POSTER 108

ACUTE (BINGE) ADMINISTRATION OF ETHANOL CAUSES HISTONE H3 PHOSPHORYLATION AT SER-10, SER- 28 & GENE EXPRESSION IN RAT LIVER IN VIVO

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Epigenetic histone modification is emerging as a critical player in the cellular actions of ethanol. In this study we have examined the effect of ethanol on histone H3 phosphorylation in vivo using an acute model. Twelve week old male Sprague Dawley rats were intraperitoneally administered either ethanol in a 32% solution, or water as a control, to determine the effect of ethanol on histone H3 phosphorylation at 1h using 1.75g, 3.5g or 5g of ethanol/ kg body weight. Significant increases in the histone H3 phosphorylation at serine-10 and serine-28 occurred at 1.75 and 3.5 grams of ethanol; with negligible change at the higher 5 gram dose. Thus, histone phosphorylation occurred at lower blood alcohol levels but not at higher levels in vivo. There was induction of immediate early genes, c-Fos, c-Jun and MKP-1 that accompanied the changes in histone phosphorylation. Taken together, it is concluded that acute ethanol causes site specific serine phosphorylation in histone H3 at patho-physiological concentrations and modulates expression of genes. These data are relevant to the identification of "early" molecular processes involved in the binge induced liver injury. Supported by NIAAA grant AA16347.