

Harvard PGP COVID-19 Project

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Harvard PGP (Personal Genome Project)

- Started in 2005 at Harvard (now global) by George Church
- Provide freely available scientific resources that bring together genomic, environmental, and human trait data donated by openly consented volunteers
- Great source of genetic and phenotype data as well as cell lines
 - Harvard - 500+ WGS sequences, UK - 112 WGS sequences
 - Harvard PGP 100+ Cell Lines via Coriell, NYSCF
- Used for standards efforts (e.g. GIAB - Ashkenazi and Chinese Trios)



The Harvard
Personal Genome Project
we are open for science

Goals for the PGP COVID-19 Project (In Development)

- Gather a set of open phenotypes, samples and genomic sequences for COVID+ and COVID- participants and make them available to scientists for research, testing and standard efforts
- Perform our own research looking at possible genetic factors for severity of COVID-19 symptoms, fatality, resilience and asymptomatic carriers.
- Catalyze efforts with other groups using our open data and methods. If funding permits, make computation resources available to teams on Arvados [our open source big data bioinformatics platform] which will host PGP data as well as other open data sets.

General Plan (In Development)

- Prepare and Distribute general COVID-specific phenotype survey and weekly health assessment survey to PGP participants
- Recruit additional Participants (possibly focusing in regions more strongly affected by COVID) to participate in the PGP
- Test (serology) all participants who have answered surveys for COVID-19 (possibly multiple times)
- WGS all participants who have answered surveys for COVID-19
 - BGI has offered to sequence up to 9,000 participants
 - Caveat: need to get samples or plated DNA to China for sequencing
- Work with international PGPs to make this a worldwide effort
- Applying for grants to fund sample collection, bioinformatics, IT, and testing


Initial Results

- 636 participants have answered COVID phenotype survey
 - Sent out 3/23/2020
- 546 participants have answered weekly health assessment survey #1
 - Sent out 3/23/2020
- 364 participants have answered weekly health assessment survey #2
 - Still in progress, sent out 3/30/2020
- Links to survey data:
 - https://my.pgp-hms.org/google_surveys/23 (Phenotype)
 - https://my.pgp-hms.org/google_surveys/22 (HA #1)
 - https://my.pgp-hms.org/google_surveys/24 (HA #1)
- Links to all survey questionnaires:
 - <https://github.com/PGPHarvard/pgp-surveys/tree/master/Surveys>

Current Collaborators

- PGP Staff and Volunteers (e.g. George Church, Ranjan Ahuja, Michael Chou, Pete Estep, Jeantine Lunshof, Ward Vandewege, Sarah Wait Zaranek, Sasha Wait Zaranek)
- International PGPs
- *Ting Wu and the Wu Lab (Department of Genetics Harvard Medical School)
- Jason Bobe (The Resilience Project, Mount Sinai Health System)

* Ting Wu had the original idea - and got this whole project in motion!



Questions? Suggestions?
How can we help?

