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Education and Training

B.S. Microbiology, University College Dublin, Ireland	1996
Ph.D. Microbial Ecology, University College Dublin, Ireland	2001
Postdoctoral, Microbial Ecology, University of California, Berkeley	2002-2004
Postdoctoral, Molecular Microbiology, Lawrence Berkeley National Laboratory	2004-2005
UC Berkeley/Berkeley Lab, Leadership Development Program, UC Center for Executive Education, Haas School of Business	2010

Research and Professional Experience

Associate Adjunct Professor, University of California, Berkeley	2018-present
Senior Staff Scientist, Climate and Ecosystem Sciences, LBNL	2016-present
Deputy Division Director, Climate and Ecosystem Sciences	2015-present
Program Domain Lead, Environmental and Biological System Sciences, LBNL	2014-present
Program Lead – Ecosystems Biology	2014-present
Microbes-to-Biomes Initiative Science Lead	2014-present
Assistant Adjunct Professor, University of California, Berkeley	2012-2018
Staff Scientist, Lawrence Berkeley National Lab	2009-2016
Research Scientist, Lawrence Berkeley National Lab	2008-2009
Scientific Engineering Associate, Lawrence Berkeley National Lab	2005-2008
Postdoctoral Research Fellow, Lawrence Berkeley National Lab	2004-2005
Guest lecturer UC Berkeley (ESPM131, ESPM112)	2002-2012
Postdoctoral Research Fellow, University of California, Berkeley	2002-2004
Enterprise Ireland Graduate Research Fellowship, University College Dublin	1996-2000

Honors and awards

Director's Award for Exceptional Achievement	2016
Royal Netherlands Academy of Arts and Sciences, Visiting Professor	2014-2015
LBNL Outstanding Performance Award	2009
R&D 100 award for Berkeley Lab PhyloChip	2008
Wall Street Journal Technology Innovation Award (PhyloChip)	
- Winner Best New Technology (Environment Category)	2008
- Bronze Best New Technology (Overall)	2008
Pollution Engineering Magazine Number 1 New Technology for 2008 (PhyloChip)	2008
Promega Prize, Society for General Microbiology.	2001
Faculty of Science Graduate Symposium, UC Dublin.	2000
Enterprise Ireland Basic Research Award	1996-1999

Advisory Roles

University of Hawaii, Manoa, Hawaiian Watershed Microbiome Project	2019-present
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Scientific Advisory Board – DOE Environmental Molecular Sciences Laboratory	2017-2018
Excomm member – Earth and Environmental Sciences Area (LBNL)	2016-
Berkeley Lab Bayview Campus planning committee	2015-
Excomm member – Biosciences Area (LBNL)	2015-2018

Search committees

Environmental Genomics and Systems Biology Division Director	2015
Earth and Environmental Sciences Associate Lab Director	2015
Climate hydrology faculty joint hire with UC Davis	2016
Earth Sciences Division Director	2013

Service to scholarly journals

Editorial Board: mSystems	2015-2020
Editorial Board: Microbiome	2012-2018
Academic Editorial Board: Peer J.	2012-present
Associate Editor: Frontiers in Microbiology	2011-present

Reviewer for: Applied and Environmental Microbiology, Soil Biology and Biochemistry, Chemosphere, Journal of Microbiological Methods, Geomicrobiology Journal, Ecology Letters, Ecosystems, Molecular Ecology Notes, Fungal Ecology, Ground Water Monitoring and Remediation, Microbial Ecology, Frontiers in Microbiology, Frontiers in Earth and Environmental Sciences, FEMS Microbiology Ecology, Environmental Microbiology, BMC Genomics, PloS One, Genome Research, Environmental Science and Technology, Journal of Geophysical Research, Environmental Science and Pollution Research, Journal of Proteome Research, ISME Journal, PNAS, Philosophical Transactions of the Royal Society B, Nature Biotechnology, Nature Microbiology, Nature Geosciences, Nature.

