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Supervisor

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Thesis title :
Impact of alcohol withdrawal on glucocorticoids activity and memory in mice

Keywords : glucocorticoids, stress, memory, emotion, alcohol

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Abstract

The main goal of this project aims at better understanding the interactions between alcohol, emotion and memory functions in mice. Chronic and excessive alcohol consumption contributes to specific brain damage and consequently, to long-lasting cognitive and behavioural deficits. Chronic alcohol, as well as withdrawal, also impacts the feedback loop of hypothalamic-pituitary adrenal (HPA) axis which is the primary endocrine stress pathway through abnormally increased amounts of glucocorticoids (GCs) (cortisol in humans and corticosterone in rodents). In particular, abnormal HPA activity is one of the main contributing factor to deleterious effects of chronic ethanol on memory functions that rely on the integrity of the hippocampus and prefrontal cortex. A multidisciplinary approach that includes molecular, biochemical and immunohistochemical techniques will be used to identify in the hippocampal and cortical structures of alcoholic mice (1) the interaction between HPA axis disturbances and cortical and hippocampus activity and (2) the interaction between corticosterone and its receptors (MR and GR) in both brain structures. The project will use pharmacological and environmental strategies to prevent the detrimental effects of chronic alcohol and withdrawal on memory.

Qualification required

good knowledges in neurobiology and cognitives neurosciences
skills to study and perform mouse behavior
stereotaxy skills