Preston Tasoff

UC Berkeley PhD Student

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Lab Websites: <https://banfieldlab.berkeley.edu/>

<https://eesa.lbl.gov/profiles/eoin-brodie/>

Education

**University of California Berkeley** August 2022 - ongoing

PhD Student – Environmental Science, Policy, and Management program

**Washington University in St. Louis** Grad. May 2020

* Major: Microbiology
* Honors: College Honors, Dean’s list (spring, fall 2017, fall 2018, 2020), GPA: 3.68/4.00

Research Experience

**UC Berkeley and Lawrence Berkeley National Laboratory** Berkeley, CA. Aug 2022–ongoing

PhD Student

* Studying climate change and ecosystem effects on soil microbiome and biogeochemistry of the East River SFA, Crested Butte, Colorado.
* PI: Jill Banfield (jbanfield@berkeley.edu), Eoin Brodie (elbrodie@lbl.gov)

**UCSF Benioff Center for Microbiome Medicine (BCMM)** San Francisco, CA. Aug 2020–May 2022

Researcher

* Year 1: Responsible for the development of the microbial genomics collaborative laboratory for BCMM. My role includes consultation and data generation on microbiome projects across UCSF. Research projects include 16s, RNA seq, and Shotgun Metagenomics.
* Administrative tasks include setting up business plan, aiding in method development, and ordering and keeping inventory on massive collection projects using airtable project management. I coordinate with the office of sustainability for reduced waste programs like an ice pack drive, and eco pipet tip campaign.
* PI: Susan Lynch (susan.lynch@ucsf.edu)

**NASA Jet Propulsion Laboratory** Pasadena, CA. Jun 2018–Aug 2022

Research Affiliate, Origins and Habitability Lab

* Year 1: Preformed DNA extraction, OTU analysis via Qiime, and Raman spectroscopy on salts to derive biosignature peaks and understand microbiomes in a Mars analogue-environments
* Year 2: Designed and preformed experiments to monitor microbial metabolism in Martian equivalent low water activities using electrical impedance spectroscopy
* Presentations during research group meetings, field expeditions, and presentations at conferences.
* Advisor: Scott Perl (scott.m.perl@jpl.nasa.gov)

**Metagenomics Laboratory, Wash U Med. School** St. Louis, Mo. Jan 2018–Jan 2019.

Research Assistant, Dantas Lab

* Screened metagenomes of UTI pathogens for antibiotic resistance using Shell-based bioinformatic tools to report in a clinical case study authored by me. Actively participated in lab meetings with questions and shadowed multiple researchers to gain a broader knowledge of microbiome research
* Advisor: Gautam Dantas (dantas@wustl.edu)

 **Phagehunters**  St. Louis, Mo. Sept 2016 – May 2017

Bioinformatics/Genomics research class on bacteriophage

* Published to Genebank for discovery and characterization of a novel bacteriophage. I preformed collection, isolation, TEM Imaging, assembly, functional annotation, and protein modeling of Bacteriophage BillNye

Skills

**Bioinformatics:** 16s RNA analysis via Qiime2, Dada 2, phyloseq, DESeq2, functional metagenomic assembly (SPADES, Prokka, Metapham, Shortbred, Humann2, Kraken2), functional annotation via HHPRED, Phyre2 protein modeling, DNAmaster, NCBI BLAST, ImageJ

**Laboratory Biology:** 16s, SHT metagenomics library prep, DNA and RNA extraction, cDNA from RNA, , PCR, qPCR, gel electrophoresis, SDS-PAGE, cell plating, plaque assays, microscopy, gram staining, UV workstation, Ultracentrifuge

**Geobiology:** AFM TERS Raman spectroscopy, XRD

**Field Research:** Sterile sample collection, cross contamination prevention, field geology analysis.

Scientific writing and poster making for published material.

**Computer/Design:** Proficient in R, Basic in Excel, Bash and Shell, Python, CAD. Proficient in Adobe In-design and Illustrator, PowerPoint.

**Language:** Fluent Conversational Hebrew

Grants and Awards

2019 Habitability Conference Big Sky MT Student Travel Grant, 2019 Astrobiology Science Convention Student Travel Grant, 2019 JPLSIP SURF Internship (California Institute of Technology), 2018 Washington University Career Center Unpaid Internship Stipend

Fieldwork and Expeditions

**East River, CO 2022**

* Preliminary survey of the East River for future field work in PhD.

