PPMI Sub-study Provides Engineered Stem Cells for Parkinson’s Research

Last month the Parkinson’s Progression Markers Initiative (PPMI) announced the availability of induced pluripotent stem cells (iPSCs) for research to speed new therapies and deeper understanding of Parkinson’s disease.

iPSCs are “man-made” stem cells created by taking a person’s own skin or blood cells and reprogramming them. These stem cells can then be made into other types of cells, such as dopamine neurons. iPSCs are easier to access and may be the source of a personalized therapy that the body is less likely to reject because they are made from an individual’s own cells.

Dopamine neurons engineered from iPSCs can help scientists mimic the Parkinson’s disease process in laboratory experiments and develop and test new treatments.

To further these investigations, PPMI is making iPSCs from study participants available at no cost to the researcher community.

PPMI builds the infrastructure off which the greater research community can drive discovery, validation and replication,” said Mark Frasier, PhD, MJFF Senior Vice President of Research Programs. “The ‘disease in a dish’ model provided by iPSCs is an asset in the development and testing of new treatments, and streamlined access to these well characterized tools will speed progress.”

The Golub Capital iPSC PPMI Sub-study has two phases. In the first, iPSC lines and fibroblasts were made from skin samples of 20 people with Parkinson’s disease and five control volunteers. These iPSCs with complementary clinical information are now available to interested researchers.

In the second phase, iPSCs derived from blood samples from 85 PPMI participants will be created and made available to researchers later this year. This cohort includes volunteers recently diagnosed with Parkinson’s disease and five control volunteers. These iPSCs with complementary clinical information are now available to interested researchers.

About PPMI

The Parkinson’s Progression Markers Initiative (PPMI) is a landmark, five-year international clinical study that aims to find reliable and consistent biomarkers of Parkinson’s disease (PD) progression. The study is testing today’s most promising biomarker candidates through neuroimaging, the collection of blood, urine, and spinal fluid, and clinical and behavioral tests. Valid measures could allow scientists to predict, objectively diagnose and monitor diseases as well as definitively determine which medications work and which will not. PPMI is sponsored by The Michael J. Fox Foundation for Parkinson’s Research and funded by a consortium of industry partners and individual donors. To learn more or volunteer to participate in the study, visit www.michaeljfox.org/PPMI or call (877) 525-PPMI.
Participant Profile: Patti Shares Her Story

Patti is a PPMI participant from Ashville, North Carolina. She was diagnosed with Parkinson’s in 2008 and carries the LRRK2 genetic mutation.

In April, PPMI volunteer Patti Meese participated in The Michael J. Fox Foundation’s Third Thursdays Webinar, “Would One Parkinson’s Treatment Fit All?” This webinar focused on personalized medicine, which is the concept of tailoring care to a specific individual.

The PPMI genetics cohort is critical to furthering our understanding of Parkinson’s disease (PD) biology. By studying people with and without Parkinson’s who have a LRRK2 or GBA mutation, researchers can better comprehend why some people go on to develop PD and others do not. This will enhance scientists’ knowledge of PD and could one day enable doctors to customize symptomatic and disease-modifying treatments based on a person’s genetic makeup, benefitting all people with Parkinson’s, not just those with a genetic form of the disease.

During the webinar, Patti shared her surprise when she discovered she had a genetic mutation related to PD, saying, “I first found out I had the LRRK2 gene through a study at the NIH [National Institutes of Health]. I was a little stunned, as I was when I was first diagnosed, because I didn’t know anything about it, and of course I wanted to learn more.”

Patti quickly realized her genetic makeup could help speed Parkinson’s research: “I enrolled in the PPMI study with The Michael J. Fox Foundation and the more I learned the more I felt like more research needed to be done. I turned to my family because I thought maybe this is a gift, maybe my family and I can help move research forward . . . . All four of my sisters and my daughter were on board. They’ve all been tested. They immediately wanted to help, not just me but all my friends and research in general.”

To watch the full webinar, visit michaeljfox.org/webinar.

Consortium to Develop Model of Parkinson’s Progression Using PPMI Data

Parkinson’s UK and the Critical Path Institute (C-Path) in Tucson, Arizona, recently launched the Critical Path for Parkinson’s consortium (CPP) to create a quantitative model of Parkinson’s progression from its earliest stages that will allow researchers to optimize clinical trial design for faster and more effective testing of new therapies.

To achieve this goal, C-Path will standardize and aggregate data from several large-scale Parkinson’s studies. The Michael J. Fox Foundation joined CPP last month and is contributing data from the Parkinson’s Progression Markers Initiative. C-Path will apply computational tools to the pooled database to produce the quantitative progression model and submit the tool to the U.S. Food and Drug Administration and the European Medicines Agency for feedback.