Workshops and reports

Co-lead of DOE SBR Workshop on Open Watershed Science, Bethesda, MD	Jan 2019
Co-lead of working group on Big Data in Biology and contributor to DOE Exascale Requirements Review for Biological and Environmental Research report	
(http://exascaleage.org/ber/)	2016

Sessions convened at national meetings

“Macrosystems Ecology”, AGU Fall Meeting, San Francisco, December, 2015.
“Integrating Microbial Processes Into Ecosystem Models of Carbon and Nitrogen Cycling”, AGU Fall Meeting, San Francisco, December, 2012.
“Beyond the Black Box: Integrating Advanced Microbial Characterization Data with Subsurface Reactive Transport Models”, Computational Methods in Water Resources, XVII, San Francisco, July 2008.
“From Black Box to Can of Worms: Advances in Molecular Analysis of Microbial Communities” American Geophysical Union Fall Meeting December, San Francisco, December 2007.

Conferences organized

Complex Soil Systems Conference: A Path to Improved Understanding of Complex Soil Systems”. September 3-5th 2014, Berkeley, CA. Role: Conference Co-Chair

Proposal reviewing activities

NSF Career	2017
DOE JGI Community Sequencing Program	2011, 2013
DOE EMSL user program	2011, 2012

Israel Science Foundation	2011
DOE Science Graduate Fellowship	2010
UK National Environmental Research Council	2010, 2013
NSF Geobiology and Low-Temperature Geochemistry Program	2009, 2013
USDA NRICGP Soil Processes program	2008
DOE Experimental Program to Stimulate Competitive Research	2007

Invited panelist

White House Office of Science and Technology Policy: Cross Cutting Microbiome Initiative. Washington DC, December 2014, January 2015, September 2015

Kavli Futures Symposium. Technology and the Microbiome. Washington DC, December 2014, January 2015, April 2015.

DOE Modeling-Data needs workshop, Potomac, MD, May 2015.

Department of Energy-EMSL workshop on Multiscale Computation: Needs and Opportunities for BER Science. Washington, DC, August 2014.

Department of Energy Subsurface Biogeochemical Research workshop on Computational Challenges in Mechanistic Modeling of Terrestrial Ecosystems (CCMMTE), Germantown, MD, April 2014.

Department of Energy Genomic Sciences workshop on Systems Biology Research for Sustainable Bioenergy Production, Germantown, MD, October 2013.

National Science Foundation: “Microscale Approaches to Macroscale Issues in Terrestrial Ecosystem Ecology”, Washington DC, April 2007.

Department of Energy: “Carbon cycling and biosequestration”, Rockville, MD, March 2008.

“Novel Ecosystems and Climate Change”, in association with the Ecological Society of America Meeting in Albuquerque, NM, August 2009. Department of Energy, Climate Research Roadmap Workshop, Arlington, VA, May 2010.

Strategic planning and initiatives led

Microbes-to-Biomes (technical co-lead) – Berkeley Lab initiative in multi-scale microbiome science. https://m2b.lbl.gov/	2014-present
Earth and Environmental Sciences Strategic Vision 2025 – Lead of Earth’s Microbial Engines Grand Challenge (https://eesa.lbl.gov/about/strategic-vision-2025/earths-microbial-engines/)	2016-present
Joint Berkeley Initiative for Microbiome Science (Co-lead)	2018-present

Invited presentations

“Understanding the fitness of soil bacteria from genomes to traits”. Joint Genome Institute User Meeting, Oakland, CA, 2020 (postponed until 2021).

“The marvelous microbiome beneath your feet”. Bay Currents series hosted by Friends of Five Creeks, Albany, CA (postponed to 2021).

“Hundreds and thousands of genomes - what to do? How to scale?”. American Geophysical Union Fall Meeting, San Francisco, CA. December, 2019.

“Microbial life in soil: Signatures of niche adaptation and their application”. University of California, Merced, Environmental Systems Seminar, Merced, CA, March 2019.

“Genetic Signatures of Niche Adaptation in Soil Microorganisms”, Soil Science Society of America, International Soils Meeting, San Diego, CA, January 2019.

“Uncovering the metabolic processes driving microbial activity beneath the snowpack and mechanisms of microbial biomass turnover and nitrogen release following snowmelt”. American Geophysical Union, Washington DC, December 2018.

