

Master 2 internship project Year 2023-2024

Laboratory/Institute: Grenoble Institut Neurosciences - GIN

Director: E. Barbier

Team: U1216 Brain Behavior and Neuromodulation

Head of the team: Julien Bastin

Name and status of the scientist in charge of the project: Clément Dondé

HDR: yes no

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Program of the Master's degree in Biology:

- Microbiology, Infectious Diseases and Immunology Structural Biology of Pathogens
 Physiology, Epigenetics, Differentiation, Cancer Neurosciences and Neurobiology

Title of the project: Perception and Integration of Sensory information in Early Psychosis

Objectives (up to 3 lines):

Objective: to compare the basic and integrated visual and auditory processing in early stages of psychosis (clinical high risk for psychosis and first-episode psychosis).

Abstract (up to 10 lines):

Psychotic disorders such as schizophrenia are one of the mental disorders with the largest impact due to high personal and family costs. Building research at the very beginning of the psychotic process is crucial to give access to core pathophysiological features of the disease before all the pathological processes are fixed and before medication has side effects on brain function. Sensory deficits in early visual and auditory processing are increasingly recognized as a key feature of psychosis, as they underlie the pathogenesis of clinical symptoms and strongly predict functional outcome. However, despite the considerable evidence of impairment of sensory functions in schizophrenia, less is known about the state of these functions in the early stages of psychosis.

Methods (up to 3 lines):

The present study will use a behavioral computerized auditory *tone-matching* task to explore early discrimination of simple tones, and a *visual pulsed pedestal* task to explore low level achromatic luminance constrats perception, in a group of clinical high risk for psychosis individuals, a group of first-episode psychosis individuals and a group of controls.

Up to 3 relevant publications of the team:

Dondé C*, Kantrowitz JT, et al. Early auditory processing dysfunction in schizophrenia: mechanisms and implications. *Neurosci Biobehav Rev* 2023

Kéri S, Benedek G: Visual contrast sensitivity alterations in inferred magnocellular pathways and anomalous perceptual experiences in people at high-risk for psychosis. *Vis Neurosci* 2007

Keane BP, Paterno D, Kastner S, Silverstein SM. Visual integration dysfunction in schizophrenia arises by the first psychotic episode and worsens with illness duration. *J Abnorm Psychol* 2016

Requested domains of expertise (up to 5 keywords): psychosis; schizophrenia; sensory; mental health; behavioral task