

# Quantifying the activity of the GABAergic system in healthy humans: comparing non-invasive neuroimaging techniques and peripheral measurements

Record number : OPR-1100

## Overview

### RESEARCH DIRECTION

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### INFORMATION

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### ADMINISTRATIVE UNIT(S)

Faculté de médecine et des sciences de la santé  
Département de pédiatrie  
Département de médecine nucléaire et radiobiologie  
Département de pharmacologie-physiologie

### LEVEL(S)

2e cycle  
3e cycle

### LOCATION(S)

Campus de la santé

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## Project Description

### Summary of the Issue:

Although gamma-aminobutyric acid (GABA) is the main inhibitory neurotransmitter in the central nervous system in humans, it is still unknown whether GABA can cross the blood-brain barrier. The current project aims to clarify this question by comparing measurements obtained in the central nervous system (the brain) with peripheral blood measurements after oral administration of GABA. This will help determine whether peripheral GABA concentrations in the blood reflect brain levels, which would facilitate the study of the GABAergic system in vulnerable clinical populations (such as children or patients with intellectual disabilities) without resorting to costly and demanding neuroimaging examinations.

Study Design and Method: GABA measurements (blood and neuroimaging) will be obtained before and after oral administration of 1800 mg of GABA or a placebo in 30 healthy adults participating in a single-blind, cross-over study. Neurophysiological measures include transcranial magnetic stimulation (TMS) and magnetic resonance spectroscopy (MRS) acquired via MRI.

### Role of the Student:

The student will be responsible for the project, including participant recruitment, acquisition of TMS and MRI data, analysis of the data, and preparation of scientific communications (posters and articles).

### Requirements:

This project is open to individuals with a bachelor's/master's degree in neuroscience, psychology, pharmacology, kinesiology, or any other

relevant fields. The person must demonstrate good organizational skills, show initiative, and have a strong academic record in their prior studies.

Bursary available.

## Discipline(s) by sector

## Funding offered

Yes

### Sciences de la santé

\$21 000 to \$23 000

Administration de la santé, Anatomie, Biochimie, Biologie cellulaire, Kinanthropologie, Kinésiologie, Neurosciences, Pharmacie, Pharmacologie, Physiologie, Psychiatrie, Sciences de l'imagerie médicale

### Sciences naturelles et génie

Biologie et autres sciences connexes

The last update was on 17 September 2024. The University reserves the right to modify its projects without notice.