



Application number/Title: 40157 - Characterization of functional and morphological MRI features in subjects with BDNF Val66Met polymorphism.

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Keywords provided by the Applicant PI to describe the research project:

brain derived neurotrophic factor, diffusion tensor imaging, neuronal networks, resting-state fmri, voxel based morphometry

Application Lay Summary:

Brain Derived Neurotrophic Factor (BDNF) is a protein that plays an essential role in regulating brain functioning. A polymorphism of the BDNF gene (Val66Met) has been reported as affecting the functioning of this protein. Bearing this mind, this polymorphism has been associated to the development of neuropsychiatric disorders, schizophrenia or Alzheimer disease. Furthermore, this polymorphism has also been reported to have an association with the response of antidepressant treatments and with the evolution of neurodegenerative diseases.

Some studies have reported differences in functional and morphological brain features in healthy subject related to this polymorphism. Most of these studies have used data from magnetic resonance imaging (MRI). However, the number of studies is small, and no one integrates multimodality neuroimaging in their analysis.

Aims

The aim of the present study is to compare the functional and structural differences in the brain of healthy subjects with BDNF Val66Met polymorphism.

Methods

Resting-state functional MRI images, structural T1 and T2 images and diffusion tensor imaging (DTI) from the UK Biobank will be analyzed using standard methods (Statistical parametric mapping 12 [SPM12] and FMRIB Software Library v5.0 [FSL] routines will be used to perform this task). The statistical analysis will

consist of a comparison among the possible genotyping groups.

Project duration

6 - 9 months.