SY17
AN INTERNATIONAL AND INTERDISCIPLINARY APPROACH TO CHARACTERIZE NEW MODELS OF ALCOHOL ADDICTION IN RODENTS AND NOVEL THERAPIES FOR AUD

SY17-1
BINGE-LIKE DRINKING IN SARDINIAN ALCOHOL-PREFERRING RATS

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This lab has recently proposed a new animal model of binge-like drinking: selectively bred, Sardinian alcohol-preferring (sP) rats with a “history” of repeated exposures to homecage, daily drinking sessions of one hour, with concurrent availability of water and three alcohol concentrations (10%, 20%, and 30%, v/v) and unpredictability of time of alcohol access, displayed high sensitivity to time schedule; when the drinking session occurred over the last hours of the dark phase, alcohol intake (i) averaged ≥2 g/kg, (ii) resulted in blood alcohol levels of ~100 mg%, (iii) meeting the criterion of binge drinking in humans, and (iii) produced severe motor-incoordination. A subsequent “operant” study found that sensitivity to time schedule extended to the reinforcing and motivational properties of alcohol; specifically, in sP rats exposed to daily 1-hour self-administration sessions with three alcohol solutions (10%, 20%, and 30%, v/v; water available uncontingently) and unpredictable time of alcohol access, number of lever-responses for alcohol, amount of self-administered alcohol, and breakpoint value were markedly higher when the self-administration session occurred at the last rather than first hours of the dark phase. The likely mechanism underlying the increase in alcohol intake and reinforcing and motivational properties of alcohol at the last hours of the dark phase is the exacerbation of emotional “distress” due to expectation of alcohol availability. Accordingly, recent data demonstrated that sP rats with a “history” of homecage, daily drinking sessions with unpredictable time schedule had higher levels of anxiety-related behaviors at the last rather than first hour of the dark phase.