

Third Annual PDBP Meeting

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The third year of the NINDS Parkinson's Disease Biomarkers Program culminated with the PDBP annual meeting on September 17-18, 2015 in Bethesda, Maryland. As customary, PDBP investigators, clinical coordinators, representatives from non-government organizations and NIH Staff convened to discuss recent progress and future plans for the Program. Also in attendance were four PDBP enrolled subjects, Dr. Paul Zimmet and Mr. Cliff Ishmael, each diagnosed with PD, and their wives, Dr. Marcia Chambers and Mrs. Evelyn Ishmael who volunteer as controls. They participated in a very informative panel discussion, sharing with the audience how PD has impacted their lives, their thoughts about the PDBP and suggestions for improving patient outreach. The panel session was not only informative but served as a valuable reminder of the real importance of biomarker discovery research and its impact on people's lives. An executive summary of the annual meeting is available on the PDBP website (<http://pdbp.ninds.nih.gov/news>) ■

Patients' Corner

PDBP through the eyes of BWH clinical coordinators

By Daly Franco and Ana Trisini Lipsanopoulos, Harvard Medical School, Brigham & Women's Hospital (BWH)

Daly Franco:

As a coordinator in the PDBP consortium, my time is evenly split between clinic and administrative duties. I am responsible for scheduling and preparing materials needed for visits, administering cognitive and physical examinations, and entering the data gathered in the database. These activities allow me to maintain a constant line of communication between researchers and participants, many of whom are just as curious and motivated towards Parkinson's research as the scientists themselves.

The most rewarding aspect of my involvement in our PDBP study is connecting with our participants on a more personal level. Every six months, for example, I have the pleasure to hear about Mr. E's dog, Coco, and her outrageous adventures or look at how big Ms. C's great-granddaughter has grown within a few months. My most memorable interaction involved my first conversation with Mrs. P.; I was going over the details of the study and scheduling her first visit around last year's snow storms when I quickly mentioned I was in the middle of a knitting project. A few weeks later, we met for her visit and she passed me a plastic bag full of knitting needles! This deeper connection, however, makes it

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Photo by Sam Ogden and MJFF

BWH clinical coordinator, Daly Franco, administering a physical exam to a PDBP study participant.



Photo by Sam Ogden and MJFF

Ana Trisini Lipsanopoulos: “my role in the PDBP is to be the glue that holds many pieces together.”

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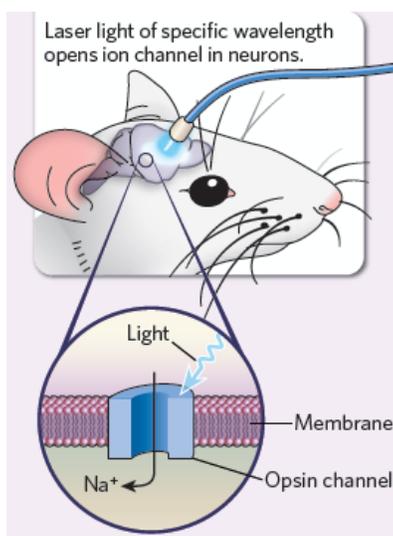
hard to witness the symptomatic progression of those with Parkinson’s. Participants often express how their participation adds meaning to their diagnosis by giving them the opportunity to contribute to the advances that will improve the lives of those diagnosed with Parkinson’s disease in the future.

Ana Trisini Lipsanopoulos:

I am extremely proud and privileged to be a part of the NINDS PDBP consortium since its inception in 2012. I enjoy interacting with brilliant and hardworking scientists, study coordinators and of course the patients who volunteer their time for biomarkers research. While I serve as the project manager of the Harvard Biomarkers Study, a cohort of more than 2,300 participants with Parkinson’s, memory impairment and controls, my role in the PDBP is to be the glue that holds many pieces together. From paperwork and databases, to recruitment and specimens, my job is to make sure all the paperwork is approved by our local Human Research Committee and ensure we submit specimens and data as planned. My biggest challenge has been meeting recruitment and retention goals.

Although our PDBP study included “only” 75 participants, many participants were hesitant to agree to a visit every six months and an annual lumbar puncture for 3 years. I quickly discovered that I needed to expand our recruiting strategies and utilized ads and resources available through the Michael J. Fox Foundation (MJFF) to find more participants. I also learned that offering to arrange or reimburse travel and parking improved recruitment. Ultimately, it’s important to find ways to balance the needs of the study and the patients’ safety and convenience. ■

Daly Franco and Ana Trisini Lipsanopoulos are coordinators in the lab of Dr. Clemens Scherzer at Harvard Medical School, Brigham & Women’s Hospital.



Scientists can turn neurons on and off using optogenetics.

(Image <http://www.nature.com/news/2010/100505/pdf/465026a.pdf>)

Optogenetics

Optogenetics is a recently developed new tool that has allowed neuroscientists unprecedented precision in turning neurons on and off. Neurons contain numerous types of ion channels called opsins, which control electrical signaling. By shining light through fiber-optic wire at these cells, the opsins can be activated or silenced, acting as a neural switch for brain activity.

Using optogenetics, neuroscientists have gained new clues into brain pathways affected by Parkinson’s Disease and have developed potential therapeutic interventions. For instance, researchers have found that deep-brain stimulation may be more effective when it targets the connections between neurons, rather than the cells themselves. This improves the flow of activity between brain regions in coordinating movement.

