known about expression of core components of the nucleosomes. This study examined the changes in expression and localization of H3 expression using Western blot and immunohistochemistry analysis. Results suggest a substantial change in nucleosome formation and structures.