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A TIME COURSE STUDY TO MEASURE AFFECTIVE BEHAVIORS FROM LATE ADOLESCENCE TO YOUNG ADULTHOOD FOLLOWING BINGE ALCOHOL EXPOSURE IN C57BL/6J MICE

Background: Binge alcohol consumption during adolescence has various long-term adverse effects during adulthood. These changes occur during this period of dramatic brain development, which reflect phenotypically as behavioral changes. This experiment explores changes in affective behaviors following binge alcohol exposure in adolescent male and female mice. These behaviors were recorded using behavioral tests including the open field test (OFT), the light/dark test (LDT), and the tail suspension test (TST).

Methods: Male and female C57BL/6J mice were exposed to binge alcohol vapor, during adolescence, through four cycles of intermittent exposure. Following intermittent ethanol and air exposure cycles from PND 28 to PND 41, the mice were left undisturbed for 1week before behavioral testing. Behavioral testing was repeated every 2 weeks for a total of 4 behavioral assessments from late adolescence (PND 49-53) into adulthood (PND 91-95).

Results: Preliminary data for the OFT show that air-exposed and ethanol-exposed mice showed no differences in distance traveled or rearing. However, using the center zone as a measure of anxiety-like behavior, ethanol-exposed mice showed more time spent and more entries into the center zone; an effect that appears greater in male mice. In the LDT, adolescent ethanol-exposed male mice spent more time on the light side during the first two trials. Finally, there were no differences in time spent immobile in the TST among any of the groups at any time point.

Discussion: These preliminary data show an anxiety-like phenotype in male mice following intermittent binge alcohol exposure during adolescence. We are continuing to quantify these behaviors and assess changes in metabolomics following binge alcohol exposure in these mice.