

AARON W. PURI, PH.D.

Department of Chemistry
Henry Eyring Center for Cell & Genome Science
University of Utah

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PROFESSIONAL EXPERIENCE

2019-Present Assistant Professor, Department of Chemistry, University of Utah
Faculty Member, Henry Eyring Center for Cell & Genome Science, University of Utah
2016 Visiting Researcher, University of California San Diego
Advisor: Pieter C. Dorrestein
2013-2018 Postdoctoral Research Associate, University of Washington
Advisors: Mary E. Lidstrom and E. Peter Greenberg (beginning 2016)
2012 Research Intern, DuPont Industrial Biosciences (Formerly Genencor, Inc.)
2008-2013 Graduate Student, Stanford University School of Medicine
Advisor: Matthew Bogyo

EDUCATION

2008-2013 Stanford University School of Medicine
Ph.D. Chemical & Systems Biology
2004-2008 University of Chicago
B.S. Biological Chemistry
B.A. Biological Sciences with Specialization in Immunology
B.A. Economics

AWARDS

2022 Utah Pathways to STEM (UPSTEM) Faculty Fellow
2022 National Institutes of Health Maximizing Investigators' Research Award
2016-2018 National Institutes of Health Pathway to Independence Award
2012 Stanford Graduate School of Business Ignite Fellow
2009-2012 Stanford School of Medicine SPARK Translational Research Program Scholar
2008-2011 National Science Foundation Graduate Research Fellow
2008 Phi Beta Kappa

FUNDINGActive**NIH NIGMS Maximizing Investigators' Research Award (R35 GM147018)**

07/01/2022-06/30/2027

Methylophs: underexplored bacteria for discovering novel natural products and biochemistry

Role: PI

Completed**University of Utah 3i Team Building Grant**

2022-2023

Role: Co-I with R. Looper, E. Schmidt, K. Hughes

NIH NIGMS Pathway to Independence Award (R00 GM118762)

06/01/2019-05/31/2023 (No-cost extension)

Methane-Oxidizing Bacterial Communities: A Novel Source of Bioactive Chemical Diversity

Role: PI

Completed (continued)**DOE Joint Genome Institute Functional Genomics Community Science Program (507288)**
2021*Cataloging quorum sensing signal diversity in carbon cycling microbial communities*

Role: PI (Co-I's A. Schaefer, D. Pelletier)

Total Requested: DNA synthesis, metabolomics services

TEACHING

2020-Present	CHEM/BIOL 3520	Biological Chemistry II
2020-Present	CHEM 7240	Physical Organic Chemistry I
2020	CHEM 5350	The Ethical Pursuit of Research
2019	CHEM 5570	The Ethical Pursuit of Research

DEPARTMENT SERVICE

2023	Chemistry Dept. Postdoc Professional Development Panelist
2022-2023	Chemistry Dept. Faculty Search Committee
2022	Chemistry Dept. Lecturer Search Committee
2021	Chemistry Dept. Graduate Education Committee, Biological Chemistry Course Advisor
2021	Chemistry Dept. Strategic Planning Committee
2019-Present	Chemistry Dept. Graduate Admissions Committee Member
2019-Present	Optical Core Facility Faculty Representative
2019-2021	Chemistry Dept. Graduate Recruiting Committee Member
2019, 2021	Chemistry Dept. Representative at SACNAS National Diversity in STEM conference
2019	University of Utah Postdoc Poster Competition Judge
2019	Chemistry Dept. Research Experiences for Undergraduates Summer Program Speaker

UNIVERSITY SERVICE

2021-Present	Biological Chemistry Program Department Representative
2020-Present	Biological Chemistry Program Capstone Exam Evaluator (3-4/year)
2020-Present	Undergraduate Research Opportunities Program Application Reviewer (10-15/year)
2019, 2023	University of Utah Postdoc "Choosing Academia" Panelist
2019	University of Utah Science Day Planning Committee Member

PROFESSIONAL SERVICE

2022	Ad Hoc Grant Reviewer, National Science Foundation Division of Integrative Organismal Systems
2021-Present	American Society of Pharmacognosy Social Media Committee
2019-Present	Manuscript Reviewer (3-5/year) ACS Chemical Biology, mBio, Applied & Environmental Microbiology, Biochemistry, Current Opinion in Chemical Biology, Environmental Microbiology, Metabolic Engineering, Microbial Cell Factories, Microbiology Spectrum, Scientific Reports, American Society for Microbiology Press (textbook chapter)

PROFESSIONAL SOCIETIES

American Chemical Society
American Society for Microbiology
American Society of Pharmacognosy
Society for Industrial Microbiology and Biotechnology

MENTORINGGraduate Students (Present position)

