Functional brain networks in epilepsy

Fact Sheet

Project Information

EPICONNECT

Grant agreement ID: 660230

Project website

DOI
10.3030/660230

Project closed

EC signature date
29 April 2015

Start date
1 January 2016

End date
30 June 2018

Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 211 964,70

EU contribution
€ 211 964,70

Coordinated by
UNIVERSITEIT GENT
Belgium

Objective

This proposal for a Marie Sklodowska-Curie Global Fellowship is meant for the training of Dr. Pieter van Mierlo, currently at Ghent University, in the Functional Brain Mapping Laboratory (FBM Lab) of the University of Geneva, one of the world leading brain imaging laboratories. The goal of the project is to explore the communication between brain regions in epilepsy patients to ameliorate their treatment.
In the first stage a non-invasive tool, ElectroEncephaloGraphy (EEG), will be used to measure the electric field of the brain through electrodes placed on top of the scalp. By measuring the voltage difference between the EEG electrodes the electric field of the brain can be studied with a high temporal resolution (ms). Recently, high density

EEG (hd-EEG) systems have been developed with up to 256 electrodes. These systems allow more accurate measurements compared to the old systems having only ± 32 electrodes. The FBM Lab is one of the few labs that have hd-EEG recordings of epilepsy patients. In this project we will develop an algorithm to investigate the brain networks in epilepsy patients based on hd-EEG recordings. The brain networks will be studied to localize the epileptic focus, the brain region that causes the seizures.
In the second stage hd-EEG will be combined with functional Magnetic Resonance Imaging (fMRI) that images the concentration of oxygen in the brain with a high spatial resolution (mm). The simultaneously recorded hd-EEG / fMRI allows studying the brain networks with both a high temporal and spatial resolution. Furthermore, fMRI is more sensitive to record brain activity of deep brain structures compared to hd-EEG. The added value of combining hd-EEG with fMRI to localize the epileptic focus will be assessed.
In the third and final stage, the developed algorithms will be implemented at the UGent. A prospective study will be done to quantify the influence of functional connectivity analysis on patients' treatment management.

Fields of science (EuroSciVoc)

medical and health sciences > basic medicine > neurology > **epilepsy**

engineering and technology > medical engineering > diagnostic imaging > **magnetic resonance imaging**

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2014-GF - Marie Skłodowska-Curie Individual Fellowships (IF-GF)

Call for proposal

H2020-MSCA-IF-2014

See other projects for this call

Funding Scheme

MSCA-IF-GF - Global Fellowships

Coordinator

UNIVERSITEIT GENT

Net EU contribution

€ 211 964,70

Total cost

€ 211 964,70

Address

SINT PIETERSNIEUWSTRAAT 25
9000 Gent
Belgium

Region

Vlaams Gewest > Prov. Oost-Vlaanderen > Arr. Gent

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Partners (1)

PARTNER

UNIVERSITE DE GENEVE

Switzerland

Net EU contribution

€ 0,00

Address

RUE DU GENERAL DUFOUR 24
1211 Geneve

Region

Schweiz/Suisse/Svizzera > Région lémanique > Genève

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 131 564,70

Last update: 18 August 2022

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