

# DANA LYNN CARPER

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## CURRENT POSITION

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Oak Ridge National Laboratory, Oak Ridge, TN, Aug 2021-Present  
Senior Technical Professional - High-throughput omics and data science, Bioanalytical Mass Spectrometry Group, Biosciences Division

## RESEARCH INTERESTS

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Symbiosis, bacterial communities, plant-microbe interactions, nutrient cycling, community assemblage, genomics, metagenomics, proteomics, metabolomics, multi-omics, synthetic communities, RNA-seq analysis, R, python, data visualization, project management

## EDUCATION

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| <b>PhD</b> | University of California, Merced, Quantitative and Systems Biology<br>Dissertation: "Abiotic and biotic factors structuring the microbiomes of conifers in the family Pinaceae"<br>Advisor: Dr. A. Carolin Frank | Dec 2018 |
| <b>MS</b>  | California State University, Sacramento, Biology<br>Thesis: "A Comparative study of the bacterial communities in California vernal pools"<br>Advisor: Dr. Enid T. Gonzalez-Orta                                  | May 2013 |
| <b>BS</b>  | California State University, Sacramento, Biology<br>Graduate Magna Cum Laude<br>Concentration: Molecular Biology   | May 2011 |

## PROFESSIONAL APPOINTMENTS

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Oak Ridge National Laboratory, Oak Ridge, TN, Nov 2018-July 2021  
Postdoctoral Research Associate, Plant Systems Biology Group

Beta Hatch Inc., Seattle, WA, Nov 2017-Jan 2018  
Freelance Data Consultant

## PUBLICATIONS

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### *Journal Publications*

Beals, D.G. \*, **Carper, D.L.\***, Hochanadel, L.H., Jawdy, L.H., Klingeman, D. M., Piatkowski, B.T., Weston, D.J., Doktycz, M.J., and D.A. Pelletier. Genomic

signatures in *Variovorax* enabling colonization of the *Populus* endosphere. **Accepted mSystems \*Co-first Authors**

Xie, Y., Chen, G., Keller, M.J., Wong, B.M., Ramierz, D., Swift, C.M., **Carper, D.L.**, Abraham, P.E., Stai, A.J., Hettich, R.L., May, A.L., Campagna, S.R., LaFond, J.A., Guelfo, J.L., Thapalia, A., Key, T.A., and F.E., Löffler. Bacteria covalently incorporate polyfluoroalkyl carboxylates into membrane lipids. **Accepted Nature Microbiology**

Onufrak, A.J., Carrell, A.A., **Carper, D.L.**, Klingeman, D.M., Hollander, A.D., Rush, T.A., Cregger, M.A., and J. Tannous. Microbial diversity limits belowground colonization of *Sphaerulina musiva*. **Accepted PhytoFrontiers**

**Carper, D.L.**, Trinh, C.T., and R.J., Giannone. Proteomic Analysis of the Oleaginous Yeast *Yarrowia lipolytica*. In *Yarrowia lipolytica: Methods and Protocols*. **Accepted book chapter**

Werner, A.Z., Giannone, R.J., Keller, M., Plavchak, C., **Carper, D.L.**, Abraham, P.E., Wilkes, R.A., Aristilde, L., Salvachúa, D., Williams, S.K.R., Hettich, R.L., and G.T. Beckham. 2025 *Pseudomonas putida* produces two distinct populations of membrane vesicles during growth on lignin. *Applied and Environmental Microbiology*, doi: 10.1128/aem.01617-25

Drufva, E.E., Cahill, J.F., Saint-Vincent, P.M.B., Williams, A.N., Bocharova, V., Capra, N., Meilleur, F., **Carper, D.L.**, Bourgerie, C., Miyazaki, K., Yonemura, M., Shiraishi, Y., Parks, J.M., Zhou, M., Dishner, I.T., Foster, J.C., Koehler, S.J., Valentino, H.R., Sedova, A., Kertesz, V., Vasileva, D.P., Hochanadel, L.H., Figg, C. A., Negoro, S., Kato, D, Chen, S.H., and J.K. Michener. 2025 Identification and characterization of substrate- and product-selective nylon hydrolases. *Chem Catalysis*, doi: 10.1016/j.checat.2025.101418

