

---

## Current Position

- 2013— J. David Gladstone Institutes at UCSF  
Bioinformatics Fellow, Prof. Katherine S. Pollard Lab

## Academic History

- 2012—13 Lewis-Sigler Institute for Integrative Genomics, Princeton University  
Postdoctoral Fellow, Prof. Olga G. Troyanskaya Lab
- 2005—12 Dept. of Molecular Biology, Princeton University  
Ph.D. in Molecular Biology, Specialization in Quantitative and Computational Biology  
*Thesis: Inferring Metabolic Regulation from High-Throughput Data*  
*Advisors:* Prof. Joshua D. Rabinowitz, Prof. Olga G. Troyanskaya  
*Committee:* Prof. Ned S. Wingreen, Prof. David Botstein
- 2005 Dept. of Biology, Harvard College  
A.B. in Biology

## Peer-Reviewed Publications

1. Patrick H. Bradley, Patrick A. Gibney, David Botstein, Olga G. Troyanskaya, Joshua D. Rabinowitz. “Minor isozymes tailor yeast metabolism to carbon availability.” *mSystems*, accepted. Preprint at <https://doi.org/10.1101/394056>.
2. Patrick H. Bradley, Stephen Nayfach, Katherine S. Pollard. “Phylogeny-corrected identification of microbial gene families relevant to human gut colonization.” *PLoS Comput Biol*, 2018; **14**(8): e1006242.
3. Patrick H. Bradley, Katherine S. Pollard. “Proteobacteria explain significant functional variability in the human gut microbiome.” *Microbiome*, 2017; **5**: 36.
4. Stephen Nayfach, Patrick H. Bradley, Stacia K. Wyman, Timothy J. Laurent, Alex Williams, Jonathan A. Eisen, Katherine S. Pollard, Thomas J. Sharpton. “Automated and accurate estimation of gene family abundance from shotgun metagenomes.” *PLoS Comput Biol*, 2015; **11**(11): e1004573.
5. Amy A. Caudy, Yuanfang Guan, Yue Jia, ..., Patrick H. Bradley, ..., Olga G. Troyanskaya, Maitreya J. Dunham. “A new system for comparative functional genomics of *Saccharomyces* yeasts.” *Genetics*, 2013 Sep; **195**(1):275-87.
6. Patrick A. Gibney, Mark J. Hickman, Patrick H. Bradley, John C. Matese, David Botstein. *G3* (Bethesda). “Phylogenetic portrait of the *Saccharomyces cerevisiae* functional genome.” 2013 Aug 7; **3**(8):1335-40.
7. Maja M. Klosinska, Christopher A. Crutchfield, Patrick H. Bradley, Joshua D. Rabinowitz, James R. Broach. “Yeast cells can access distinct quiescent states.” *Genes Dev*, 2011 Feb 15; **25** (4), 336-349.
8. Viktor M. Boer, Christopher A. Crutchfield, Patrick H. Bradley, David Botstein, Joshua D. Rabinowitz. “Growth-limiting intracellular metabolites in yeast growing under diverse nutrient limitations.” *Mol Biol Cell*, 2010; **21**, 198-211
9. Patrick H. Bradley, Matthew Brauer, Olga Troyanskaya, Joshua D. Rabinowitz. “Coordinated concentration changes of transcripts and metabolites in *Saccharomyces cerevisiae*.” *PLoS Comput Biol*, 2009; **5**(1): e1000270

## Manuscripts In Review

1. Patrick H. Bradley, Katherine S. Pollard. “*phylogenize*: a web tool to identify microbial genes underlying environment associations.” Submitted. Preprint at <https://doi.org/10.1101/425231>.

## Ongoing Research Projects

- *Metabolism of a common chemotherapeutic drug by the gut microbiome.* Collaboration with Peter Spanogiannopoulos and Peter Turnbaugh.
- *Accurately linking genetic variants in the microbiome to host phenotypes.* Collaboration with Jason Shi, Stephen Nayfach, and Calla Martyn.

## Invited Talks and Seminars

- 2018 Dept. of Biological Sciences, Lehigh University, Bethlehem, PA.
- 2018 Dept. of Microbiology and Immunology, Geisel School of Medicine, Dartmouth University, Hanover, NH.
- 2018 Analysis of Multimodal Cohort Datasets Workshop, Chan-Zuckerberg Initiative, San Francisco, CA.
- 2017 UCSF Diabetes & Obesity Retreat, Santa Cruz, CA.
- 2017 Dartmouth Lung Biology Center, Dartmouth University, Hanover, NH.

## Contributed Conference Talks

- 2017 Second Workshop on Statistical and Algorithmic Challenges in Microbiome Data Analysis. Simons Center for Data Analysis and MIT Center for Microbiome Informatics and Therapeutics, Boston, MA.
- 2015 Probabilistic Modeling for Genomics. Cold Spring Harbor, NY.
- 2014 Keystone Meeting on Exploiting and Understanding Chemical Biotransformations in the Human Microbiome. Big Sky, MT.
- 2009 Highlights Track, Intelligent Systems for Molecular Biology (ISMB). Stockholm, Sweden.
- 2008 Databases and Computation Tools workshop, Yeast Genetics and Molecular Biology Meeting. Toronto, CA.

