

MICHAEL STANTON AND BRUCE ANTHONY Ph.D., Dept of Chemistry and Biochemistry, West Virginia Wesleyan College, Buckhannon, WV, 26201. The effects of alcohol exposure on CSB localization and concentration in stem cells.

Alcohol and drug addiction are major problems in today's society, and specifically in the state of West Virginia. Chronic alcohol exposure has been shown to have various effects on cell proliferation, apoptosis, and DNA damage through oxidative stress. Neuronal stem cell populations in the adult brain help to support neuroplasticity improving short and long term memory. Chronic alcohol exposure reduces stem cell populations and suggests a link between alcoholism treatment paradigms and the damage induced to stem cells during use. Previous studies show as much as 40% reduction in stem cell numbers from chronic alcohol use and many cells experience substantial DNA damage. However, the mechanism repair mechanism used by exposed cells to repair DNA lesions is unknown. This study analyzes expression and localization of the CSB (ERCC6) protein responsible for recruitment and imitation of a Nucleotide Excision Repair (NER) mechanism necessary in DNA repair. Both alcohol treated and control stem cells were examined by immune-cytochemistry and western blot in order to analyze variations in protein expression and nuclear localization. We demonstrate changes in expression and increased localization to alcohol induced DNA lesions. This demonstrates a possible mechanism for Cellular losses in adult alcoholism.