Laboratory title : CNRS UMR 5293 - Erwan Bézard

Supervisor

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Thesis title :
Role of interoceptive conditioning in drug-induced craving

Keywords : Addiction, Relapse, Craving, Cocaine, Prefrontal cortex

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Abstract

Drug addictions are defined by a high rate of relapse, even after long-term abstinence. Relapse prevention represents thus a major goal in the research and development of new addiction therapies.

Relapse is often preceded by a strong desire for the drug of choice or craving. Craving can be modelled in animals to study its underlying psychological and neurobiological mechanisms and also to test new therapeutic approaches. Briefly, craving is generally modelled by the sudden reinstatement of intense drug seeking after its extinction. Such reinstatement of drug seeking can be triggered by a passive drug administration.

The main goal of the doctoral thesis will be to study the psychological and neurobiological mechanisms underlying drug-induced reinstatement of cocaine seeking in rats. Cocaine is currently the second most used illegal drug in Europe and its use is increasing. According to our general hypothesis, reinstatement of drug seeking would depend on an interoceptive conditioning process involving the insular cortex. To test this hypothesis, we will combine validated experimental psychology methods (i.e., identification of drug interoceptive stimuli; measurement of interoceptive states; reconditioning and devaluation of interoceptive drug stimuli) to advanced neurobiological techniques (i.e., manipulation of relevant neuronal circuit activity, notably the insula-medial prefrontal cortex circuit, using optogenetic and chemicogenetic methods). All these techniques will be available in the laboratory.

Qualification required

English fluency
Experience with laboratory rat
Experience with intravenous and/or intracerebral surgery (desired but not required)
Theoretical background in cognitive and behavioral neurosciences