“More therapies with potential to slow or stop Parkinson’s progression in its early stages are moving through clinical trials,” said Michael J. Fox Foundation (MJFF) Senior Vice President of Research Programs Mark Frasier, PhD. “A quantitative characterization of that early progression would help evaluate the impact of these treatments and usher effective therapies to the people who need them.”
Due to the variability in Parkinson’s symptoms and progression and the lack of objective biomarkers, trials must enroll hundreds of patients and follow them for many months if not years. Development of a quantitative model of Parkinson’s progression, potentially combining both biological and clinical factors, may allow for efficient trials that aim to treat the right patient with the right drug at the right time.

Parkinson’s UK and C-Path launched the CPP in October 2015, and seven major pharmaceutical companies, the Parkinson’s Disease Foundation, the Davis Phinney Foundation and Cure Parkinson’s Trust have also signed on to the initiative.

Arthur Roach, PhD, director of research at Parkinson’s UK, the principal funder of the consortium, says: “A key part of this is joining forces with regulators, researchers, pharma and medical research charities such as MJFF to maximize the benefit of data-sharing and learnings. Working with CPP partners will play a crucial role in helping develop and evaluate the effectiveness of potential new therapies, which could one day lead us to a cure for Parkinson’s.”

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**New Study Aims to Measure Parkinson’s Protein Throughout Body**

Building on the success of the Parkinson’s Progression Markers Initiative, researchers have launched the Systemic Synuclein Sampling Study (S4) to investigate the protein alpha-synuclein as a potential biomarker of Parkinson’s disease (PD). The study aims to determine if and how alpha-synuclein can be used to diagnose PD, track progression and evaluate the impact of therapies.

The protein alpha-synuclein is the most promising Parkinson’s biomarker candidate because it’s been shown to clump in the brain cells of nearly all individuals with PD. But it’s also found elsewhere in the body, including saliva, spinal fluid, colon tissue, blood, skin and more. S4 researchers hope to discover which biofluids and tissues are the most promising Parkinson’s biomarker sites and which measure of alpha-synuclein outside the brain could be used in clinical trials to assess the efficacy of new therapies.

“Measuring alpha-synuclein levels in these biofluids and tissues could be a way to monitor Parkinson’s disease,” said Danna Jennings, MD, S4 principal investigator and senior director of clinical research at the Institute for Neurodegenerative Disorders. “Multiple studies have demonstrated the significance of alpha-synuclein as a potential PD biomarker, but none have measured alpha-synuclein levels in multiple biofluids and peripheral tissues in a single individual.”

Peter Ortali, an S4 participant at the Institute for Neurodegenerative Disorders, said, “I had symptoms for 10 years before my Parkinson’s diagnosis. Perhaps if we had earlier markers of the disease, I could have started treatment and contributed to research sooner. I believe in doing anything to help others with Parkinson’s. Participating in studies such as S4 will lead to more knowledge and earlier treatments. It’s worth the time.”

Visit [www.foxtrialfinder.org/S4](http://www.foxtrialfinder.org/S4) to learn more.
**Join Our Next PPMI Study Update Call!**

**What:** Longitudinal Imaging Data  
**When:** Monday, September 12, 12 p.m. ET  
**How:** Call (866) 906-9888 and enter code 1372692# to join us!  
**Speaker:** John Seibyl, MD, CEO & Senior Scientist, Institute for Neurodegenerative Disorders

Join us on Monday, September 12, to learn more about longitudinal imaging data.

**Missed the last study update call?**  
You can listen to past study update calls by visiting [www.ppmi-info.org/participants](http://www.ppmi-info.org/participants).

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**Be a PPMI Genetics Ambassador**

Recruitment is underway for the genetics arm of PPMI! There is no better advocate for PPMI than those of you who are already participating in the study, and you can play a critical role in spreading the word about this effort.

**How can I help?**  
Ask your friends and family members to visit [www.michaeljfox.org/ppmi/genetics](http://www.michaeljfox.org/ppmi/genetics), and encourage them to take our genetics survey. PPMI is seeking individuals with or without PD who are of Eastern European (Ashkenazi) Jewish, North African Berber or Basque ancestry to take the survey to help determine eligibility for the genetics arm of the study.

Want to stay informed of the latest scientific developments in PPMI? Visit [www.PPMI-info.org](http://www.PPMI-info.org). This is the portal for the scientific community to learn more about PPMI and to access the data and samples coming out of the study.