Description of Funded Research Projects
1st Call for H.F.R.I. Research Projects to support Post-Doctoral Researchers

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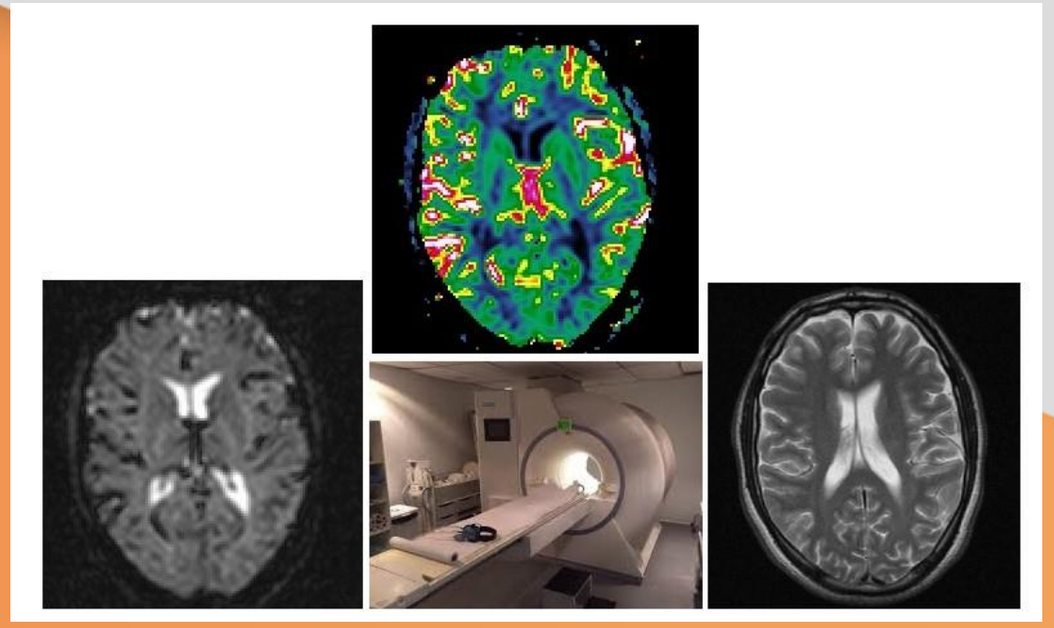
Research Project Title:

Cognitive, psychoemotional and neuroimaging predictors of disease progression in the early stages of Multiple Sclerosis

Principal Investigator:

Theodora Panou



Popular Title:

Factors affecting the course of Multiple Sclerosis

Scientific Field:

Social Sciences

Host Institution:

University of Crete, Medical School

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The objective of the proposed longitudinal study is to investigate cognitive, psychoemotional and neuroimaging parameters, recorded during the early stages of Multiple Sclerosis (MS) that affect long-term disease outcomes. The study capitalizes on comprehensive neuroimaging, neurological, and neuropsychiatric data available on a cohort of 80 patients, who had been recently diagnosed with mild MS in the 2013-4 period, and proposes a comprehensive follow-up neurological and neuropsychiatric evaluation of the same patients using identical procedures after a period of 5 years (i.e., during 2018-9).

The design of the study permits modeling of complex relationships between indices of brain pathology, which are not detectable on conventional MRI, cognitive variables (e.g., episodic memory, mental flexibility, speed of processing, working memory) and indices of emotional status (i.e., symptoms of depression and anxiety) in the form of mediation and/or moderation effects. Novel MRI techniques utilized in the project include resting-state fMRI, to assess the integrity of functional cortical subcortical networks at rest, multi-echo T2 relaxation time, in order to characterize myelin integrity in normal appearing white matter (NAWM), and regional tissue perfusion in NAWM, the thalamus and basal ganglia. The project aspires to shed light on the complex interplay between structural and functional indices of brain pathology, which are not detectable by conventional MRI techniques, and neuropsychological data, within a biopsychosocial model of disease progression.

Project Impact on Society

Multiple Sclerosis is a heterogeneous entity, with respect to its clinical course, pathological mechanisms and therapeutic response. Although the course of disease has been studied extensively in in epidemiological and clinical contexts, prediction of long-term outcomes for individual patients remains difficult. The project aspires to shed light on the complex interplay between structural and functional indices of brain pathology, which are not detectable by conventional MRI techniques, and neuropsychological data, within a model of disease progression. The study will be important for depicting illness progression by taking into account cognitive, psychoemotional status, clinical and MRI outcomes. Understanding the mechanisms underlying cognitive and psychoemotional manifestations may extend our knowledge of the pathophysiology of the disease and contribute to the development of new strategies and objectives for treatment.

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To me, H.F.R.I. funding would mean...

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The funding of this proposal by H.F.R.I. offers me the opportunity to continue my research activity in cognitive neuroscience and neuropsychology. This study is a result of team work targeting the biological and neuropsychological parameters of an extremely complex and unpredictable progressive disease, Multiple Sclerosis. This disease affects young people significantly impacting their quality of life. The importance of this project funding lies in the person-centered approach, as well as in its social impact.

The Principal Investigator,
Theodora Panou

Funding

Amount: **150,000 €**

Duration: **24 months**

Foundation: **H.F.R.I.**

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Hellenic Foundation for Research & Innovation

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