Appidi, M.R., Mudbhari, S., Cope, K., Jawdy, S.S., **Carper, D.L.**, Ösküz, E., Wang, X., Tschaplinski, T., Wang, M., Hettich, R.L., Kalluri, U., and P.E. Abraham. 2025 Dynamic rhizodeposition in the woody perennial *Populus trichocarpa*. *Plant, Cell & Environment*, doi: 10.1111/pce.70004

Armes, A., Schaefer, A.L., Hochanadel, L.H., Klingeman, D.M., **Carper, D.L.**, Abraham, P.E., York, L.M., Carrell, A.A., Doktycz, M.J., and D.A. Pelletier. 2025 Quorum sensing modulates microbial community structure through regulation of secondary metabolites. *mSphere*, doi: 10.1128/msphere.01050-24

Bocharova, V., Drufva, E.E., Cahill, J.F., Popov, I., Dishner, I.T., Zhou, M., Jung, G.S., Sacci, R.,L., **Carper, D.L.**, Damron J.T., Keum, J.K., Gianaru, C., Chen, S.H., Foster, J.C., and J.K., Michener. 2025 Factors Modulating the Hydrolysis of Nylon-6,6 by a Nylon Hydrolase Enzyme. *Polymer Chemistry*, doi: 10.1039/D5PY00023H

Feyissa, B.A., Lee, J., **Carper, D.L.**, Barry, K., Engle, N., Tschaplinski, T.J., Abraham, P.E., Weston, D.J., Muchero, W., Difazio, S., Tuskan, G.A., and J. Chen. 2025 Species-Specific Epigenetic Signature Associate with Heat Stress Tolerance in a Perennial Tree Species *Populus*. *GCB Bioenergy*, doi: 10.1111/gcbb.70033

Hren, A., Lollini, N., **Carper, D.L.**, Abraham, P.E., Cameron, J.C., Fox, J.M., and C. Eckert. 2025 Highly redundant CRISPRi screens reveal intermediate, adaptation-improving transcriptional changes in cyanobacteria. *Proc. Natl. Acad. Sci. U.S.A.*, doi: 10.1073/pnas.2412625122

Allemann, M.N., Kato, R., **Carper, D.L.**, Hochanadel, L.H., Alexander, W.G., Giannone, R.J., Kamimura, N., Masai, E., and J.K. Michener. 2025 Laboratory evolution in *Novosphingobium aromaticivorans* enables rapid catabolism of a model lignin-derived aromatic dimer. *Applied and Environmental Microbiology*, doi:10.1128/aem.02081-24

Feyissa, B.A., de Becker, E.M., Salesse-Smith, C.E., Zhang, J., Yates, T.B., Xie, M., De, K., Gotarkar, D., Chen, M.S.S., Jawdy, S.S., **Carper, D.L.**, Barry, K., Schmutz, J., Weston, D.J., Abraham, P.E., Tsai, C. Morrell-Falvey, J.L., Taylor, G., Chen, J., Tuskan, G.A., Long, S.P., Burgess, S.J., and W. Muchero. 2024 An Orphan Gene BOOSTER Enhances Photosynthetic Efficiency and Plant Productivity. *Developmental Cell*, doi: 10.1016/j.devcel.2024.11.002

Davin, M.K., Thompson, R.A., Giannone, R.J., Mendelson, L.W., **Carper, D.L.**, Martin, M.Z., Martin, M.E., Engle, N.L., Tschaplinski, T.J., Brown, S.D., and R.L. Hettich. 2024 *Clostridium autoethanogenum* alters cofactor synthesis, redox metabolism, & lysine-acetylation in response to elevated H<sub>2</sub>:CO feedstock ratios for enhancing carbon capture efficiency, *Biotechnology for Biofuels and Bioproducts*, doi: 10.1186/s13068-024-02554-w

