Meeting Title: 9th PDBP Annual Consortium Meeting
Sponsor: NINDS

Purpose:

The 2021 Parkinson's Disease Biomarker Program (PDBP) Annual Meeting provided a forum for participating scientists and stakeholders to discuss recent progress and emergent opportunities in Parkinson's disease (PD), Lewy body dementia (LBD) and related Parkinsonisms biomarker research.

Background:

Since its establishment in 2012, the PDBP has sought to promote the discovery of PD biomarker candidates for early detection and measurement of disease progression. Clinical and biospecimen data are accessible through a common web-based PDBP Data Management Resource (DMR). Clinical data are associated with biospecimens banked and distributed to the research community through the NINDS Biomarkers Repository (BioSEND). Assay data from biospecimens is also deposited in the DMR for researchers. In addition, blood is also used to generate induced pluripotent stem cell lines (iPSCs) through the NINDS Human Cell and Data Repository (NHCDR). The PDBP serves as a platform for: integrating existing biomarker efforts, standardizing data collection and management, accelerating the discovery of new biomarkers, as well as fostering and expanding collaborative opportunities for all stakeholders with the overarching goal of improving clinical trial design in PD and related disorders.

Summary of meeting discussion:

The 2021 PDBP Annual Consortium Meeting was held virtually on August 16-17, 2021. Principal Investigators (PIs), clinical coordinators and data management experts from each PDBP project, PDBP participants and caregivers, as well as representatives from the National Institutes of Health (NIH), PD nonprofit organizations, and the pharmaceutical industry met to discuss progress over the last twelve months in addition to current and future plans for the program.

The meeting agenda began with an overview of the PDBP program and the DMR. This was followed by a presentation on the diagnosis of synucleinopathies, and then a talk on how COVID-19 has impacted PD patients. This session also included an update on the AT-HOME PD study (Assessing Tele-Health Outcomes in Multiyear Extensions of PD Trials).

A patient panel discussion was held where a patient shared their experiences and participation in multiple system atrophy (MSA) research. This was followed by a broad industry panel discussion that included topics on convergent and divergent biomarkers, aligning research

resources and efforts, and data standardization. The presentation that followed talked about amyloid-beta and alpha-synuclein in the neuropathology of LBD.

Two breakout sessions were held, one for site clinical coordinators to obtain feedback and discuss ongoing issues and opportunities for collaboration across PDBP sites. The other session discussed the next steps for PDBP, asking the Consortium investigators and PDBP attendees for suggestions regarding the future of PDBP.

Day two of the meeting convened with four study updates focused on biomarker discovery in a genetic cohort of Parkinson's disease patients, as well as the development of blood, skin-based, and peripheral tissue biomarkers. The following presentation talked about Web-based Automated Imaging Differentiation of Parkinsonism (wAID-P), which uses a web-based interface, automated imaging processing, and machine learning algorithms.

Other presentations provided updates for PDBP Discovery and PDism projects that focused on mass spectrometry-based analysis, progressive supranuclear palsy (PSP) biomarker discovery, genome-wide studies, and peptide biomarkers. Investigators also highlighted their LBD studies on multi-modal imaging approaches, GBA pathway biomarkers, molecular imaging, therapeutic biomarker targets, and systematic endophenotyping within the Dementia with Lewy Bodies Consortium (DLBC).

Conclusions:

A number of efforts from PDBP investigators (https://pdbp.ninds.nih.gov/projects-we-support) are underway towards PD biomarker discovery and validation in the areas of clinical phenotyping, neuroimaging, genomics, transcriptomics, proteomics, and metabolomics. Concurrently, the DMR continues to serve as a central resource for well-characterized clinical data as well as associated biospecimens collected and processed in a standardized manner. As the PDBP enters its tenth year, additional genomics and neuroimaging data will be available in the DMR, including proteomic data and neuropathology data. Furthermore, as new and existing collaborative efforts continue to grow among PDBP investigators, AMP-PD and industry partners, so too will the contributions towards the advancement and discovery of PD biomarkers.

Note: Additional links may be added over time to include published proceedings, formal recommendations, etc.

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