“Deciphering the signatures of niche adaptation in soil microbial communities”, International Phytobiomes Conference, Montpellier, France, December 2018

“Microbial life in soil and deciphering the signatures of niche adaptation”. Microbiomes from Different Habitats – Soil, Water and Gut – University of Nebraska, Lincoln, October 2018.

“Engineering of plant-microbiome-soil interactions” Workshop on Eco-Engineering of Life in Arid Landscapes: Discovering & constructing interactions along the plant-microbiome-soil continuum. Biosphere 2, AZ, May 2018.

“Landscapes, plants and microbes - from bedrock to canopy” UK Science and Innovation Network to a Roundtable on Precision Agriculture, British Consulate-General, San Francisco, April, 2018.

“Deciphering the functional traits of soil and subsurface microbes”, DOE Genomic Sciences PI meeting, Tyson’s Corner, VA. February 2018.

“Microbial traits and environmental filters in the formation of biogeochemical hotspots”, Advanced Light Source, Annual User Meeting, Berkeley, CA, September 2017.

“Microbial traits and their genomic origin in soil and subsurface systems”, National Institute of Mathematics and Biological Synthesis workshop on Pan-microbial trait ecology, Knoxville, TN, June 2017.

“Microbial traits, their genomic origin, and predictive value in soil and subsurface modeling”, Department of Microbiology, Ohio State University, Columbus, OH, April 2017.

“Modeling microbial community diversity and function: Scaling biological and system complexity”, DOE Environmental Systems Science, PI meeting, Potomac, MD, April 2017.

“Genome-informed trait based modeling of microbial communities in soil and subsurface systems”, Department of Earth System Science, Stanford University, Palo Alto, CA, May 2016.

“Reactive transport modeling in the genomic era”, Plenary presentation at DOE-BER SBR/TES Joint PI meeting, Potomac, MD, April 2016.

“Genome-Enabled Modeling of Biogeochemical Processes Predicts Metabolic Dependencies that Connect the Relative Fitness of Microbial Functional Guilds”, American Geophysical Union, Fall Meeting, San Francisco, CA, Dec 2015.

“Trait-based models as the nexus between environmental genomics and ecosystem biogeochemistry”, Ecology and Evolutionary Biology, University of Arizona, Tuscon, AZ, Dec 2015.

“Metagenomes to Models: Trait-based Approaches for Modeling Dynamic Microbial communities”, West Coast Bacterial Physiologists, Asilomar, CA, Dec 2015.

“Mmm... Soil! Microbes, minerals and models”, Soil Science Society of America Annual Meeting, Minneapolis, MN, November 2015.

“Traits, Thermodynamics and the Representation of Microbes in Biogeochemical Models”, UC Berkeley Microbiology Retreat, Berkeley CA November 2015.

“Trait-based models as the nexus between environmental genomics and ecosystem biogeochemistry”, Ecological Society of America Annual Meeting, Baltimore, MD, August 2015.

“Trait based modeling of microbial communities” Hopkins Microbiology Course, Pacific Grove, CA, June 2015.

“Genome-Enabled Reactive Transport Modeling of Microbial Communities in Terrestrial and Aquatic Environments”, American Society for Microbiology General Meeting, New Orleans, LA, June 2015.

“Microbiome and the Environment”. Kavli Futures Symposium, American Society for Microbiology, Washington DC, April 2015.

“Beyond The Blueprint: Development Of Genome-Informed Trait-Based Models For Prediction Of Microbial Dynamics And Biogeochemical Rates”, American Geophysical Union, Fall Meeting, San Francisco, CA, Dec 2014.

“Ecosystems Biology Approaches To Determine Key Fitness Traits of Soil Microorganisms”. American Geophysical Union, Fall Meeting, San Francisco, CA, Dec 2014.

“Functional metagenomic analysis of lignocellulosic degradation in wood feeding beetles”. Environmental Metagenomics Symposium, Wageningen, Netherlands, September 2014.