## Awards and Honors

- 2018 Gladstone Above and Beyond Award
- 2017 Gladstone Convergence Zone Awards of Excellence: Leadership Award
- 2009 Intelligent Systems for Molecular Biology (ISMB) Travel Fellowship: Stockholm, Sweden
- 2008 Intelligent Systems for Molecular Biology (ISMB) Travel Fellowship: Toronto, ON, Canada
- 2006 NSF Graduate Research Fellowship Program, honorable mention
- 2004 Harvard College Research Program (HCRP) grant
- 2003 University of Vermont Summer Undergraduate Research Experience (SURE) grant
- 2001 National Merit Scholarship

## Mentoring Experience

- 2016 Supervised summer undergraduate intern, Pollard lab, Gladstone Institutes. Project: predicting disease status with taxonomic and functional information.
- 2014 Supervised summer undergraduate intern, Pollard lab, Gladstone Institutes. Project: detecting spatial organization of environmental microbes and microbial gene functions. Both interns were recruited through the PUMAS (Promoting Underrepresented Minorities Advancing in the Sciences) program at the Gladstone Institutes.
- 2010 Supervised two rotation students in the Quantitative and Computational Biology program at Princeton University. Project: integrating structural similarity into gene function prediction pipelines.

- 2010 Supervised summer undergraduate intern, Rabinowitz lab, Princeton University. Project: comparative analysis of pathway regulation in yeast and *E. coli*.
- 2009 Supervised summer undergraduate intern, Rabinowitz lab, Princeton University. Project: finding patterns in transcriptional and metabolic regulation in yeast.

## Teaching Experience

- 2018 Invited lecturer, “The Human Microbiome” mini-course.  
Lectured on analyzing shotgun metagenomics data to UCSF graduate students, then led a bioinformatics lab in which students analyzed and visualized shotgun data from a case-control study of the inflammatory bowel disease gut microbiome.
- 2017, '18 Invited lecturer, “Computational Immunology” mini-course.  
Introduced computational techniques for the analysis of metagenomic sequencing data to UCSF graduate students.
- 2017 Discussion leader, “Computational Immunology” mini-course.  
Led discussion section on selected papers in the field of data analysis for the microbiome.
- 2008–09 Assistant in instruction, “Experimental Project Laboratory in Quantitative and Computational Biology.”  
Co-supervised undergraduates undertaking independent, self-directed research projects on the genetics of aging in *C. elegans*. Lectured on epistasis and statistical data analysis.
- 2006–07 Assistant in instruction, “An Integrated, Quantitative Introduction to the Natural Sciences III.”  
Led precepts (weekly lecture/discussion sections) and problem sessions (weekly mandatory office hours) on topics in biochemistry, organic chemistry, molecular biology and genetics.

## Academic Service

- 2018 Moderator, “Out In Science” panel discussion.  
Led discussion centering on issues of representation, equity, and the intersection of multiple identities for LGBTQ scientists.
- 2018– Founding member, Gladstone LGBTQ+ Association.
- 2016– Co-organizer and presenter, statistics club (Gladstone Institutes).  
Co-organized and presented at biweekly reading group on advanced methods in biostatistics, covering probabilistic graphical models and non-parametric Bayesian methods.
- 2014– Member, UCSF Graduate Queer Association.  
Planned social and professional events for LGBTQ scientists at UCSF and the Gladstone Institutes, including invited talks and “Out In Science” panel discussions.
- 2008 Co-organizer and presenter, statistics self-study group (Princeton University).

### REFEREE FOR THE FOLLOWING JOURNALS:

- 2018 *GigaScience*
- 2017–19 *Microbiome* (3 manuscripts reviewed)
- 2017 *PLoS Computational Biology*
- 2011 *Biophysica et Biochemica Acta: General Subjects*
- 2007–19 *Bioinformatics* (24 manuscripts reviewed)

### CO-REFEREE FOR THE FOLLOWING JOURNALS:

- 2017 *Nature Microbiology*
- 2017 *Science*
- 2016 *PLoS ONE*
- 2011 *PLoS Computational Biology*
- 2010 *Genome Biology*

## References

**Prof. Katherine S. Pollard**

Director and Senior Investigator, Convergence Zone, Gladstone Institutes  
Chan-Zuckerberg Biohub Investigator  
Professor, Epidemiology and Biostatistics, University of California San Francisco  
E-mail: [katherine.pollard@gladstone.ucsf.edu](mailto:katherine.pollard@gladstone.ucsf.edu)

**Prof. Joshua D. Rabinowitz**

Professor, Chemistry and Integrative Genomics, Princeton University  
E-mail: [joshr@princeton.edu](mailto:joshr@princeton.edu)

**Prof. Olga G. Troyanskaya**

Professor, Computer Science and Integrative Genomics, Princeton University  
Deputy Director of Genomics, Center for Computational Biology, Simons Foundation  
E-mail: [ogt@princeton.edu](mailto:ogt@princeton.edu)

**Prof. Peter J. Turnbaugh**

Associate Professor, Microbiology and Immunology, University of California San Francisco  
Chan-Zuckerberg Biohub Microbiome Initiative Investigator  
E-mail: [Peter.Turnbaugh@ucsf.edu](mailto:Peter.Turnbaugh@ucsf.edu)