



PROJECT

Tutor's Name	Sara De Martin
Cotutor's Name	Daniela Gabbia

1) Project title

In vivo and *in vitro* preclinical evaluation of NMDAR modulators

2) Abstract (max 500 words)

The role of glutamate N-methyl-D-aspartate receptors (NMDARs) in central nervous system (CNS) has been extensively studied and elucidated. Recently, a number of studies have demonstrated that glutamate also participates in the regulation of physiological and pathological functions in peripheral tissues, including liver, immune system, lungs, kidney, heart and stomach, where it plays an important role in the pathogenesis of several diseases. The aim of this project is to assess, by preclinical *in vitro* and *in vivo* evaluations, the pharmacological activity of a small library of NMDAR antagonists, in particular regarding their potential neuroplastic action and their effect on cognitive behavior (central effect) and their potential activity on hepatic metabolic pathways and diseases (peripheral effect). This project will involve both *in vitro* studies on neuronal and hepatic cell lines and *in vivo* studies on animal models of neurodegeneration and cognitive impairment, either associated or not to non-alcoholic fatty liver disease (NAFLD). The synthetic NMDAR antagonists will also be characterized for their ADME/Tox profile by an *in vitro/in vivo* approach. The final goal is to identify one or more lead compounds with a well-characterized pharmacokinetic and pharmacodynamic profile to be considered for further development.