2024-Present	Iqra Ilyas, Chemistry
2023-Present	Tashi Liebergesell, Chemistry
2023-Present	William McTaggart, Chemistry
2022-Present	Katie Bates, Chemistry
2021-Present	Michael Wallace, Chemistry
2021-Present	Jose Miguel Robes, Chemistry

2021-Present Rachel Hurrell, Chemistry
 2020-Present Delaney Beals, Chemistry
 2019-2022 Dale Cummings, Chemistry (Lecturer, Northern Arizona University)

Postdoctoral Researchers (Present position)

2019-2020 Diana Saavedra (doTERRA International)

Research Associates (Present position)

2024-Present Victoria Medvedeva
 2022-2023 Ethan Murdock (MD Student, University of Utah School of Medicine)
 2019 Darren Liu (MD/MS Student, Cleveland Clinic, Case Western Reserve University)

Undergraduate Students (Present position)

UROP: Research funding award from University of Utah Undergraduate Research Opportunities Program
REU: Research funding award from NSF Research Experiences for Undergraduates program

2023 Abigail Czarnecki, Summer REU Student from Shippensburg University
 2023-Present Samantha Morris, Biology; UROP
 2022 Sarah Villedelgado, Summer REU Student from William & Mary College (BrightView Health)
 2022-2023 Yizhou Wu, Chemistry
 2022-Present Maddox Riewald, Chemistry; 2X UROP
 2022-2023 JC Herrmann, Chemistry; 2X UROP, REU (ARUP Laboratories)
 2021-2023 Victoria Medvedeva, Chemistry; 2X UROP, REU (Research Associate, Puri Lab)
 2021-2023 Jackson Munn, Chemistry; UROP (PhD Student, University of Utah)
 2021 Abigail Monahan, Summer REU Student from Skidmore College (Fulbright Scholar)
 2020-2022 Ethan Murdock, Chemistry; 2X UROP (MD Student, University of Utah)
 2019-2022 Henry Ponce-Orellana, Chemical Engineering; 2X UROP, REU (Just-Evotec Biologics)
 2019-2021 Alice Snelling, Chemistry; 2X UROP (Patient Rep/Medical Assistant, UC San Francisco)
 2019-2020 Phat Duc (Billy) Nguyen, Chemistry; UROP (LabCorp)

STUDENT THESIS COMMITTEES

Name	Program	Degree	Advisor
Kevin Beaver	Chemistry	Ph.D.	S. Minter
Praneeth Bommisetti	Chemistry	Ph.D.	V. Bandarian
Hannah Burton	Chemistry	Ph.D.	J. Swanson
Colin Campbell	Chemistry	Ph.D.	J. Rainier
Eric Cheung	Biology	Ph.D.	J. Brown
Lori Digal	Chemistry	Ph.D.	A. Roberts
Justin Dingman	Chemistry	Ph.D.	C. Burrows
Mitchell Ellinwood	Chemistry	Ph.D.	R. Looper
George Ettenger	Chemistry	Ph.D.	R. Looper
Aubrey Hawks	Biology	Ph.D.	T. Karasov
Jiyeon Hyun	Biology	Ph.D.	H. Yoo
Noel Lacerna	Medicinal Chemistry	Ph.D.	E. Schmidt
Timothy McFadden	Chemistry	Ph.D.	S. Minter
Ian Merski	Chemistry	Ph.D.	J. Rainier
Madeline Meyer	Chemistry	Ph.D.	M. Hammond
Marcus Mifflin	Chemistry	Ph.D.	A. Roberts
Madeline Mumbleau	Chemistry	Ph.D.	M. Hammond
Saswata Nayak	Chemistry	Ph.D.	V. Bandarian
Angie Nguyen	Chemistry	Ph.D.	C. Burrows
Johan Reyers	Chemistry	Ph.D.	R. Looper
Alexandra Schmeltzer	Chemistry	Ph.D.	H. White

Zach Schwartz	Chemistry	Ph.D.	A. Roberts
Erykah Starr	Medicinal Chemistry	Ph.D.	A. Barrios
Youjung Sung	Medicinal Chemistry	Ph.D.	E. Schmidt
Aarthi Venugopalan	Medicinal Chemistry	Ph.D.	E. Schmidt
Alex Wade	Chemistry	Ph.D.	J. Rainier

PATENTS

1. Bender KO, Puri A, Shen A, & Bogyo M. Use of Small Molecules for the Treatment of *Clostridium difficile* Toxicity. U.S. Patent US20170128420A1. Issued January 8, 2019.

