Fall 2019 FUNDING PROGRAMS
The Biology of Astrocytes in Parkinson's Disease

BACKGROUND

Parkinson's disease (PD) affects nearly 1 million people in the US and over 6 million worldwide, and those numbers are expected to rise over the coming decades. PD is highly heterogeneous: individuals experience a wide array of motor and non-motor symptoms, many of which depend on disease severity and duration. Though our understanding of PD and its causes is growing, many questions remain. Currently, there are no disease-modifying drugs available for Parkinson's while standard symptomatic treatments provide some limited relief but come with complications and side effects.

The Michael J. Fox Foundation (MJFF) funds research to better define, measure, and treat Parkinson's disease as well as critical tools and other resources to advance that research. The purpose of this Request for Applications (RFA) is to fund studies that explore the role of astrocytes in Parkinson's disease pathology and the potential for astrocyte-focused therapeutics.

PROGRAM GOAL

The Biology of Astrocytes in Parkinson's Disease RFA seeks to address the current gaps in knowledge on the role of astrocytes in Parkinson's disease pathology and the potential for astrocyte-focused therapeutics. The goal of this funding program is to promote further understanding of astrocyte biology in Parkinson's disease, and rationalize the pursuit of astrocyte-specific targets and/or pathways for the treatment of the disease.

Astrocytes make up a large proportion of the cells in the brain, and they are more than idle bystanders in the development and homeostasis of the central nervous system. Beyond their more well-known roles in neurotransmitter regulation and trophic and metabolic support of neurons, they help modulate vascular functioning. Research on inflammation in the central nervous system is examining the role of astrocytes beyond simple "reactive gliosis," and their interaction with microglia. There is emerging evidence that these cells could be participating in a novel drainage system in the brain. Recent evidence from Alzheimer's disease has hinted that astrocytes could be propagators, and potentially initiators, of neuroinflammation. Postmortem examinations of brains from Parkinson's disease patients reveal "reactive" astrocytes and astrocytes that contain alpha-synuclein-positive inclusions. Mutations in classic PD risk genes, including PARK7, GBA, PRKN/PARK2, and others alter pathways critical to proper astrocyte functions, such as inflammation, lipid handling and mitophagy.

PROGRAM PRIORITIES

Preference will be given to applications that focus on or include the following:

- The role of astrocytes in initiating and/or propagating Parkinson's disease pathology, including alpha-synuclein spread, dopaminergic neuron death, inflammation, and senescence
- The consequences of dysfunction and/or mutations of common PD targets in astrocytes, including alpha-synuclein, LRRK2, GBA, Parkin, PINK1
- The manipulation of astrocyte activity and/or astrocyte-specific pathways to assess the disease modifying or symptomatic therapeutic potential of targeted astrocyte therapies

Preference will be given to proposals utilizing Parkinson's disease models with high construct validity to human PD, including patient-derived material (such as iPSCs or cerebral organoids) and/or well

characterized animal models and primary cells. Examination of human brain samples to answer specific hypotheses will also be acceptable.

DEADLINES & REVIEW

- Pre-proposals Due: April 19, 2019, 5 p.m. US ET
- Full Proposal Invitations: Week of June 10, 2019
- Full Proposals Due (by invite only): July 19, 2019, 5 p.m. US ET
- Anticipated Award Announcement: September 2019
- Anticipated Funding: October 2019

Applicants are encouraged to apply early at the pre-proposal stage to allow adequate time for resubmission if errors are found during administrative review.

FUNDING AVAILABLE

Duration: 12 to 18-month grants.
Award Amount: Up to $150,000. Requested support should be commensurate with work proposed. Requested support should be commensurate with work proposed. Final budgets will be determined based on review of proposed work. These budgets include direct and indirect costs. For academic and for-profit institutions, no more than 25% or 10%, respectively, may go to indirect costs. Additional details about MJFF's indirect cost policy can be found in the Administrative Guidelines and FAQ.

ELIGIBILITY REQUIREMENTS

Applications may be submitted by researchers or clinicians in:

- U.S. and non-U.S. biotechnology/pharmaceutical companies, or other publicly or privately held for-profit entities; and
- U.S. and non-U.S. public and private non-profit entities, such as universities, colleges, hospitals, laboratories, units of state and local governments and eligible agencies of the federal government.
  Post-doctoral fellows are eligible to apply as co-investigators with the designation of an administrative primary investigator who directs the laboratory in which the fellow will conduct research. The administrative PI will be responsible for assisting in providing all institutional documents required for the project and will be required to sign any award contract. Training or mentoring-only proposals will not be considered.

BIOSAMPLE REQUESTS

Applicants are encouraged to leverage existing resources if possible. Studies utilizing biosamples available through MJFF-sponsored biospecimen collections (Access Data and Biospecimens program) or the Parkinson's Progressive Markers Initiative (PPMI) may apply for funding through this initiative. Applicants who are approved for funding will then be required to apply for PPMI sample access, which will be considered by the Foundation on a case-by-case basis. Please email resources@michaeljfox.org for more information.

ADDITIONAL INFORMATION

Our Administrative Guidelines provide general guidance about applying for funding from MJFF. Please note that the RFA always supersedes information contained in the Administrative Guidelines.

MJFF will host an informational webinar on April 1, 2019 at 12 p.m. ET to clarify and explain the goals of our funding opportunities and answer applicant questions. The webinar will be available to view on-demand after the live airdate. To register, please visit the Funding Opportunities webpage.