

NPF Awards Four Innovative Research Grants

The National Parkinson Foundation (NPF) has funded four new grants in Parkinson's disease (PD) research.

The four grants target key scientific questions about how Parkinson's develops and how to optimize treatment.

NPF funded the following four studies over a two-year period totaling nearly \$1 million dollars:

→ Prion Like Propagation of alpha-Synuclein Pathology in iPSC-derived Dopamine Neurons from Patients with Parkinson's Disease: Edward A. Fon, MD, FRCP-C, Montreal Neurological Institute, McGill University, Montreal, Canada.

Using induced stem cell lines derived from actual patients (non-embryonic), Dr. Fon will create neurons with PD in a cell culture. He and his team will then look at the internal structures of the cells and how PD pathology affects them at the cellular level. They will also create neurons from people without PD so that they can directly compare the two. Dr. Fon's team has tested almost 200,000 potential drugs to stop PD using generic human-derived cells and found some that may be able to slow down or stop the disease. They will repeat this test using actual, human-derived neurons created using induced stem cells to screen potential drugs to stop PD.

→ Studies of Prion-like Peripheral to CNS Transmission of alpha-Synuclein Pathology Mouse Models: Benoit Giasson, PhD, UF Center for Translational Research in Neurodegenerative Disease, UF Center for Movement Disorders and Neurorestoration, University of Florida, Gainesville, Florida.

A protein called alpha-synuclein is believed to play a key role in PD. Dr. Giasson and his team are going to inject clumps of alpha-synuclein into the bodies of animals and then figure out if it migrates to the brain from, for example, an injection in the leg. If the protein does spread this way, and if the animal then develops symptoms of PD, this could provide proof that this model does work. It would also provide a model of PD that could be used in studies of drugs that might cure the disease.



→ PET Imaging of Hyperphosphorylated Tau Denotes Cognitive Impairment in Parkinson's Disease: Stephen Gomperts, MD, PhD, Department of Neurology, Massachusetts General Hospital, Boston, Massachusetts.

The protein tau is better known for its association with cognitive change in other conditions such as Alzheimer's disease or chronic traumatic encephalopathy caused by repeated impact to the brain. However, it is also seen in Parkinson's. A newly developed radioactive tracer used in PET scanning will create a picture of where the protein tau is accumulating in the brain. For the first time, scientists will be able to look at tau in patients living with PD and figure out if the cognitive change in PD is a result of this protein or something else.

→ Exercise Targeting Cognitive Impairment in Parkinson's Disease: Giselle M. Petzinger, MD, Department of Neurology, Keck School of Medicine, University of Southern California, Los Angeles, California.

Parkinson's experts believe that exercise is as important as any drug in holding back the disease, but many people with PD wonder, "What kind of exercise should I do?" This study will test a new exercise protocol that Dr. Petzinger developed from studying the biology of exercise at the cellular level. Her goal will be to show that this new, specially-designed exercise protocol actually improves high-level thinking in people with PD. The focus is on improving early and subtle aspects of cognitive change, including standard tests of executive function as well as novel tests that incorporate aspects of thinking that are important to patients.

Each grant was peer-reviewed and selected by the NPF's Clinical and Scientific Advisory Board.

For more information about NPF's research initiatives, visit www.parkinson.org/research.