PUBLICATIONS

* = Puri Lab undergraduate student

= Puri Lab graduate student, postdoctoral research associate, or research associate

+ = Co-first authors

Underline = Corresponding author

Independent Career

25. Beals DG# & **Puri AW**. Methanotroph phenotypic heterogeneity in a methane-oxygen counter gradient. *ISME J*. In revision. (Preprint: <https://doi.org/10.1101/2023.10.05.561118>)

24. Wallace M#, Cummings DA Jr#, Roberts AG, & **Puri AW**. A widespread methylotroph acyl-homoserine lactone synthase produces an atypical quorum sensing signal that regulates swarming in *Methylobacterium fujisawaense*. *mBio*. 2024. 5(1):e0199923.

23. Suo Z, Cummings DA Jr#, **Puri AW**, Schaefer AL, & Greenberg EP. A *Mesorhizobium japonicum* quorum sensing circuit that involves three linked genes and an unusual acyl-homoserine lactone signal. *mBio*. 2023. 14(4): e0101023.

22. Nguyen NA, Cong Y, Hurrell RC#, Arias N, Garg N, **Puri AW**, Schmidt EW, & Agarwal V. A Silent Biosynthetic Gene Cluster from a Methanotrophic Bacterium Potentiates Discovery of a Substrate Promiscuous Proteusin Cyclodehydratase. *ACS Chem. Biol.* 2022. 17: 1577-1585.

21. Robes JMD#, Altamia MA, Murdock EG*, Concepcion GP, Haygood MG, & **Puri AW**. A conserved biosynthetic gene cluster is regulated by quorum sensing in a shipworm symbiont. *Appl Environ Microbiol.* 2022. 88: e00270-22.

20. GNPS Dashboard: Collaborative Analysis of Mass Spectrometry Data in the Web Browser. Petras D, Phelan VV, Acharya D, Allen AE, Aron AT, Bandeira N, Bowen BP, Belle-Oudry D, Boecker S, Cummings DA Jr#, Deutsch JM, Fahy E, Garg N, Gregor R, Handelsman J, Navarro-Hoyos M, Jarmusch AK, Jarmusch SA, Louie K, Maloney KN, Marty MT, Meijler MM, Mizrahi I, Neve RL, Northen TR, Molina-Santiago CM, Panitchpakdi M, Pullman B, **Puri AW**, Schmid R, Subramaniam S, Thukral M, Vasquez-Castro F, Dorrestein PC, & Wang M. *Nat Methods*. 2022. 19: 134-136.

19. Cummings DA Jr#, Snelling AI*, & **Puri AW**. Methylotroph Quorum Sensing Signal Identification by Inverse Stable Isotopic Labeling. *ACS Chem Biol.* 2021. 16: 1332-1338.

18. **Puri AW**. Specialized Metabolites from Methylotrophic Proteobacteria. *Curr Issues Mol Biol.* 2019. 33: 211-224. Review.

Prior to Independent Career

17. **Puri AW**, Liu D, Schaefer AL, Yu Z, Pesesky MW, Greenberg EP, Lidstrom ME. Interspecies chemical signaling in a methane-oxidizing bacterial community. *Appl Environ Microbiol.* 2019. 85(7). pii: e02702-18.

