

PROJECT		
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1) Project title

Psychedelics in the of psychiatric disorders and comorbidities: a preclinical investigation

2)Abstract (max 500 words)

Psychedelic compounds, such as Lysergic acid diethylamide (LSD) and N,N-dimethyltryptamine (DMT), have gained increasing attention as potential therapeutics for psychiatric disorders, particularly major depressive disorder (MDD) and substance use disorders (SUDs). However, their mechanisms of action remain only partially understood, especially at the intersection of neuroplasticity, neural oscillations, and synaptic connectivity. This PhD project aims to elucidate the neurobiological basis of psychedelics in the treatment of psychiatric disorders and comorbidities including SUDs through a comprehensive preclinical approach.

Using behavioral pharmacology, we will assess the impact of psychedelics on depression-like and addiction-like behaviors in rodent models. In parallel, in vivo electrophysiology, spanning from singleunit extracellular recordings to local field potentials (LFP) and EEG/EMG analyses, will be employed to characterize how psychedelics modulate neuronal activity, network connectivity, and sleep-wake patterns. Finally, immunohistochemical techniques will be used to examine changes in synaptic plasticity markers, receptor expression, and neuroinflammatory processes.

This multidisciplinary approach will provide novel insights into how psychedelics reshape brain function, contributing to their therapeutic effects in psychiatric disorders. The findings from this project will not only enhance our understanding of the mechanism of action of psychedelics but also guide the development of improved pharmacological strategies for treatment-resistant depression and addiction.