**Carper, D.L.**, Lawrence T.J., Quiroz, D., Kueppers, L.M. and A. C. Frank. 2024 Needle bacterial community structure across the species range of limber pine, *ISME Communications*, doi: 10.1093/ismeco/ycae062

Grossman, A.S., Gell, D.A., Wu, D.G., **Carper, D.L.**, Hettich, R.L., and H. Goodrich-Blair. 2024 Bacterial hemophilin homologs and their specific type eleven secretor proteins have conserved roles in heme capture and are diversifying as a family. *J Bacteriol.* doi: 10.1128/jb.00444-23

Kertesz, V., **Carper, D.L.**, and J.F. Cahill. 2024 High-throughput mass spectrometry analysis using immediate drop-on-demand technology coupled with an open port sampling interface. *Rapid Commun Mass Spectrom.* doi:10.1002/rcm.9687

Hyden, B., **Carper, D.L.**, Abraham, P.E., Yuan, G., Yao, T., Baumgart, L., Zhang, Y., Chen, C., O'Malley, R., Chen, J., Yang, X., Hettich, R.L., Tuskan, G.A., and L.B. Smart. 2023 Functional analysis of *Salix purpurea* genes support roles for ARR17

and GATA15 as master regulators of sex determination. *Plant Direct*. doi: 10.1002/pld3.546

**Carper, D.L.**, Appidi, M.R., Mudbhari, S., Shrestha, H.K., Hettich, R.L., and P.E. Abraham. 2022 The promises, challenges and opportunities of omics for studying the plant holobiont. *Microorganisms*. doi: 10.3390/microorganisms10102013

Piatkowski, B.T., **Carper, D.L.**, Carrell, A.A., Chen, I.A., Clum, A., Daum, C., Eloe-Fradrosh, E.A., Foster, B., Gilber, D., Granath, G., Huntemann, M., Jawdy, S.S., Klarenberk, I.J., Kostka, J.E., Kyrpides, N.C., Lawrence, T.J., Mukherjee, S., Nilsson, M.B., Planaiappan, K., Pelletier, D.A., Pennacchio, C., Reddy, T.B.K., Roux, S. Shaw, J.A., Warshan, D., Živković, T., and D.J. Weston. 2022 Draft metagenome sequences of the *Sphagnum* (peat moss) microbiome from ambient and warmed environments across Europe. *Microbiol Resour Announc*. doi: 10.1128/mra.00400-22

Appidi, M.R., Bible, A.N., **Carper, D.L.**, Jawdy, S.S., Giannone, R.J., Hettich, R.L., Morell-Falvey, J., and P.E. Abraham. 2022 Development of an experimental approach to achieve spatially resolved plant root-associated metaproteomics using an agar-plate system. *Molecular Plant-Microbe Interactions*. doi: 10.1094/MPMI-01-22-0011-TA

Carrell, A.A., Lawrence, T.J., Cabugao, K.M., **Carper, D.L.**, Pelletier, D.A., Lee, J.H., Jawdy, S.S., Grimwood, J., Schmutz, J., Hanson, P.J., Shaw, A.J., and D.J. Weston. 2022 Habitat-adapted microbial communities mediate *Sphagnum* peatmoss resilience to warming. *New Phytol*. doi:10.1111/nph.18072

Carrell, A.A., Velockovic, D., Lawrence, T.J., Bowen, B., Louie, K.B., **Carper, D.L.**, Mitchell, H.D., Orr, G., Markillie, L.M., Jawdy, S.S., Grimwood, J., Shaw, J.A., Schumtz, J., Northen, T.R., Anderton, C.R., Pelletier, D.A., and D.J. Weston. 2021 Novel metabolic interactions and environmental conditions mediate the boreal peatmoss-cyanobacteria mutualism. *ISME* doi: 10.1038/s41396-021-01136-0

Shrestha, H.K., Appidi, M.R., Solis, M.I.V, Wang, J., **Carper, D.L.**, Burdick, L.H., Pelletier, D.A., Doktycz, M.J., Hettich, R.L., and P.E. Abraham. 2021 Metaproteomics reveal insights into microbial structure, interaction, and dynamic regulation in assembling synthetic communities as they respond to environmental disturbance. *BMC Microbiology* doi: 10.1186/s12866-021-02370-4