**Boulby Mine, UK 2020**

* Mine Analogue Research event with UK center for astrobiology and NASA, sample collection of ancient salt-lake for metagenomics work

**Dead Sea, Israel 2019**

* Sample collection of modern salt-lake using sterile techniques

**Mono Lake, California 2018**

* Employed sterile techniques to obtain thermophiles in hot springs of soda lake, used for in situ Digital Holographic Microscopy at site and for future metagenomics work

Publications

1. Geil R. Merana, Laura R. Dwyer, Miqdad O. Dhariwala, Antonin Weckel, Jeanmarie R. Gonzalez, Joy N. Okoro, Jarish N. Cohen, Courtney M. Tamaki, Jungmin Han, **Preston Tasoff**, et al. (2022). “Intestinal inflammation alters the antigen-specific immune response to a skin commensal.” *Cell Reports Open Access*.
2. Rampersaud, R., **Tasoff, P.**, et al. (in prep) “Gut microbiome effects on kynurenine pathway in depression.” UCSF.
3. **Tasoff P.,** Perl, S.M. (in prep) “Temporal bottle effects on microbiome in mars analogue sample return containers.” NASA-JPL/UCSF.
4. Geil Ramvielle Merana; Laura Rachel Dwyer; Miqdad Onali Dhariwala; Antonin Weckel; Jeanmarie Rose Gonzalez; Joy N Okoro; Jarish N. Cohen; Courtney M Tamaki; Jungmin Han; **Preston Tasoff**; Yasmin Palacios-Calderon; Connie W. Y. Ha; Susan V Lynch; Julia A Segre; Kong H Heidi; Michael G Kattah; Averil Ma; Tiffany C Scharschmidt. (2022) “Intestinal inflammation breaks established immune tolerance to a skin commensal.” *Cell Press Community.*
5. Perl, S.M., Celestian, A. J., Seuylemezian, A., Baxter, B.K., **Tasoff, P.**, Vaishampayan, P.A., Corsetti, F.A. (2021 in review) “Evaporitic Preservation of Modern Carotenoid Biomarkers and Halophilic Microorganisms in Martian Analogue Hypersaline Environments.” *Astrobiology*.
6. Eric C. Keen, **Preston Tasoff**, Tiffany Hink, Kimberly A. Reske, Carey-Ann D. Burnham, Gautam Dantas, Jennie H. Kwon, and Erik R. Dubberke (2020). “Microbiome restoration by RBX2660 does not preclude recurrence of multidrug-resistant urinary tract infection following subsequent antibiotic exposure: A case report
Open Forum Infectious Diseases.” *Open Forum Infectious Diseases*.
7. Grinwald, M.F., **Tasoff, P.**, Simpson, K.F., Vasser, A., Shaffer, C.D., Weston-Hafer, K.A., Russell, D.A., Pope, W.H., Jacobs-Sera, D., Hendrix, R.W. and Hatfull, G.F. (2018) “Streptomyces Phage Billnye, Complete Genome.” *Nucleotide*, GenBank: MG757153.1.

Publications (Abstracts and Posters)

1. Leung, C., **Tasoff, P.,** (2021) "Relationships Among Gut Microbiota, Diurnal Cortisol, and Depressive Symptoms of Adolescents." Sigma's 33rd International Nursing Research Congress.
2. Vaibhav Upadhyay, **Preston Tasoff**, Yulin Hswen, Victoria Murray, Cecilia Noecker, Jordan E Bisanz, Joel Babor, Matthew Spitzer, Susan Lynch, Sulggi Lee, Peter J Turnbaugh. (2021) “Persistent Changes in the Gut Microbiome of COVID-19 Survivors.” Microbiome Virtual International Forum n.4.
3. **Tasoff P.**, Perl S.M., Chin K.B., Desai P., Cockell C.S. (2019) “Survivability of Chemotrophic Microorganisms in Martian Analogue Water Activities.” 2019 Fall Washington University Undergraduate Research Symposium.
4. **Tasoff P.**, Perl S.M., Chin K.B., Desai P., Cockell C.S. (2019) “Survivability of Chemotrophic Microorganisms in Martian Analogue Water Activities.” The First Billion Years: Habitability Conference, Abstract #1029, Big Sky, Montana.
5. **Tasoff, P.,** Perl, S.M., Chin, K. (2019) Survivability of Chemolithotrophic Microorganisms in Martian Analogue Water Activities. Astrobiology Science Conference, Abstract #478299 Bellevue, Washington.
6. Perl, S.M., Baxter, B.K., Celestian, A.J., Cockell, C.S., Sessions, A.L., **Tasoff, P.**, Crucilla, S.J., Corsetti, F.A. (2019) Mineral preservation and photoprotective attributes of halophilic organisms in planetary analogue lake bed environments. Astrobiology Science Conference, Abstract #479957 Bellevue, Washington.
7. Perl, S.M., Celestian, A.J., Baxter, B.K., **Tasoff, P**. (2019) Chemical Biomarker Robustness in Martian Analogue Evaporite Mineralogy. 50th Lunar and Planetary Science Conference, Abstract # 2930, Lunar and Planetary Institute, Houston.
8. Perl, S.M.,Celestian, A.J., **Tasoff, P.**, Seuylemezian, A., Cockell, C.S., Baxter, B.K., Vaishampayan, P.A., Corsetti, F.A. (2018) Permian evaporite preservation of chemical biomarkers: Implications for in-situ hydrated mineral and hypersaline brine systems. *Committee on Space Research (COSPAR) conference*, in Biosignatures in the Solar System session. Pasadena, CA.
9. Grinwald, M, Simpson, K., **Tasoff, P**, Vasser, A, Hafer, K., Shaffer, C. “Isolation and Analysis of Novel Streptomyces Bacteriophage Billnye” 2017 Spring Washington University Undergraduate Research Symposium.

Work/Volunteer Experience