“Genome informed trait-based models for improved prediction of microbial dynamics and biogeochemical rates”, Ecological Society of America, Sacramento, CA, Aug 2014.

“Environmental microbiology research portfolio”, UCB Superfund Research Program Retreat, San Jose, June 2014.

“Genome-enabled watershed simulation capability – GEWaSC”, Plenary presentation at SBR/TES Joint PI meeting, Potomac, MD, May 2014.

“Challenges, advances and opportunities in modeling plant and microbial communities”, presentation at DOE-BER Computational Challenges in Mechanistic Modeling of Terrestrial Ecosystems (CCMMTE) with David Weston, Germantown, MD, April 2014.

“Challenges, advances and opportunities in modeling microbial communities”, presentation to DOE BER management, remote presentation, Germantown, MD, March 2014.

“Succession of phylogeny and function during plant litter decomposition”, Arizona State University, Tempe, AZ, November 2013.

“Single colony home with great potential and easy access to nearby carbon sources”. Advanced Light Source Science Café, Berkeley, CA, August 2013.

“Current topics in sequencing and the human microbiome”. Institute of Infectious Diseases and Molecular Medicine, University of Cape Town, South Africa, November 2012.

“Water Potential and the Life of a Soil Microbe”. Institute of Infectious Diseases and Molecular Medicine, University of Cape Town, South Africa, November 2012.

“Hope and Change: Water Potential and the Life of a Soil Microbe”. Department of Ecology & Evolutionary Biology, UC Irvine, CA November 2012.

“Challenges for Understanding and Modeling Carbon and Nutrient Cycling and Microbiological Processes in Terrestrial Ecosystems” Invited plenary session presentation at DOE Subsurface Biogeochemical Research program Annual PI meeting, Washington D.C. May, 2012.

“Mediterranean Grassland Soil Metagenome (MGSM): Enabling a systems view of soil carbon and nitrogen biogeochemistry under a changing climate” at DOE Joint Genome Institute, Community Sequencing Program, Plant-Soil-Microbe interaction workshop. January 2012, Walnut Creek, CA

“We know more about the movement of the celestial bodies than about the soil underfoot” at the Lawrence Berkeley National Laboratory, Life Sciences Division retreat, January 2012, Lafayette, CA.

Secrets of the Soil: Science at the Theater, November 2011, Berkeley Repertory Theater, Berkeley, CA.

“Distinct resuscitation patterns of soil microbes following early-season wet-up” at the 2011 Argonne Soils Workshop, October 2011, Indian Lakes, IL.

“Coordinating activities in climate related soils research at Berkeley Lab” at LBNL Earth Sciences Division Town Hall meeting, October 2011. Berkeley, CA.

“Top-down approaches to identifying conserved traits among soil microorganisms” at DOE Subsurface Biogeochemical Research program Annual PI meeting, April, 2011, Washington D.C.

“Understanding and predicting the response of soil microbial communities to global change”. DOE Genomic Sciences Contractor-Grantee Workshop, Session on Integrated Omics Approaches to Understand Environmental Processes February 2010, Washington D.C.

“Are There Predictable Soil Microbial Community Responses to Climate Change?” Subsurface Biosphere Initiative seminar series, College of Oceanic and Atmospheric Sciences, March 2009, Oregon State University, Corvallis, OR.

“PhyloChip: A high-density phylogenetic microarray for analysis of microbial community composition and activity”. Plant and Animal Genome XVII Conference, January 2009, San Diego, CA.

“Teasing apart a microbe’s life with help from the molecular toolbox”. Invited Plenary Presentation at NSF sponsored workshop “Microscale Approaches to Macroscale Issues in Terrestrial Ecosystem Ecology” April 2007, Washington DC.

“Molecular Tools in Environmental Microbiology”. Invited presentation. April 2007, Adjuntas, PR. Advances in Environmental Remediation, Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas, Programa de Biotecnología Industrial, Universidad de Puerto Rico – Mayaguez.

“Characterization and monitoring of prokaryotic communities using phylogenetic high density DNA microarrays (PhyloChip)”. April 2007, Adjuntas, PR. Advances in Environmental Remediation, Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas, Programa de Biotecnología Industrial, Universidad de Puerto Rico – Mayaguez.

