Johns Hopkins Medicine Biomarker Discovery in Parkinsons Disease

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Principal Investigators

DAWSON, TED M

Institution

JOHNS HOPKINS UNIVERSITY

Contact information of lead PI
Country

USA

Title of project or programme

Johns Hopkins Medicine Biomarker Discovery in Parkinsons Disease

Source of funding information

NIH (NINDS)

Total sum awarded (Euro)

€ 3,736,303.67

Start date of award

30/09/2012

Total duration of award in years

1

The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

Keywords

biomarker discovery, Parkinson Disease, parkin gene, ,

Research Abstract

DESCRIPTION (provided by applicant): We are seeking to improve the diagnosis and treatment of patients with Parkinson disease (PD). Five years of support will allow us to characterize a cohort of patients throughout the PD disease spectrum and matched healthy controls in a

systematic and generalizable manner, and then obtain their blood and cerebrospinal fluid (CSF) to identify biomarkers. We will assess whether specific posttranslational modifications to c-Abl, a-synuclein, parkin and parkin substrates (AIMP2, FBP-1 and PARIS) are potential biomarkers. Our clinical and cognitive testing and our biofluid ascertainment methods will follow guidelines from the RFA-NS-1211, the Michael J. Fox Parkinson's Progression Markers Initiative (PPMI), and the consensus opinion of the Udall Centers regarding cognitive testing. The clinical characterization will include extensive motor testing as well as assessments of many of the non-motor facets of PD, including cognition, sleep, and smell. Many of our study participants will have agreed to autopsy through their participation in the Johns Hopkins Medicine Morris K. Udall Center of Parkinson Disease Research of Excellence, allowing for confirmation of their clinical diagnosis and further investigation of the biomarkers that we identify. The blood will be obtained every 6 months at the time of clinical characterization and the CSF will be obtained yearly. Success of the clinical characterization will allow for a cohort of well-characterized individuals with blood and CSF that others and we may correlate with markers in their blood and CSF. Multiple reaction monitoring mass spectrometric assays using a Perfinity workstation inline to a Thermo Vantage triple quadrupole mass spectrometer with on-column trypsin digestion will be used to identify specific posttranslational modifications (PTMs) to proteins integral to PD pathogenesis to differentiate individuals with PD from healthy controls and if these PTMs and proteins integral to PD follow the clinical progression of PD. Success of the biomarker testing will determine if these peptides are diagnostic or progression markers for PD.

Lay Summary
PUBLIC HEALTH RELEVANCE: Parkinson disease is a clinical diagnosis and treatments do not change disease progression and are associated with unacceptable side effects. There are currently no diagnostic markers of disease or markers of progression of Parkinson disease. By identifying diagnostic or progression markers for PD we will have the potential to improve the function, health, and mortality of individuals with PD.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Parkinson's disease & PD-related disorders

Years:
2016

Database Categories:
N/A

Database Tags:
N/A