RELATES OF BEHAVIORAL INHIBITION SYSTEM DEFICITS. Peter R. Finn. Indiana University, Bloomington, IN.

Disinhibitory behavioral characteristics such as impulsivity, risk-taking, thrill or novelty seeking, and conduct disorder have often been associated with alcoholism. In fact, such characteristics have been found to be predictors of current drinking patterns (Earleywine and Finn, 1990), later onset alcoholism (Jones, 1968) and comprise the essential description of a personality-risk factor for alcoholism. Recent models of the familial transmission of alcoholism describe a highly heritable familial subtype of alcoholism (Type 2) that is characterized by increased impulsivity, risk-taking and novelty seeking (Cloninger, 1987). The precise mechanisms that underlie these characteristics in this population have yet to be elucidated, however, Gray's (1987) construct of the Behavioral Inhibition System (BIS) provides a useful heuristic framework for such investigations. The BIS is the neurophysiological pathway responsible for the experience of anxiety. The BIS is activated in the presence of cues for punishment or nonreward. In this conceptual framework, disinhibited behavior is viewed as underresponding to cues for punishment and would be associated with a weak BIS. Thus the cues fail to inhibit behavior. The paper will present data from a variety of studies that provide support for the notion that the nonalcoholic sons of alcoholic fathers (high-risk men), who also have a multigenerational family history of alcoholism, have a weak Behavioral Inhibition System as evidenced by psychophysiological and personality characteristics. Such support is drawn from studies that demonstrate a pattern of cardiovascular over-activation and electrodermal underactivation in this population in situations involving unavoidable threat, and data indicating that these men fail to develop a conditioned electrodermal and vasoconstrictive response to tones that signal the occurrence of punishment. The psychophysiological response patterns seem to reflect a regulatory deficit that is significantly related to self-report measures of disinhibitory personality traits.

ALCOHOLISM RISK AND VISUOSPATIAL INFORMATION PROCESSING. Steven L. Schandler. Chapman College, Orange, CA.

An understanding of commonalities between alcoholic populations and persons at risk for developing alcoholism is dependent on an accurate understanding of the specific effects of chronic alcohol abuse on human biology and behavior. This paper will present the results from a series of studies which show detoxified alcoholics, intoxicated nonalcoholics, and children of alcoholics to display deficits in the processing of visuospatial information. The deficits in visuospatial information processing reflect neither a general decrement in intellectual activity nor disruptions of motor activity associated with a response. Rather, the deficits appear in very selected operations within the information processing cycle. The accumulating literature suggests that the effects of alcohol on visuospatial information processing reflects a reduced attention/incorrect cue encoding effect. Visuospatial information processing deficits appear as a risk factor related to the onset of alcoholism. Young and adult children of alcoholic parents appear at risk for alcoholism. These persons display visuospatial learning that is significantly poorer and patterns of autonomic activation significantly less differentiated than displayed by the persons with no family alcoholism history. Further, the patterns of learning and activation displayed by persons with a family alcoholism history are similar to those displayed by previously studied detoxified alcoholics using a similar learning task. These data suggest that deficits in visuospatial information processing may reflect an antecedent to rather than a consequence of chronic alcohol abuse.

SUBGROUPS OF MEN AT RISK FOR ALCOHOLISM. Vicki E. Pollock. University of Southern California, Los Angeles, CA.

Two distinctive theoretical perspectives specify differences in biological and psychological factors that are involved in the development of alcoholism. One theoretical perspective, put forth by Tarter and colleagues (1984), is that prealcoholics are characterized by excessive physiological lability while sober. Such individuals might be especially vulnerable to alcohol effects because alcohol regulates aspects of their physiological function. Due to excessive physiological lability that they manifest while sober, however, prealcoholics may have difficulty in accurately identifying and reporting their internal experiential states. A different theory, put forth by Goodwin (1981), is that in order to develop alcoholism, an individual must possess high initial tolerance for alcohol effects. The term "initial tolerance" refers to variations in individual sensitivity to alcohol, and does not denote acquired tolerance associated with the development of dependence. According to this perspective, prealcoholics, possessing high initial tolerance for alcohol effects, would be characterized by reduced sensitivity to alcohol as compared to normal subjects. These two theories are similar in that they both hypothesize that subjective measures should reveal evidence of reduced sensitivity to alcohol in subjects predisposed to alcoholism. These theories differ, however, in their hypotheses concerning physiological functions. From Tarter's perspective, prealcoholics would be characterized by greater physiological changes following alcohol administration than would normal controls. Under Goodwin's perspective, however, prealcoholics should be characterized by reduced physiological changes following alcohol as compared to controls. In this presentation, empirical evidence bearing on each of the hypotheses derived from these two theoretical perspectives will be considered by using data acquired in an ongoing, longitudinal study of alcoholism in Denmark.

## SYMPOSIUM

*From Opioid Receptors to Behavior and Vice Versa*

Chair: *James H. Woods,* University of Michigan Medical School, Ann Arbor, MI.

Discussant: *Linda Dykstra,* University of North Carolina, Chapel Hill, NC.

INTRODUCTION TO RECEPTOR THEORY. James H. Woods. University of Michigan, Ann Arbor, MI.

Receptor theory has a great deal to offer the behavioral pharmacologist in the explanation of the behavioral actions of drugs. To attempt to establish the plausibility of this claim, this symposium will show some examples of the manner that it can be utilized with the study of the actions of opioids. To introduce the major concepts that are utilized within the theory, an overview of the notions of null methods, affinity, efficacy, and receptor reserve will be given. These concepts will be illustrated with data from both in vitro and, where possible, in vivo systems. Emphasis will be placed on the validity of the concepts and their general applicability.

AFFINITY OF OPIOID ANTAGONISTS. Sandra D. Comer.