**Carper, D.L.**, Weston, D.J., Barde, A., Timm, C.M., Lu, T., Burdick, L.H., Jawdy, S.S., Klingeman, D.M., Robeson II, M.S., Veach, A.M., Cregger, M.A., Kalluri, U.C., Schadt, C.W., Podar, M., Doktycz, M.J., and D.A. Pelletier. 2021 Cultivating the Bacterial Microbiota of *Populus* Roots. *mSystems*. doi: 10.1128/mSystems.01306-20

Wang, J., **Carper, D.L.**, Burdick, L.H., Shrestha, H., Appidi, M., Abraham, P.E., Timm, C.M., Hettich, R.L., Pelletier, D.A., and M.J. Doktycz. 2021 Formation and

characterization of emergent microbial communities. *Computational and Structural Biotechnology Journal*. doi:10.1016/j.csbj.2021.03.034

Cregger, M.A., **Carper, D.L.**, Christel, S., Doktycz, M.J., Labbé, J., Michener, J., Morrell-Falvey, J., Muchero, W., Pelletier, D.A., Retterer, S., Tschaplinski, T.J., Tuskan, G.A., Weston, D.J. and C.W. Schadt. 2021 Plant-microbe interactions: from genes to ecosystems using *Populus* as a model system. *Phytobiomes* doi: 10.1094/PBIOMES-01-20-0009-FI

Lawrence, T.J., **Carper, D.L.**, Spangler, M.K., Carrell, A.A., Rush, T.A., Minter, S.J., Weston, D.J., and J.L. Labbé. 2020 amPEPpy 1.0: Portable and accurate antimicrobial peptide prediction tool. *Bioinformatics* doi: 10.1093/bioinformatics/btaa917

**Carper, D.L.**, Schadt, C.W., Burdick, L.H., Kalluri, U.C., and D.A. Pelletier. 2020 Draft genome sequence of *Tumebacillus* sp. Strain BK434, isolated from the roots of eastern cottonwood. *Microbiol Resour Announc* 9:1–2. doi: 10.1128/MRA.00351-20

**Carper, D.L.**, Lawrence, T.J., Carrell, A.A., Pelletier, D.A. and D.J. Weston. 2020. DISCo-microbe: Design of an identifiable synthetic community of microbes. *PeerJ*. 8:e8534. doi:10.7717/peerj.8534

**Carper, D.L.**, Carrell, A.A., Keuppers, L.M. and A. C. Frank, 2018. Bacterial endophyte communities in *Pinus flexilis* are structured by host age, tissue type and environmental factors. *Plant and Soil*. 428:335–352. doi: 10.1007/s11104-018-3682-x

Carrell A.A., **Carper, D.L.**, and A.C. Frank, 2016. Subalpine conifers in different geographic locations host similar foliar bacterial endophyte communities. *FEMS Microbiology Ecology*, 92(8):fiw124. doi: 10.1093/femsec/fiw124

Moyes, A.B., Kueppers, L.M., Pett-Ridge, J., **Carper, D.L.**, Vandehey, N., O’Neil, J., and A.C. Frank, 2016. Evidence for foliar endophytic nitrogen-fixation in a widely distributed subalpine conifer. *New Phytologist*. 210:657-668. doi: 10.1111/nph.13850

Lawrence, T.J., Kauffman, K.T., Amrine, K.C.H., **Carper, D.L.**, Lee, R.S., Becich, P.J., Canales, C.J., and D.H. Ardell, 2015. FAST: FAST Analysis of Sequences Toolbox. *Frontiers in Genetics*. 6:172. doi: 10.3389/fgene.2015.00172

### ***Journal Publications (In progress)***

Vasileva, D.P., Chhetri, H.B., Hochanadel, L.H., Streich, J.C., Lagergren, J.H., Lane, M.J., Öksüz, E., **Carper, D.L.**, Rubino, B., Chitwood, S., Schmitz, Z.D., Klingeman, D.M., Abraham, P.E., Giannone, R.J., Jacobson, D.A., and J.K. Michener. Genome shuffling enables quantitative trait locus mapping in *Bacillus subtilis*. **Submitted Science**

