

Effects of the Selective PDE4B Inhibitor TDP-003 on Ethanol Consumption

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Alcoholism is a disease that affects about 18 million Americans. Inhibition of drinking behavior can help develop better therapeutic and medical treatments to these people. Phosphodiesterase-4 (PDE4) is an enzyme that helps breakdown cAMP, which in turn decrease alcohol consumption. cHAP mice are known to have a unique strong preference to ethanol. However, it is not yet known whether or not this relatively new strain of mice are affected by known agonists and antagonist neurotransmitters that reduce ethanol consumption in cousin strains. cHAP mice were used in this particular study due to their unique genetic make-up of having an above average preference to ethanol. The mice were trained for ethanol preference for two weeks. Once the cHAPs obtained stable ethanol consumption, the drug TDP-003, which contains the PDE4B subtype inhibitor, was administered in the morning with interval ethanol and water consumption readings every two hours from the time of injection. TDP-003 was given in three separate doses; 0.03ml, 0.1ml, and a 0.3ml mg/k along with a vehicle dose, which served as a control. Once data was collected and analyzed, it was found that there was not a significant effect in the amount of ethanol the cHAPs were consuming with the drug. In order to ensure that this result was not due to an experimental methods design error, the cHAPs were ran for another week on stable ethanol consumption and then injected with rolipram to see if a positive effect occurred. Rolipram is also a PDE4 inhibitor; predominantly affecting the PDE4B subtype. cHAPS were given three separate doses of rolipram, a 0.1ml, 0.25ml, and a 0.5ml mg/k dose, along with a vehicle dose. Once again, there were no significant differences in the amount of ethanol consumption that was consumed; thus implying that TDP-003 did not work.

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