

**Developing Personalized Medicine Strategies to Increase Physical Activity in Parkinson's Disease Through Digital Health Technology**

Grant from the Department of Defense's PD program. Dr. Morley is investigating new approaches that 1) use "gamification"—applying rules of games like point scoring—to increase physical activity in PD; 2) identify whether certain PD patients respond differently to gamification interventions; 3) use readily and commercially available digital health technologies to perform all study activities remotely and enable a "touchless" study.

**Behavioral or Solifenacin Therapy for Urinary Symptoms in Parkinson's Disease**

Continuing to support Dr. Camille Vaughn (Atlanta VA) on a VA RR&D Merit Award study for overactive bladder symptoms in PD. Dr. Morley is site PI

**Neurorestoration in Parkinson's Disease**

Dr. Duda and his colleagues Drs. Kacy Cullen and Isaac Chen from the Center for Neurotrauma Neurodegeneration, and Restoration (CNNR) at the Philadelphia VA Medical Center, continue to investigate whether the nigrostriatal pathway can be generated in a petri dish and transplanted in animal models to reverse motor symptoms in PD. This work has been funded by many organizations, including the VA, the Michael J. Fox Foundation and Innervace, Inc. The team has been successful in implanting these bioengineered pathways into a rat model and are now funded to do the same in pigs, which more closely resemble what would need to be achieved to begin trying in humans. In the rat model, the constructs survive well, integrate into the brain structures and generate dopamine. In the last year, another breakthrough was achieved when these constructs were derived from human stem cell lines and transplanted successfully, potentially paving the way for these constructs to be generated from a patient's own cells.

**Understanding What is Wrong in Parkinson's Disease Cells**

Dr. Duda and his colleagues, Drs. Kacy Cullen, Isaac Chen and Dimple Chouhan have also begun generating a replica of a complete nigro-striatal system, which includes the nigrostriatal pathway constructs mentioned above as well as cells from the striatum, where the nigrostriatal pathway projects to, on the other end of the construct. They are hoping to use these bioengineered constructs to study how cells in the brain of someone with PD die, and to develop novel therapies to stop that process.

**A Multi-center, Randomized, Active-controlled, Double-blind, Double-dummy, Parallel Group Clinical Trial Investigating the Efficacy, Safety, and Tolerability of Continuous Subcutaneous ND0612 Infusion in Comparison to Oral IR-LD/CD in Subjects with Parkinson's Disease Experiencing Motor Fluctuations (BOUNDless)**-Sponsor: NeuroDerm Ltd./Syneos Health The Philadelphia PADRECC is serving as the VA coordinating site for the trial of a new under the skin pump for levodopa/carbidopa.

**Upcoming Projects****Summer 2022 Parkinson's Disease Biomarkers in Human Olfactory Cleft Mucus (Sponsor: National Institute of Health)**

Dr. Morley and his colleague Dr. Noam Cohen (CMCVAMC/ Department of Otolaryngology) are collaborating with Dr. Hong Wang from Monell Chemical Senses Center on a project looking to identify PD biomarkers in nasal cavity mucus to aid in the clinical diagnosis and identification of PD.

**Fall 2022 Global Parkinson's Genetics Program (GP2) - (Sponsor: Michael J. Fox Foundation)**

The VA PADRECC network is joining the Global Parkinson's Genetics Program (GP2) funded by the MJF Foundation. The five-year program is looking to identify PD genes in >150,000 volunteers around the world to further understand genetic risk factors of Parkinson's Disease.

**Fall 2022 VA Cooperative Study #2015 – "Multicenter, Randomized, Double-Blind Comparator Study of Antipsychotics Pimavanserin and Quetiapine for Parkinson's Disease Psychosis (C-SAPP Study)"**

This is a nationwide, multicenter clinical trial comparing two antipsychotic medications (quetiapine and pimavanserin) for the management of PD related psychosis. Drs. Duda and Weintraub will be the national co-PIs and Dr. Morley will be the Philadelphia site PI.