16. Fei Q, **Puri AW**, Smith H, Dowe N, & Pienkos PT. Enhanced biological fixation of methane for microbial lipid production by recombinant *Methylobacterium buryatense*. *Biotechnol Biofuels*. 2018. 11: 129.
15. **Puri AW**+, Mevers E+, Ramadhar TR+, Petras D, Liu D, Piel J, Dorrestein PC, Greenberg EP, Lidstrom ME, & Clardy J. Tundrenone: An Atypical Secondary Metabolite from Bacteria with Highly Restricted Primary Metabolism. *J Am Chem Soc*. 2018. 140(6): 2002-2006.
14. Gilman A, Fu Y, Hendershott M, Chu F, **Puri AW**, Smith AL, Pesesky M, Lieberman R, Beck DAC, & Lidstrom ME. Oxygen-limited metabolism in the methanotroph *Methylobacterium buryatense* 5GB1C. *PeerJ*. 2017 5: e3945.
13. **Puri AW**, Schaefer AL, Fu Y, Beck DA, Greenberg EP, & Lidstrom ME. Quorum Sensing in a Methane-Oxidizing Bacterium. *J Bacteriol*. 2017. 199(5) pii: e00773-16.
12. Yan X, Chu F, **Puri AW**, Fu Y, & Lidstrom ME. Electroporation-Based Genetic Manipulation In Type I Methanotrophs. Electroporation-Based Genetic Manipulation In Type I Methanotrophs. *Appl Environ Microbiol*. 2016. 82(7): 2062-9.
11. Gilman A, Laurens LM, **Puri AW**, Chu F, Pienkos PT, & Lidstrom ME. Bioreactor performance parameters for an industrially-promising methanotroph *Methylobacterium buryatense* 5GB1. *Microb Cell Fact*. 2015. 14(1): 182.
10. Bender KO+, Garland M+, Ferreyra JA, Hryckowian AJ, Child MA, **Puri AW**, Solow-Cordero DE, Higginbottom SK, Segal E, Banaei N, Shen A, Sonnenburg JL, & Bogyo M. A small-molecule antivirulence agent for treating *Clostridium difficile* infection. *Sci Transl Med*. 2015. 7(306): 306ra148.
9. Kalyuzhnaya MG, **Puri AW**, & Lidstrom ME. Metabolic engineering in methanotrophic bacteria. *Metab Eng*. 2015. 29: 142-52. Review.
8. **Puri AW**, Owen S, Chu F, Chavkin T, Beck DA, Kalyuzhnaya MG, & Lidstrom ME. Genetic tools for the industrially promising methanotroph *Methylobacterium buryatense*. *Appl Environ Microbiol*. 2015. 81(5): 1775-81.
7. **Puri AW** & Bogyo M. Applications of Small Molecule Probes in Dissecting Mechanisms of Bacterial Virulence and Host Responses. *Biochemistry*. 2013. 52(35): 5985-96. Review.
6. Xiao J, Broz P, **Puri AW**, Deu E, Morell M, Monack DM, & Bogyo M. A coupled protein and probe engineering approach for selective inhibition and activity-based probe labeling of the caspases. *J Am Chem Soc*. 2013. 135(24): 9130-8.
5. **Puri AW**, Broz P, Shen A, Monack DM, & Bogyo M. Caspase-1 activity is required to bypass macrophage apoptosis upon *Salmonella* infection. *Nat Chem Biol*. 2012. 8(9): 745-7.
4. Shen A, Lupardus PJ, Gersch MM, **Puri AW**, Albrow VE, Garcia KC, & Bogyo M. Defining an allosteric circuit in the cysteine protease domain of *Clostridium difficile* toxins. *Nat Struct Mol Biol*. 2011. 18(3): 364-71.
3. **Puri AW**, Lupardus PJ, Deu E, Albrow VE, Garcia KC, Bogyo M, & Shen A. Rational design of inhibitors and activity-based probes targeting *Clostridium difficile* virulence factor TcdB. *Chem Biol*. 2010. 17(11): 1201-11.
2. Topp S, Reynoso CM, Seeliger JC, Goldlust IS, Desai SK, Murat D, Shen A, **Puri AW**, Komeili A, Bertozzi CR, Scott JR, & Gallivan JP. Synthetic riboswitches that induce gene expression in diverse bacterial species. *Appl Environ Microbiol*. 2010. 76(23): 7881-4.

1. **Puri AW & Bogyo M.** Using small molecules to dissect mechanisms of microbial pathogenesis. *ACS Chem Biol.* 2009. 4(8): 603-16. Review.

MENTEE AWARDS

Name	Position	Award	Year
Tashi Liebergesell	Grad Student	PITCH Chemical Biology Training Grant Award	2023
Alice Snelling	Undergrad	Dept. of Chemistry Undergraduate Research Award	2022
Rachel Hurrell	Grad Student	NSF Graduate Research Fellowship Honorable Mention	2022
Dale Cummings	Grad student	NSF Graduate Research Fellowship Honorable Mention	2020

MENTEE ORAL PRESENTATIONS

Name	Position	Location	Year
Delaney Beals	Grad Student	Wind River Conference on Prokaryotic Biology (Estes Park, CO)	2023
Delaney Beals	Grad Student	West Coast Bacterial Physiologists Meeting (Virtual)	2022
Ethan Murdock	Undergrad	National Conference on Undergraduate Research (Virtual)	2022
Dale Cummings	Grad Student	West Coast Bacterial Physiologists Meeting (Virtual)	2022

INVITED OR SELECTED ORAL PRESENTATIONS

2023	Pacific University	Forest Grove, OR
2023	PITCH Chemical Biology Training Grant Retreat	Salt Lake City, UT
2023	Society for Industrial Microbiology and Biotechnology Annual Meeting	Minneapolis, MN
2023	Washington University in St. Louis	St. Louis, MO
2023	William and Mary College	Williamsburg, VA
2022	American Society of Pharmacognosy Webinar Series	Virtual
2022	University of Utah Microbial Pathogenesis Seminar Series	Salt Lake City, UT
2022	Stanford Alumni Night with Utah Chemistry (Keynote)	Salt Lake City, UT
2022	DOE Joint Genome Institute Genomics of Energy & Environment Meeting	Berkeley, CA
2022	One Carbon Metabolism/Lidstrom 70 th Birthday Symposium	Seattle, WA
2021	Arcadia Science	Berkeley, CA (Virtual)
2019	Pacific Lutheran University	Tacoma, WA
2019	University of the Philippines, Diliman	Quezon City, Philippines