To learn more about this finding see:

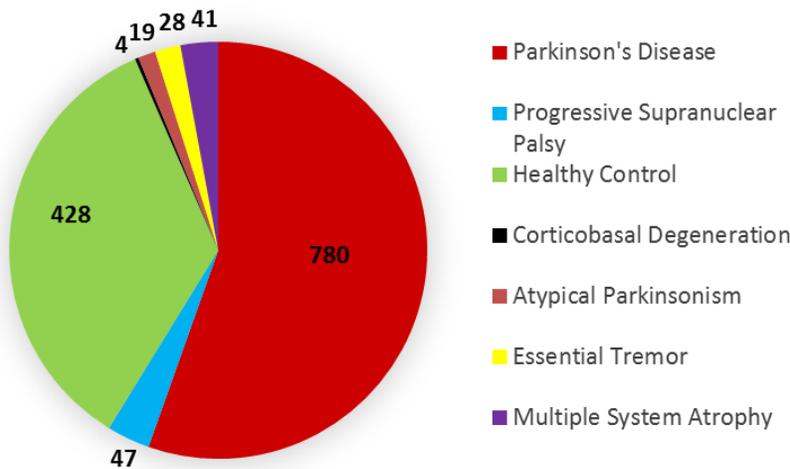
<http://www.ncbi.nlm.nih.gov/pubmed/26833136>

<http://www.scientificamerican.com/article/revolutionary-neuroscience-technique-slated-for-human-clinical-trials/> ■

PDBP Participant Enrollment Update

As of January, 29, 2016, PDBP has recruited 780 PD, 488 controls, as well as 120 participants with related neurological disorders (Atypical parkinsonism, MSA, PSP, CBD, ET). Thus far, more than 1,400 participants have been enrolled in the PDBP and enrollment is 99% complete! Moreover, PDBP subjects have continued to contribute biosamples including CSF, plasma, serum, whole blood, RNA, and DNA which can be linked to subject clinical data in the Data Management Resource (DMR). Some amazing PDBP Data Usage Statistics: As of February 2016, over 985,000 downloads have been tracked in the DMR, by 82 individuals from researchers in the US and other countries. As you can see, your continued study visits are producing tons of data, which will support scientific research for Parkinson’s therapies. Thank you, as always for your continued participation in this critical research. ■

“PDBP Enrollment is 99% complete. As of February 2016 there have been over 985,000 data downloads from the PDBP DMR”



Number of PDBP Participants based on diagnosis

Parkinson’s Disease-Related Event

Parkinson’s Unity Walk, Saturday April 23, 2016

Join thousands and participate in a gentle 1.4 mile walk in New York’s Central Park to raise awareness and funds for PD research. NINDS and numerous representatives from nonprofit organizations will be available to share information and resources with members of the Parkinson’s community. For more information see: <http://www.unitywalk.org>



Spotlight on PDBP Research

Update on Parkinson's Research at Mount Sinai Beth Israel

by Robert A. Ortega



Dr. Saunders-Pullman

The movement disorders clinical research group at Mount Sinai Beth Israel (MSBI) is focused on understanding the interplay of biomarkers and genetics in Parkinson's Disease (PD). The overarching goal of the department's research is to use a translational approach to enhance knowledge about genetically related PD to further the development of disease modifying therapies and to improve clinical trials. It is our hope that therapies will improve the lives of both individuals who harbor certain genetic mutations as well as individuals who do not have these mutations.

Our PDBP study is led by Dr. Rachel Saunders-Pullman at MSBI together with Dr. Dimitri Krainc of Northwestern University. The study focuses specifically on the glucocerebrosidase (*GBA*) pathway and its relation to PD. Mutations in the *GBA* gene are the leading genetic factor associated with PD. As therapeutics that effect the *GBA* pathway are currently being developed by pharmaceutical companies, it is essential that we better understand the biochemical and clinical markers for *GBA* mutation carriers with PD. This will allow clinical trials to be performed efficiently and help lead to the greatest chance of success. Specifically, we are focused on assessment of peripheral and central biomarkers, including *GBA* enzyme activity, sphingolipid and α -synuclein levels, and their relationship to clinical outcomes of PD. We are evaluating blood and, when possible, spinal fluid in *GBA* mutation carriers with PD, in PD participants without mutations, and in controls. *GBA* enzyme activity measurements are being performed in the laboratory of Dr. Olaf Bodamer at Harvard, and sphingolipid measurements at SUNY-Stonybrook in the Hannun-Obeid lab. In previous pilot studies in our lab, we demonstrated that sphingolipid levels and *GBA* enzyme activity may be promising biomarkers of PD.

In addition to the evaluation of samples already collected, we are also enrolling study participants (both with parkinsonism and unaffected controls) into the PDBP study. These visits include lumbar puncture, blood draw, clinical exam and questionnaires. Enrolling in the larger PDBP study will allow us to share samples with the PDBP consortium. Together, it is our hope that the knowledge obtained through this project and the PDBP consortium overall will help to pave the way for future landmark discoveries and inform forthcoming PD clinical trials. ■

Mr. Robert Ortega is a clinical coordinator in the lab of Dr. Saunders-Pullman at Mount Sinai Beth Israel.

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