Software Platform for Analyzing Alzheimers and Parkinsons fMRI Connectomes

https://neurodegenerationresearch.eu/survey/software-platform-for-analyzing-alzheimers-and-parkinsons-fmri-connectomes-2/

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Country

USA

Title of project or programme

Software Platform for Analyzing Alzheimers and Parkinsons fMRI Connectomes

Source of funding information

NIH (NINDS)

Total sum awarded (Euro)

€ 1,012,790.83

Start date of award

15/05/2016

Total duration of award in years

2

The project/programme is most relevant to:

Parkinson's disease & PD-related disorders|Alzheimer's disease & other dementias

Keywords

connectome, software as a service, Functional Magnetic Resonance Imaging, Parkinson Disease, Alzheimer's Disease

Research Abstract
? DESCRIPTION (provided by applicant): It is estimated that the cost in the US for brain

disorders per year is $500 billion for treatment and long term care, with another $400 billion in other nonmedical costs. As a consequence, reducing the burden of human brain disorders is a key focus of the NIH BRAIN Initiative, with one strategy being the use of fMRI connectomes to study brain region functioning. Current approaches for analyzing connectomes use 'off-the-shelf' statistical methods not optimized for this type of data. In this Direct to Phase II SBIR we propose to further develop and strengthen our graphical object oriented data analysis software to solve data analysis, experimental design, and hypothesis testing problems in translational neuroscience. Product: This SBIR will produce analytical software for fMRI data in translational research. Users will access the software through a cloud-based Software-as-a-Service (SaaS) contract. The technical innovation of this SBIR statistical software designed specifically and optimized for fMRI brain imaging data is to support moving fMRI technology from basic R&D to translational clinical science. The impact of this technology are tools to improve brain imaging experimental design, improve biostatistical analysis of brain imaging data, and ultimately improve discovery of biomarkers and identify possible drug targets for clinical treatment. Long term goal: Extending our cloud-based Software-as-a-Service (SaaS) data analytics platform offers researchers an easy to use web-based interface for analyzing new and complex biomedical research data. As a platform technology, there are many applications in other areas of biomedical research that can be developed. Therefore, our business strategy is to identify the areas of science that have the greatest potential to make the move from the university research setting into the commercial arena, and that produce novel or complex data with no commercial analytics tools for translational clinical trials yet on the market. The Specific Aims of this SBIR Direct to Phase II project are: Aim 1: Develop statistical algorithms and software. Aim 2: Validate the methods. Aim 3: Apply the methods to real data. Expected outcomes: Validated statistical software proven to be more powerful than existing methods for analyzing fMRI connectome data in translational research.

Lay Summary
PUBLIC HEALTH RELEVANCE: Brain imaging is seen as a new way to discover 'biomarkers' that might be used in the clinic to diagnose diseases like Alzheimer's or Parkinson's early, and a new way to help develop drugs for these types of diseases. This project is creating statistical software that will help researchers find and test these biomarkers, and speed up the development of new treatments.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Alzheimer's disease & other dementias, Parkinson's disease & PD-related disorders

Years:
2016

Database Categories:
N/A

Database Tags:

N/A