“Microbial detection technologies using genetic signatures”. March 2007, Berkeley, CA. ASTAR Advanced Judicial Institute on Nanotechnology, Synthetic Biology and Environmental Biotechnology Platform B Workshop.

“Case Study: Monitoring aerosols for intentional release of agents: Tularemia fatality”. March 2007, Berkeley, CA. ASTAR Advanced Judicial Institute on Nanotechnology, Synthetic Biology and Environmental Biotechnology Platform B Workshop.

“Integration of the Omics, Bioinformatics and Biogeochemistry: A New Frontier for Environmental Biotechnology” at Battelle International Meeting on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA May 2006.

“Advances in Bioremediation of Soils and Sediments Polluted with Metals and Radionuclides: Field Research on Bioremediation of Metals and Radionuclides” also at Battelle International Meeting on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA May 2006.

“High Density Microarrays for Microbial Population Dynamics” presented to University of California, San Francisco, Department of Anesthesia and Perioperative Care and the Pulmonary and Critical Care Division, CA June 2006.

Short courses taught

Introduction to bioinformatics for metagenomics. Institute of Infectious Diseases and Molecular Medicine, University of Cape Town, South Africa, November 2012.

Introduction to bioinformatics for metagenomics. School of Life Sciences, Arizona State University, Tempe, AZ, November 2013

Membership in professional societies

Member of the American Society for Microbiology, American Geophysical Union, International Society for Microbial Ecology, International Society for Subsurface Microbiology. Ecological Society of America, Soil Science Society of America.

Teaching activities

Guest lecturer at University of California, Berkeley, Department of Environmental Science Policy and Management and Microbial Biology Program (Microbial Ecology, ESPM112)
Currently co-teach ESPM 131 – Soil Microbiology and Biogeochemistry (3 units)

Research supervision

Graduate students

Co-advisor: Heejung Cho, Ph.D. candidate, UCB-PMB (2014-present)

Committee: (Ph.D. thesis): Steven Blazewicz UCB-ESPM (graduated 2012). Erin Nuccio UCB-

ESPM (graduated 2013). Chris Brown UCB-PMB (graduated 2017). Alex Thomas UCB-ESPM (2017-present), Daniel Rath, UC Davis (2019-present).

Committee (quals): Neem Patel, Ph.D. candidate, UCB-PMB (2019), Daniel Rath, UC Davis, (2019), Alex Jaffe (2018), Alex Thomas, Ph.D. candidate, UCB-ESPM (2017). Manisha Anantharaman, Ph.D. candidate, UCB-ESPM (graduated). Steven Blazewicz UCB-ESPM (graduated 2012). Chris Brown UCB-PMB (graduated 2016)

Ad hoc research mentor to UC Berkeley doctoral candidates Eric Dubinsky (2004-2007), Kristen DeAngelis (2006-2007), David Johnson (2005-2007), Christine Sun (2006-2007), Karelyn Cruz (2005-2009), Patrick Lee (2006-2008), Kimberlee West (2006-2011), Sarah Placella (2005-2011), Kelly Wrighton (2006-2010), Nhu Nguyen (2006-2011).

Research mentor to: Alex Hangsterfer (2008-2010) Scripps Institution of Oceanography; Brandon Briggs, Oregon State University (2008-2011), Ana Maldonado-Contreras (University of Puerto Rico, Rio-Piedres, 2008-2011), Filipa Godoy-Vitorino, (University of Puerto Rico, Rio-Piedres, 2008-2011), Eva Lloret-Sevilla (Spanish National Research Council, 2010-2012). George Wells, Stanford University (2008-2009).

Mentor of DOE graduate student fellows: Catherine Fontana, Yale (2010-2012); Alex Chase UC Irvine (2018); Carolyn Anderson, U Mass. Amherst (2020-).

Mentor of Fulbright Student Fellow: Paolo Silva, University of Minho, Portugal (Jan 2018 – May 2018).

Mentor of National GEM Consortium fellow: Ileana Callejas, MS student, UCLA (Summer 2019).

