The Gut Microbiome in Parkinson Disease

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Contact information of lead PI
Country

USA

Title of project or programme

The Gut Microbiome in Parkinson Disease

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NIH (NINDS)

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01/09/2016

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1

The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

Keywords

gut microbiome, Parkinson Disease, Constipation, microbiome, hyposmia

Research Abstract
Project Summary/Abstract This is a first R01 application from an early stage, new investigator and current NIEHS K01 awardee. Parkinson disease (PD) is a disabling neurodegenerative disease for which there is no cure. Years before the diagnosis of PD and the onset of motor symptoms, PD patients develop non-motor symptoms, including, importantly, constipation and gastrointestinal dysfunction. Constipation affects over 80% of PD patients and is one of the

strongest risk factors for PD. Recent research shows that the enteric nervous system in the gut and the dorsal motor nucleus of the vagus nerve which anatomically links the GI system to the brain, are among the first and most severely affected by alpha-synuclein pathology characteristic of PD5 leading to the hypothesis that the gastrointestinal tract might be the site of initiation of PD. We propose to conduct a comprehensive investigation of the relation between human gut microbiome and PD, focusing on the pre- onset microbiome. We will do this by building on an ongoing Department of Defense funded project that has identified participants with pre-parkinson syndrome (PPS – defined as the co- occurrence of constipation, pRBD (probable rapid eye movement sleep behavior disorder) and hyposmia) that in a pilot study has been associated with a ~200 fold increase in PD risk. Studying the microbiome among this group, who are highly likely to develop PD or are already in the premotor state, will give us a unique look at the microbiome in PD patients prior to any potential disease-associated effects of changes in diet and lifestyle that may have confounded prior case-control studies. The proposed study will take advantage of 25 years of prospectively collected data on environmental and dietary exposures and disease outcomes in two prospective cohorts of men and women.

Lay Summary
Project Narrative Our appreciation of the impact of the gut microbiome on brain health, and especially PD, is in the early stages. This study will be the first to examine the gut microbiome in participants with premotor PD and compare it to healthy controls, controls with constipation and to recently onset PD cases. This project will thus advance our understanding of how the human gut microbiome contributes to the pathophysiology of PD and will contribute to the development of tools needed for a preclinical diagnosis and/or treatment.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Parkinson's disease & PD-related disorders

Years:
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