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Effects of the cannabinoid CB1 antagonist SR141716 on food intake and ethanol consumption in lean and obese Zucker rats

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SR 141716, a selective CB_1 cannabinoid receptor antagonist, has been shown to reduce ethanol consumption and food intake in mice and rats. Several recent studies have suggested an interaction between the endogenous cannabinoid system and both ethanol and food intake. The objective of the current study was to investigate the effects of SR 141716 on food intake and ethanol preference in Zucker obese (fa/fa) and lean (Le) rats. Zucker fa/fa and Le rats were tested using a 2-bottle drinking paradigm to assess the effect of 7.5 mg/kg SR141716 on ethanol preference as well as overall drinking behavior. Daily food intake was monitored to determine the extent that eating behavior was affected by SR141716. These results indicated that SR141716 effectively reduced food consumption, as well as total caloric intake from ethanol and food. It effectively attenuated ethanol intake. This data is useful in helping to understand the role of the CB_1 receptor in alcohol and food consumption as well as assess the effectiveness of SR141716 in modifying these behaviors.

Treatment with SR 141716 significantly attenuated ethanol preference and intake in both groups of rats, although the magnitude of the effect was greater in the fa/fa rats. Treatment with 7.5 mg/kg SR141716 attenuated ethanol intake in fa/fa rats by approximately 30% compared to approximately 10% in Le rats. These data demonstrate that the cannabinoid CB1 receptor is an essential component of the molecular pathway determining alcohol consumption and was consistent with previous work in our lab with CB1 mice (Thanos et al. 2005a;b).

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