Yao, T., Shu, M., Qiao, Z., Ployet, R., Shrestha, H.K., Feyissa, B., Engle, N.L., Zhang, X., **Carper, D.L.**, Webb, A.B., Jawdy, S.S., Rottmann, W.H., Winkeler, K.A., Barry, K., Schmutz, J., Yang, X., Rush, T.A., Li, M., Morrell-Falvey, J.L., Abraham, P.E., Muchero, W., Tschaplinski, T.J., Tuskan, G.A., and J. Chen. Engineering ectomycorrhizal colonization in the poplar poor-host of *Laccaria bicolor* with PtLecRLK. **Submitted New Phytologist**

Qian, L., Dishner, I.T., **Carper, D.L.**, Kertesz, V., Zolnierczuk, N.T., Thiele, N.A., Cahill, J.F., Foster, J.C., and J.K. Michener. Enzymatic synthesis of diverse oligoamide polymer precursors. **Submitted Angewandte Chemie International Edition**

Qian, L., Dishner, I.T., Capra, N., **Carper, D.L.**, Ogbonna N., Kertesz, V., Cahill, J.F., Foster, J.C., and J.K. Michener. Regioselective biosynthesis of oligoamides as precursors for sequence-controlled co-polyamides. **Submitted Journal of the American Chemical Society**

Dooley, D., **Carper, D.L.**, Giannone, R.J., and C.T. Trinh. Proteome Reallocation Reveals Dynamics and Mechanisms of Phage Infection and Defense in *Staphylococcus aureus*. **Submitted PNAS**

Wilkes, R.A., Suthers, P., Borchert, A.J., Callaghan, M., Thusoo, E., Giannone, R.J., **Carper, D.L.**, Hendry, J.I., Benson, A., Gapuz, M., Merrill, A.N., Ramirez, K.L., Salvachúa, D., Hettich, R.L., Maranas, C., Amador-Noguez, D., Beckham, G.T., and A.Z. Werner. *Pseudomonas putida* reconfigures metabolic fluxes to support the energetic demands of muconate bioproduction from lignin-derived aromatics. **Submitted Nature Communications**

Bourgery, C., Zhang, L.X., **Carper, D.L.**, Zhou, M., Sacci, R.L., Korey, M., Wang, L., Hemond, J.H.B., Cahill, J.F., Bocharova, V., and J.K. Michener. Process optimization for enhanced enzymatic nylon deconstruction. **Submitted ChemSusChem**

## PRESENTATIONS AND INVITED LECTURES

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### *Workshops*

*Introduction to Scientific Computing: A Crash Course*

<https://tlawrence3.github.io/Introduction-to-Scientific-Computing/>

Presented by Travis J. Lawrence and **Dana L. Carper**, Sponsored by UC Merced Women in STEM, University of California Merced, Merced CA, Feb 2018

*Introduction to Scientific Computing: A Crash Course*

<https://tlawrence3.github.io/Introduction-to-Scientific-Computing/>

Presented by Travis J. Lawrence and **Dana L. Carper**, BOTANY 2017, Fort Worth TX, Jun 2017

## ***Presentations***

**Poster Presentation,** *A metaproteome assessment of microbiome changes following microbial invasion*, 72th ASMS Conference on Mass Spectrometry and Allied Topics, Anaheim CA, June 2024

**Poster Presentation,** *Metagenome, metatranscriptome, and metaproteome analysis of anaerobic microbiomes digesting senescent switchgrass across a gradient of pH, temperature, and retention times*, CBI Annual Meeting, Asheville NC, June 2023

**Poster Presentation,** *Metaproteomic evaluation of a bioinoculant establishment in a plant-agar system*, 2023 IS-MPMI Congress, Providence RI, July 2023

**Poster Presentation,** *Rapid absolute quantification of abundant proteins using LC-MS/MS: Rubisco as a case study*, 2023 Plant Biology, Savannah GA, June 2023

