The Accelerating Medicines Partnership® Parkinson's Disease (AMP®PD) is a public-private partnership between government (NINDS, NIA, FDA), industry (AbbVie, Bristol-Myers Squibb, GSK, Pfizer, Sanofi and Verily) and nonprofits (the Michael J. Fox Foundation, Aligning Science Across Parkinson's) which is managed through the Foundation of the National Institutes of Health (FNIH).

Motivation for AMP PD

Despite large investments in research and development, no disease-modifying drugs have been approved for PD. It has become clear that a breakthrough in this area will require strong and transformative public-private partnerships that can produce bold discoveries. Towards this end, AMP PD aims to identify and validate diagnostic, prognostic, and progression biomarkers to improve clinical trial design and contribute to the identification of new pathways for therapeutic developments.

AMP PD Goals

- To standardize data collection for biomarkers in multiple cohorts
- To conduct standardized assays on thousands of existing biosamples, incorporating existing clinical, imaging, and genetic data
- To pursue additional large-scale biomarker discovery with transcriptomics, whole genome sequencing, and proteomics
- To dissect new targets and disease subtypes; track and predict disease progression; identify biomarkers of Parkinson's progression and assess their potential as targets for therapies

AMP PD Data

The UpSet plot to the right illustrates the diversity of data gathered from PD cohorts. Here, we see numbers of subjects who have at least one of 4 different data types: proteomic (purple), transcriptomic (RNA, blue), whole genome sequencing (wgs, green), or clinical (yellow). It highlights the number of subjects with only one, two, three, or all four data types, as represented by the presence or absence of a colored dot below the subject counts.

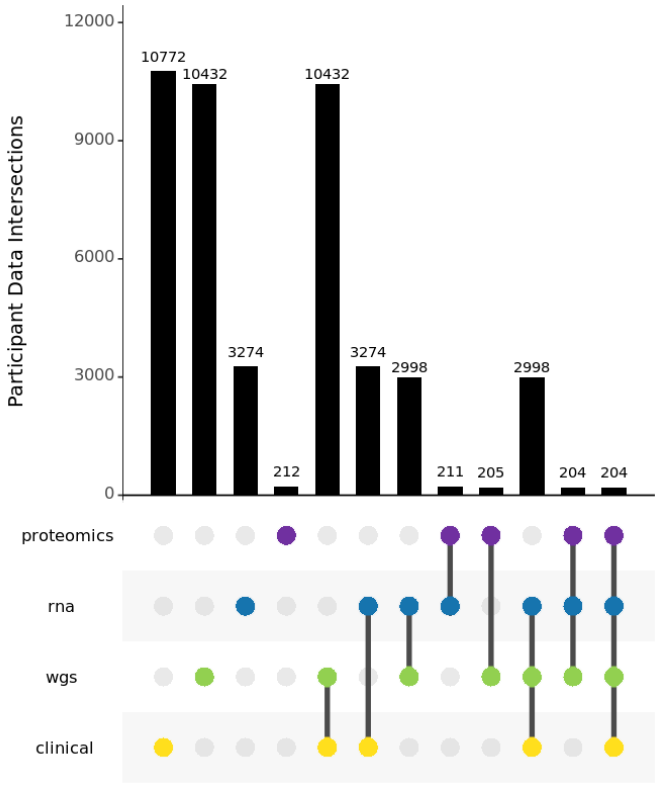
AMP PD

Harmonized cohorts:

- NINDS and MJFF's BioFIND
- Harvard Biomarkers Study (HBS)
- MJFF LRRK2 Cohort Consortium (LCC)
- NINDS Parkinson's Disease Biomarkers Program (PDBP)
- MJFF's Parkinson's Progression Markers Initiative (PPMI)
- International LBD Genomics Consortium Sequencing in Lewy Body Dementia
- NINDS STEADY-PD3
- NINDS and MJFF SURE-PD3

Currently available data:

- Longitudinal clinical data
- Whole genome sequencing
- Longitudinal Transcriptomics
- Longitudinal Targeted Proteomics (blood & CSF)



AMP PD Platform

AMP PD data is stored on the Google Cloud. Access to it and multiple data analysis tools are available via the Terra platform (a product of the Broad Institute, Harvard Data Sciences, and Verily Life Sciences). The Terra Community Workbench is a cloud-native platform for biomedical researchers to access data, run analysis tools, and collaborate.

Federated GP2 Cohort

The Global Parkinson's Genetics Program (GP2) and AMP PD have come together to be your one-stop shop for Parkinson's disease genetic (GP2) and multi-omic (AMP PD) data. GP2, supported by the Aligning Science Across Parkinson's (ASAP) initiative, is an ambitious program to genotype >150,000 volunteers from around the world
further understand the genetic architecture of Parkinson's disease (PD). GP2 data can be accessed along with AMP PD data on the Terra platform with the same registration application.

**data as of 10/2022*

Register for AMP PD Data Access today!

- Registration at: https://amp-pd.org/register-for-amp-pd
- For detailed information about AMP PD, please go to: https://amp-pd.org/
- For detailed information about GP2, please go to: https://gp2.org/about-gp2/
- For additional information about the Terra Community Workbench, please go to: https://app.terra.bio/

Resources available for AMP PD users

Terra provides a number of data analysis tools for users, including the Data explorer, Big Query, a number of genome analysis pipelines, and tutorials to introduce users to the platform and its tools. In addition to Terra resources, AMP PD members have contributed the following resources to jumpstart your research analyses:

- Over 35 "getting started" notebooks and workspaces for analyzing AMP PD data that can be used, cloned and modified for your own workspace
- A visualization tool for combining AMP PD's clinical, genomic, and transcriptomics data
- Over a dozen webinars demonstrating how to analyze AMP PD -omics data.
- Quarterly newsletters to keep the community up to date on what's new in AMP PD.

Additional Data (coming soon!)

AMP PD continues to grow and plans to add the following data from the harmonized cohorts to the platform over the next year:

- Additional targeted proteomics in blood and CSF
- Data-independent acquisition proteomics in blood and CSF
- RNA sequencing in extracellular vesicles in blood and CSF

Whole genome and single-nucleus RNA sequencing data from post-mortem brain tissue will also be added over the next year. Regions sequenced include dorsal motor nucleus of the vagus nerve, globus pallidus interna, motor cortex, dorsal lateral prefrontal cortex, and visual cortex.