



Metabolic profiling of the gut-brain axis as a new stratification process to improve behavioural disorders: proof of concept in alcohol dependence (GUT2BEHAVE)

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Alcohol dependence (AD) affects 5-10% of the population in industrialized countries and is a major cause of premature death. AD patients are prone to develop emotional and cognitive symptoms that increase the risk of relapse, and the current treatments have limited efficacy. Our previous data show that AD patients display alterations of gut microbiota and emphasize the possible causal role of altered gut microbiota in emotional disturbances and brain inflammation. The aim of the project is to propose biomarkers involved in gut-brain axis to control emotional and cognitive functions to better stratify patients and to design innovative treatment of AD. By taking advantage of biological samples in existing cohorts of AD patients (feces, blood, brain), we will search for relevant metabolites (untargeted metabolomics) reflecting psychological and metabolic alterations related to gut microbiota. The relevance of the selected biomarkers in other pathophysiological contexts and the influence of confounding factors will be evaluated in existing cohorts of obese and elderly patients. Original preclinical studies will dissect the mechanisms through which the selected metabolite(s) influence brain function and behaviour. Finally, we will examine whether a prebiotic strategy is able to modulate these metabolites and therefore improve mood and cognition. The GUT2BEHAVE project innovates in the scientific rationale and health care for psychiatric diseases that require personalized approach.