**Poster Presentation,** *Proteomic evaluation of a Populus species response to a microbial biofertilizer and subsequent invasion by a fungal pathogen*, 2022 Beneficial Microbes Conference, Madison WI, July 2022

**Poster Presentation,** *Integrated multi-omics evaluation of a Populus species response to a microbial biofertilizer and subsequent invasion by a fungal pathogen*, 70th ASMS Conference on Mass Spectrometry and Allied Topics, Minneapolis MN, June 2022

**Poster Presentation,** *Plant-Microbe Interfaces: Simplified community approach to investigate multiple levels of selection in a host-microbiome relationship*, Biological Systems Science Division (BSSD) Principal Investigators' Meetings of the Genomic Science Program, Virtual, February 2021

**Poster Presentation,** *A constructed community approach to understand bacterial community assembly in Populus*, Oak Ridge Postdoctoral Research Symposium, Virtual, July 2020

**Invited Talk,** *Understanding plant-microbial interactions using two model systems: Sphagnum and Populus*, Uppsala University, Uppsala, Sweden, January 2020

**Contributed Talk,** *A synthetic community approach to understanding the Poplar microbiome*, Ecological Society of America Annual Meeting, Louisville KY, August 2019

**Contributed Talk,** *A synthetic community approach to understanding the Poplar microbiome*, BOTANY 2019, Tucson AZ, July 2019

**Contributed Talk,** *A synthetic community approach to understanding the Poplar microbiome*, Rhizosphere5, Saskatoon, Canada, July 2019

**Invited Talk,** *Variations in the foliar microbial communities in Pinus flexilis (limber pine) across its native range*, Ecological Society of America Annual Meeting, New Orleans LA, Aug 2018

**Invited Talk,** *Bacterial endophyte communities in Pinus flexilis are structured by host age, tissue type and environmental factors*, QSB Annual Retreat, Host-Microbe Interaction Session, University of California, Merced, Merced CA, Apr 2018

**Invited Talk,** *Bacterial endophyte communities in Pinus flexilis are structured by host age, tissue type and environmental factors*, Ecological and Environmental Issues Undergraduate Seminar, California State University Sacramento, Sacramento CA, Nov 2017

**Contributed Talk**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, BOTANY 2017, Fort Worth TX, Jun 2017

**Invited Talk**, *Community Genomic: Applications in Endophytic Bacteria*, Topics in Environmental Systems: Ecological Genetics Graduate Course, University of California, Merced, Merced CA, Dec 2016

**Poster Presentation**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, Botany, Savannah GA, Aug 2016

**Poster Presentation**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, XVII Congress of the International Society for Molecular Plant-Microbe Interactions, Portland OR, July 2016

**Contributed Talk**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, 6<sup>th</sup> Annual Symbiosis Workshop, Yosemite CA, May 2016

**Poster Presentation**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, Joint Genome Institute Plant Microbe Interaction Symposium, Walnut Creek, CA, Apr 2016

**Poster Presentation**, *The effect of climate change and site on the above- and belowground bacterial communities in subalpine conifer seedlings*, Northern California Botanists Symposium, Chico CA, Jan 2016

**Contributed Talk**, *The bacterial endophytic communities associated with seedlings of high elevation pines*, 5<sup>th</sup> Annual Symbiosis Workshop, Yosemite CA, May 2015

**Poster Presentation**, *Bacterial endophytes within the needle and bud tissues of lodgepole pine (*Pinus contorta* ssp. *Muryanna*)*, 5th ASM Conference on Beneficial Microbes, Washington D.C, Sep 2014

**Poster Presentation**, *Endophytic bacterial communities in the aboveground tissue of subalpine conifers are conserved across host species and sites*, Ecological Society of America Annual Meeting, Sacramento CA, Aug 2014

**Poster Presentation**, *Endophytic bacterial communities in the aboveground tissue of limber and lodgepole Pine (*Pinus flexilis* and *Pinus contorta*)*, 1st annual UC Merced QSB Beautiful Systems Retreat, Midpines CA, May 2014

