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Striatal Modulation of BDNF Expression using MicroRNA124a-Expressing Lentiviral Vectors Impairs Ethanol- Induced Conditioned- Place Preference and Voluntary Alcohol Consumption

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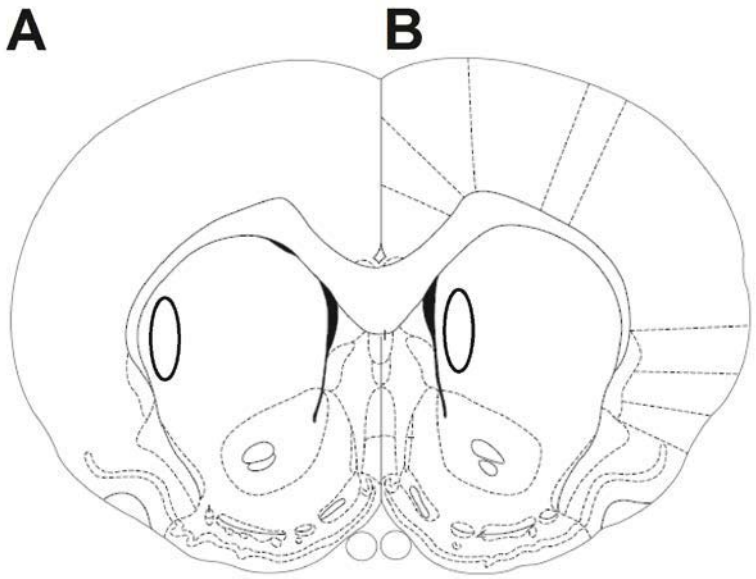
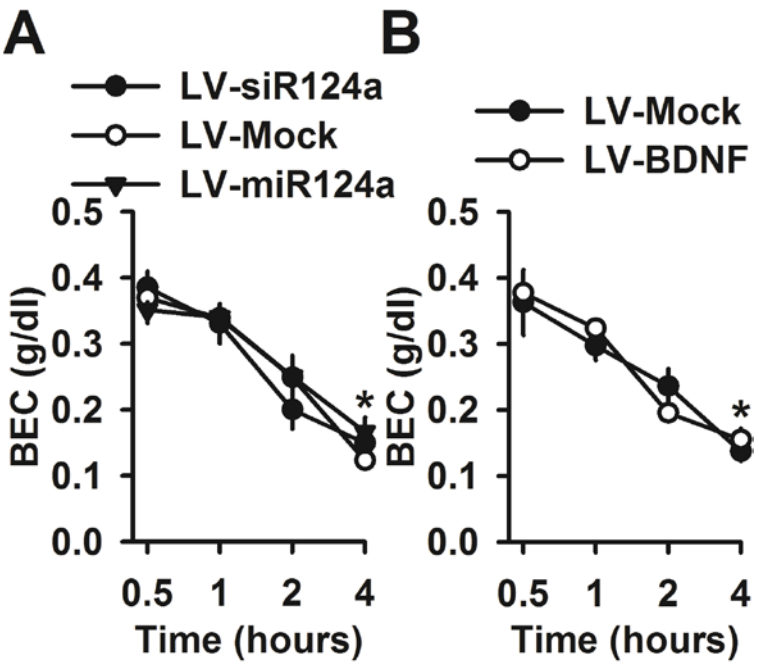


Supplementary Fig. 1. Histological representation of dissection placements in the dorso-lateral "DLS" (A) and medio-lateral "MLS" striatum (B).

The BEC following viral-injections of LV-miR124a, LV-siR124a and LV-BDNF

Finally, the blood concentration of alcohol in LV-Mock, LV-miR124a, LV-siR124a and LV-BDNF-injected rats was assessed. The goal of this experiment was to test whether the viral vectors utilized in this study are eliciting their effects by altering ethanol pharmacodynamics. For this purpose, we tested whether blood ethanol concentration induced by 3 g/kg is affected by viral-injection in rats. Blood alcohol levels were determined by taking blood 30, 60, 120 and 240 min after ethanol administration. The one-way ANOVA with repeated measure and virus as the between subject factor and time as the within subject factor revealed a main effect of time ($F_{(3, 24)}$ = 48.769, $p < 0.001$). Thus, in Mock (n = 3), miR124a (n = 4) and siR124a (n = 4) -injected animals, BEC decreased significantly over time. However, the rate of alcohol metabolism, was not significantly different between the three-groups ($F_{(2, 8)} = 0.427$, $p = 0.667$). More importantly, the interaction between time and viral-injection was not significant ($F_{(6, 24)} = 0.807$, $p = 0.574$). Therefore, the changes in ethanol sensitivity in LV-miR124a and LV-siR124a did not result from differences in clearance of alcohol **(Supplement Fig. 2A)**. Similarly, there was no difference in BEC after the intraperitoneal injection of ethanol in LV-BDNF (n = 6) and LV-Mock (n = 3) -injected rats [main effect of virus ($F_{(1, 7)} = 0.294$, $p = 0.604$; main effect of time ($F_{(3, 21)} = 42.885$, $p < 0.001$); time x virus interaction ($F_{(3, 21)} = 0.997$, $p = 0.414$)], suggesting that the differences in ethanol-induced behaviors seen in LV-BDNF overexpressing rats did not result from differences in alcohol metabolism **(Supplement Fig. 2B)**.



Supplementary Fig. 2. Mean blood ethanol concentrations following viral injection A) Mean BEC of LV-siR124a, LV-Mock and LV-miR124a –injected rats (n = 4, 3, 4). **B)** Mean BEC of LV-Mock and LV-BDNF –injected rats (n = 3 & 6). For all groups, viral vectors were injected into the DLS and BEC was assessed following a single injection with ethanol (3 g/kg body weight, i.p.). Blood was collected from the tail vein at various times after injection and analyzed to determine the ethanol concentration. Values represent the mean ± SEM. * $p < 0.000$, the difference between 0.5- and 4-hours (repeated measures one-way ANOVA, Bonferroni's *post hoc* test).