Postdoctoral fellows

- Hannah Naughton (NSF postdoctoral fellow, Sept 2020-)
- Gianna Marschmann (Jan 2019-present)
- Ricardo Alves (August 2018-present)
- Dana Chadwick (NSF postdoctoral fellow, Oct 2017-present)
- Eva Lloret-Sevilla (Jan 2016-2018). Currently a Research Scientist in Spain
- Yiwei Cheng (July 2015-2018). Currently a Research Scientist at LBNL
- Eric King (2014-2019). Currently Faculty at Los Rios Community College, CA.
- Kateryna Zhalnina (2014-2019). Currently a Project Scientist at LBNL.
- Javier Ceja Navarro (2010-2014). Currently a Research Scientist at LBNL.
- Ulisses Nunes da Rocha (2011-2013). Currently Junior Group Leader Helmholtz Young Investigator, Helmholtz Centre for Environmental Research - UFZ Leipzig, Germany
- Mari Nyssonen (2010-2013). Currently a Scientist at VTT Technical Research Center of Finland
- Nicholas Bouskill (2009-2012). Currently a Research Scientist at LBNL.
- Ulas Karaoz (2008-2013). Currently a Research Scientist at LBNL.
- Ruyang Han (2008-2013). Currently CSO of MicroRem.
- Holly Ganz (UC Berkeley, 2007-2011). Currently CEO of AnimalBiome.

Visiting faculty

Mentor for Faculty (Arturo Massol) from the University of Puerto Rico through the DOE/NSF FaST program (June-August 2006), Steven Wakelin (CSIRO Australia, July 2008), Bjorn Johansson, Fulbright Fellow (U Minho, Portugal, September 2014-February 2015).

Undergraduate students

Supervisor of UC Berkeley undergraduate student interns, Seung Baek (2003-2005), Calvin Myint (2005-2006), Byron Ma (2007-2008), Tiffany Kwak (2009-2011), Marina Volegova (2010-2011). Sara Marie Komenan (LA Valley College – Transfer to Excellence Program, June – August 2012), Badamtseteg Jargalsaikhan (UC Berkeley, September 2012 to May 2013), Rozina Hossainkhalil (UC Berkeley, September 2012 to May 2013), Dinh Ly (UC Berkeley, September 2012 to May 2013), Severin Ouedraogo (UC Berkeley September 2012 to May 2013), Yen Nguyen (UC Berkeley, September 2012 to May 2013), Evin Wieser (UC Berkeley 2014-2015), Taivan Batjargal (UC Berkeley 2014-2015), Erica Dorr (UC Berkeley, 2014-2016), Matt Nisenboym (UC Berkeley 2015-2016), Alex Pollusa (2017-2018), Hans Wu Singh (2017-2019), Ryan Kenneally (2018-2019), Bizuayehu Whitney (2017-2019), Maceo Hart-Kapic (2018-2020), Jack Kim (2018-2020).

Undergraduate fellows

Mentor for undergraduate fellows through the DOE SURE GCEP summer fellowship program: Catherine Fontana, Albion College, MI, (2008); Christopher Lambert, University of Portland, (2009).

Mentor for undergraduate student/faculty team through the DOE/NSF FaST program: Prof. Arturo Massol and undergraduates from the University of Puerto Rico, June-August 2006.

Mentor for undergraduate interns through the DOE SULI/BLUR program:

Josue Rodriguez, University of Puerto Rico, Mayaguez, 2016

Lindsay Piette, U of Washington, 2017

Atalie Brown, University of California, Berkeley, DOE SULI fellowship, 2018.

High school students

Mentor for summer high school interns through the LBNL HSSRPP program (2006-2012).

High school teachers

Summer 2013: Marcel Degas (San Francisco International High School) summer internship at LBNL through the Industry Initiatives for Science and Math Education (IISME) program supported through the LBNL Center for Science and Engineering Education (CSEE).

Peer Reviewed Publications (142 with citation data, 157 web of science).