**Poster Presentation**, *Endophytic bacterial communities in the aboveground tissue of limber and lodgepole Pine (*Pinus flexilis* and *Pinus contorta*)*, 4<sup>th</sup> Annual Symbiosis Workshop, Yosemite CA, May 2014

**Poster Presentation**, *A comparative study of the bacterial communities in California vernal pool* California State University Program for Education and Research in Biotechnology Symposium, Anaheim CA, Jan 2013

**Poster Presentation**, *Bacterial diversity in California vernal pools*, California State University Program for Education and Research in Biotechnology Symposium, Orange County CA, Jan 2011

## HONORS AND AWARDS

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UC Merced QSB Graduate Student Travel Grant, \$800

2017

UC Merced QSB Summer Fellowship, \$6000	2017
UC Merced QSB Summer Fellowship, \$6000	2016
Northern California Botanists Symposium Student Travel Grant, \$100	2016
UC Merced QSB Graduate Student Travel Grant, \$800	2014
Valentine Eastern Sierra Reserve Graduate Research Grant, \$300	2014
CSUS, Delisile Funding for Graduate Research, \$200	2012
CSUS, Delisile Funding for Undergraduate Research, \$200	2010

## **TEACHING EXPERIENCE**

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University of California, Merced, Merced, CA <b>Teaching Assistant, Biology</b>	2013 to 2018
<ul style="list-style-type: none"> <li>• Taught discussion sections for genetics and genome biology</li> </ul>	
California State University, Sacramento, Sacramento, CA <b>Teaching Assistant, Biology</b>	2012 to 2013
<ul style="list-style-type: none"> <li>• Taught laboratory sections of introduction to molecular biology and a biology laboratory for non-majors</li> </ul>	
California State University, Sacramento, Sacramento, CA <b>Undergraduate Teaching Assistant, Biology</b>	2010
<ul style="list-style-type: none"> <li>• Assisted in teaching microbiology laboratory</li> </ul>	

## **PROFESSIONAL SERVICE**

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**Biosciences Division Technical Professional Representative**  
Oak Ridge National Laboratory, Dec 2023-Present

**Outreach Committee Lead**  
Women in Science and Engineering (WISE), 2022-2023  
Oak Ridge National Laboratory

**Contributed Oral Session Co-Organizer**  
Ecological Society of America General Meeting, 2018  
Session: Plant microbiomes in a changing world

**Student Representative**  
Quantitative and Systems Biology Admissions Committee, 2017  
University of California, Merced

**Mentor to Undergraduates**  
Women in STEM Club, 2017-2018  
University of California, Merced

**Peer-Reviewed Articles for:**

- PLoS One
- Frontiers in Biology
- Scientific Reports

## COMMUNITY SERVICE

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**Science Fair Judge**, DaVinci Art & Science Fair, Oak Ridge TN, Apr 2019

**Scientist Participant**, 21st Annual San Joaquin County Office of Education Dinner with a Scientist, Stockton CA, Nov 2017

**Scientist Participant**, 11th Annual Dinner with a Scientist, Merced CA, Apr 2017

**Lab Tour Guide**, University of California Merced Center for Educational Partnerships 8th Grade Lab Tours, Merced, CA, Mar 2017

**Science Fair Judge**, 59th Annual San Joaquin County Office of Education Science and Engineering Fair, Stockton CA, Feb 2017

**Scientist Participant**, 20st Annual San Joaquin County Office of Education Dinner with a Scientist, Stockton CA, Nov 2016

**Scientist Participant**, 10th Annual Dinner with a Scientist, Merced CA, Mar 2016

**Science Fair Judge**, 58th Annual San Joaquin County Office of Education Science and Engineering Fair, Stockton CA, Feb 2016

## COMPUTER SKILLS

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**Programming:** python, R, bash

**Applications:** Microsoft office suite, ImageJ, Mac Graphics

**Analysis:** Amplicon DNA, Metagenomes, RNA-Seq, proteomics

## SCIENTIFIC SOCIETY MEMBERSHIP

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American Society of Microbiology

American Society for Mass Spectrometry

Ecological Society of America

International Society for Molecular Plant-Microbe Interactions