Laboratory title : 

Supervisor

Name :  Thesis title :
Development of a new pharmacological therapy for addiction to cannabis.

Keywords : Pregnenolone derivatives, Cannabinoids, Drug addiction, Behavioral effects of THC

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Abstract

Context: Cannabis addiction is one of the harmful effects of cannabis that represents a main risk factor of developing psychiatric diseases, which is more predominant in the population of young adults and is a major public health problem. The active principle of cannabis, tetrahydrocannabinol (THC), acts on the brain via cannabinoid CB1 receptors on neurons. An over-stimulation of these receptors induces excessive dopamine release in the brain, causes a decrease in the capacity of memory as well as a lack of motivation, and gradually leads to dependence. Today, identify molecules that could counteract these harmful effects of cannabis is a major issue of research because it does not exist yet some drug to combat this addiction.

We have identified a molecule that is a potent CB1 receptor allosteric inhibitor: Pregnenolone. This steroid is an endogenous substance, which thanks to its mechanism of action different from other known CB1 inhibitors and selective, is well tolerated by humans while blocking the pathological effects an over stimulation of the CB1 in the animal and thus acts as functional antagonism of rewarding systems involving CB1 (Vallée et al., 2014). However, because of its rapid metabolism in other steroids and his very short half-life in the body, its use as a therapeutic treatment is difficult if not impossible. Thus, our research strategy has been to develop of pregnenolone steroidal derivatives which are not metabolized and can therefore be used as treatment.

Objective: The objective of this research project is integrated in a global project of development of molecules with therapeutic potential inhibitory of the CB1 receptor.

Methods: Behaviour in rodents; Pharmacology; Mass spectrometry; Microdialysis

Qualification required

Master 2
Experience in mice behavior
Knowledge in pharmacology
Knowledge in cannabinoids and/or steroids