H-index (ResearcherID – 54)

Google Scholar (<https://scholar.google.com/citations?user=TLJ2tNAAAAAJ&hl=en>)

ResearcherID (<http://www.researcherid.com/rid/A-7853-2008>)

ORCID ID (<https://orcid.org/0000-0002-8453-8435>)

1. Blazewicz, Steven J.; Hungate, Bruce A.; Koch, Benjamin J.; Nuccio, Erin E.; Morrissey, Ember; **Brodie, Eoin L.**; Schwartz, Egbert; Pett-Ridge, Jennifer; Firestone, Mary K.. 2020. Taxon-specific microbial growth and mortality patterns reveal distinct temporal population responses to rewetting in a California grassland soil. ISME Journal <https://doi.org/10.1038/s41396-020-0617-3>
2. Malik, Ashish A.; Swenson, Tami; Weihe, Claudia; Morrison, Eric W.; Martiny, Jennifer B. H.; **Brodie, Eoin L.**; Northen, Trent R.; Allison, Steven D. 2020. Drought and plant litter chemistry alter microbial gene expression and metabolite production. The ISME Journal <https://doi.org/10.1038/s41396-020-0683-6>
3. Sorensen, P.O., Beller, H.R., Bill, M., Bouskill, N.J., Hubbard, S.S., Karaoz, U., Polussa, A., Steltzer, H., Wang, S., Williams, K.H., Wu, Y., **Brodie, EL.** 2020. The Snowmelt Niche

- Differentiates Three Microbial Life Strategies That Influence Soil Nitrogen Availability During and After Winter. *Frontiers in Microbiology* <https://doi.org/10.3389/fmicb.2020.00871>
4. Kazuo, I., Bouskill, NJ, **Brodie, EL**, Sudderth, EA, Martiny, JBH. 2020. Phylogenetic conservation of soil bacterial responses to simulated global changes. *Philosophical Transactions of the Royal Society B: Biological Sciences* 375:20190242. <https://doi.org/10.1098/rstb.2019.0242>
 5. Nuccio, EE, Starr, E, Karaoz, U, **Brodie, EL**, Zhou, J, Tringe, SG, Malmstrom, RR, Woyke, T, Banfield, JF, Firestone, MK, Pett-Ridge, J. 2020. Niche differentiation is spatially and temporally regulated in the rhizosphere. *The ISME Journal*, 14:999. <https://doi.org/10.1038/s41396-019-0582-x>
 6. Bouskill, N. J., Conrad, M. E., Bill, M., **Brodie, E. L.**, Cheng, Y., Hobson, C., Forbes, M., Casciotti, K. L., and Williams, K. H. (2019) Evidence for microbial mediated nitrate cycling within floodplain sediments during groundwater fluctuations, *Frontiers in Earth Sciences*. <https://doi.org/10.3389/feart.2019.00189>
 7. Mailloux B, Kim C, Kichuk T, Nguyen K, Precht C, Wang S, Jewell T, Karaoz U, **Brodie E**, Williams K, Beller H, Buchholz B. (2019) Radiocarbon RNA and Metatranscriptomic Signatures Indicate the Importance of Autotrophy in a Shallow Alluvial Aquifer. *Nature Scientific Reports*. 9:10370. <https://doi.org/10.1038/s41598-019-46663-1>
 8. Ceja-Navarro JA, Karaoz U, Bill M, Hao Z, White RA, Arellano A, Ramanculova L, Filley TR, Berry TD, Conrad ME, Blackwell M, Nicora CD, Kim Young-Mo, Reardon PN, Lipton MS, Adkins JN, Pett-Ridge J, **Brodie EL**. (2019). Gut anatomical properties and microbial functional assembly promote lignocellulose deconstruction and colony subsistence of a wood-feeding beetle. *Nature Microbiology* 4, 864–875. <https://doi.org/10.1038/s41564-019-0384-y>
 9. Cheng, Y., Bouskill, N. J., **Brodie, E. L.** (2019) Model exploration of interactions between algal functional diversity and productivity in chemostats to represent open ponds systems across climate gradients. *Ecological Modelling*, 406:121. <https://doi.org/10.1016/j.ecolmodel.2019.05.007>.
 10. Wood, L.F., Brown, B.P., Lennard, K., Karaoz, U., Havyarimana, E., Passmore, J.A.S., Hesselning, A.C., Edlefsen, P.T., Kuhn, L., Mulder, N. and **Brodie, E.L.** et al., 2018. Feeding-related gut microbial composition associates with peripheral T-Cell activation and mucosal gene expression in African infants. *Clinical Infectious Diseases*, 67(8), pp.1237-1246. <https://doi.org/10.1093/cid/ciy265>
 11. Hubbard, S. S., K. H. Williams, D. Agarwal, J. Banfield, H. Beller, N. Bouskill, **E. Brodie**, R. Carroll, B. Dafflon, D. Dwivedi, N. Falco, B. Faybishenko, R. Maxwell, P. Nico, C. Steefel, H. Steltzer, T. Tokunaga, P. A. Tran, H. Wainwright, and C. Varadharajan (2018). The East River, Colorado, Watershed: A Mountainous Community Testbed for Improving Predictive Understanding of Multiscale Hydrological–Biogeochemical Dynamics. *Vadose Zone J.* 17:180061 <https://doi.org/10.2136/vzj2018.03.0061>
 12. Zhalnina, K., Louie, K., Hao, Z., Mansoori, N., da Rocha, UN., Shi, S., Cho, HJ., Karaoz, U., Loqué, D., Bowen, B., Firestone, MK., Northen, TR, **EL Brodie**. (2018). Dynamic root exudate chemistry and microbial substrate preferences drive patterns in rhizosphere microbial succession. 2018. *Nature Microbiology*, 3: 470. <https://doi.org/10.1038/s41564-018-0129-3>
 13. Voltolini, M., Taş, N., Wang, S., **Brodie, E. L.**, & Ajo-Franklin, J. B. (2017). Quantitative characterization of soil micro-aggregates: New opportunities from sub-micron resolution synchrotron X-ray microtomography. *Geoderma*, 305, 382-393. <https://doi.org/10.1016/j.geoderma.2017.06.005>
 14. Martiny, J.B., Martiny, A.C., Weihe, C., Lu, Y., Berlemont, R., **Brodie, E.L.**, Goulden, M.L., Treseder, K.K. and Allison, S.D., 2017. Microbial legacies alter decomposition in response to simulated global change. *ISME journal*, 11:490. <https://doi.org/10.1038/ismej.2016.122>

