

Using a rapid diagnostic test for Parkinson's disease to determine underlying mechanisms, develop new regenerative therapies and test the efficacy of existing regenerative therapies

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United Kingdom

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Using a rapid diagnostic test for Parkinson's disease to determine underlying mechanisms, develop new regenerative therapies and test the efficacy of existing regenerative therapies

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Parkinson's UK

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Research Abstract

Parkinson's disease (PD) is the second most common neurodegenerative disease. Specific populations of cells in the brain die resulting in debilitating clinical features including a range of

motor and non-motor problems. There are currently no disease modifying treatments for it and diagnosing the condition can be difficult, especially as there are different subtypes of patients with this condition. More accurate tools by which to diagnose and stratify patients are required, along with a clearer understanding of the disease pathogenesis and regenerative therapeutic interventions designed to slow it down. A novel breath test has recently been developed by Israeli scientists to aid in diagnosing PD and we would like to use this now to: 1) evaluate its capacity to diagnose, stratify and track disease progression in PD patients over time; 2) find chemical compounds in the breath samples and examine what role they may play in the disease process; and 3) develop and assess novel regenerative therapies for PD.

AIMS:

1. To validate the modified breath test technology in diagnosing PD, determine its potential in stratifying patients into disease subtypes, and track disease progress overtime (and after transplantation therapy).
2. To isolate and compare the compounds identified in the breath samples with other biological samples collected (eg. blood) from the same subjects in order to determine common features and patterns which may reveal new insights into pathogenesis and treatment.
3. To assess whether the origins of any common compounds detected have a role in the degenerative processes associated with PD by testing them in rodent models of PD and patient-specific cell cultures with the goal of developing new regenerative therapies.

BENEFITS: Given that the breath analysis technology has already demonstrated the potential to differentiate between patients with idiopathic Parkinson's disease from normal controls, the benefits of the work proposed in this application will be to:

- 1) Better diagnoses and stratify PD patients into specific subgroups which in turn should aid in the development of more specific treatment approaches;
- 2) Provide monitoring tools for – and new insight into – the disease progression; and to
- 3) Highlight novel biological pathways involved in the disease process, leading to the development of new regenerative treatment approaches.

Further information available at:

Types:

Investments < €500k

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United Kingdom

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