15. Obadia, B., Güvener, Z.T., Zhang, V., Ceja-Navarro, J.A., **Brodie, E.L.**, William, W.J. and Ludington, W.B., 2017. Probabilistic Invasion Underlies Natural Gut Microbiome Stability. *Current Biology*. <http://dx.doi.org/10.1016/j.cub.2017.05.034>
16. Bouskill, N. J., Conrad, M. E., Bill, M., **Brodie, E. L.**, Cheng, Y., Hobson, C., Forbes, M., Casciotti, K. L., and Williams, K. H. (2017) Evidence for microbial mediated nitrate cycling within floodplain sediments during groundwater fluctuations, *Biogeosciences Discuss.*, <https://doi.org/10.5194/bg-2017-212>
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Patents and invention disclosures

1. A novel xylose isomerase gene and polypeptide and uses thereof. US Patent Application No. 16/907,108. Filed June 2020.
2. A novel xylose isomerase gene and polypeptide and uses thereof. Portuguese Patent Application No. 20191000033746. Filed June 2019.
3. JIB-2927. Array for Detecting Antibiotic Resistance.
4. IB-2229P4. Methods And Systems For Phylogenetic Analysis. A Persistent and Diverse Airway Microbiota Present During Chronic Obstructive Pulmonary Disease Exacerbations.
5. Chip-SIP: Quantification Of Nucleic Acid Stable Isotope Labeling With Biopolymer Microarrays And Secondary Ionization Mass Spectrometry. US Pat. App 13/023,468
6. Using Phylogenetic Probes for Quantification of Stable Isotope Labeling and Microbial Community Analysis. US Pat. App 13/023,538.