

Kelly C. Wrighton

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Professional Experience

Current-2018 Assistant Professor, Colorado State University, Department of Soil and Crop Science
2013-2018 Assistant Professor, The Ohio State University, Department of Microbiology
2013-2010 Postdoctoral researcher, University of California Berkeley, Dept. Earth and Planetary Science
2003-2005 Research Microbiologist, Chevron Corporation, Guadalupe, CA
2002-2003 Clinical Microbiologist, XOMA Pharmaceuticals, Berkeley, CA
2001-2003 Research and Development Microbiologist, Hardy Diagnostics, Santa Maria, CA

Education

PhD Microbiology, University of California Berkeley, April 2010
MS Biological Science (Ecology), California Polytechnic State University, San Luis Obispo, June 2005
BS Microbiology, California Polytechnic State University, San Luis Obispo, June 2001

Awards and Honors

Elected co-Director of the OSU Infectious Disease Institute- Microbial communities program
For fostering interdisciplinary microbiome research on OSU campus
www.idi.osu.edu

Kavli Frontiers of Science, Fellow 2016 Germany
Sponsored by US National Academy of Sciences and the Kavli Foundation

Ohio State University Faculty Mentor Award, 2016
In recognition of undergraduate education- Sponsored by OSU Mortar Board Honor Societies

Kavli Frontiers of Science, Fellow 2015 India
Sponsored by US National Academy of Sciences and the Kavli Foundation

Outstanding Instructor, University of California Berkeley
In recognition of exceptional achievements for Microbial Ecology (ESPM 116)

National Registry of Certified Microbiologists (NRCM), American Society of Microbiology
Subject: Pharmaceutical and medical devices

Millis-Colwell Postgraduate Grant recipient, 2009
American Society of Microbiology

Full Academic Graduate Fellowship, Chang-Lin Tien Scholars Award, 2009-2011
University of California Berkeley, Environmental Sciences and Biodiversity

Research funding

Summary since Fall 2013: Contributed to greater than \$12 M in university research funding since 2013. Funding sources include industry (DOW), non-profit institutes (Gas Technology), state (Ohio Water Authority), and multiple federal agencies (NSF, DOE, NIH) including a DOE early career award (2017-2021) and NSF early career award (2018-2022). Instrumentation awards from the Joint Genome Institute and Environmental Molecular Sciences Laboratory extend research funding (estimated value of Wrighton PI > \$1M).

Awarded and Active Grants

1. Department of Energy- Early Career Award. Biological and Environmental Research.
Awarded September 1, 2017-2022

Genomes to ecosystem function: Targeting critical knowledge gaps in soil methanogenesis and translation to updated global biogeochemical models

KC Wrighton (sole PI); \$797,761

2. National Science Foundation-Early Career Award. Molecular and Cellular Biology.
January 1, 2018-May 2023
Unlocking Microbial Condensed Tannin Resistance Mechanisms: Scaling from Enzymes to Biomes
KC Wrighton (sole PI); \$941,282
3. National Science Foundation. Advances in Biological Infrastructure. Awarded September 2018
Next generation informatics to elucidate viral ecology and ecosystem impacts in nature
MB Sullivan (PI) and **KC Wrighton**; \$1,123,135 (\$450,000 Wrighton)
4. Department of Energy. Biological Environmental Research. Awarded September 2018.
Novel biological processes to generate ethylene
Bob Tabita (PI), **KC Wrighton**; \$1,200,000 (\$450,000 Wrighton)
5. Department of Energy. Subsurface Biological Research. 2017-2018
Accounting for Hydrological and Microbial Processes on Greenhouse Gas Budgets from River Systems
KC Wrighton (PI), G Bohrer, J Stegen; \$200,000 (\$100,000 Wrighton)
6. Ohio Water Development Authority, 2017-2019
Predictive modeling of nutrient and carbon processing in wetlands – linking hydrology, water quality and microbial processes
G Bohrer (PI), **KC Wrighton**, L. Kinsman-Costello; \$400,000 (\$130,000 Wrighton)
7. National Institutes of Health. Diabetes, Digestive, Kidney Diseases. 2016-2020
Alternative routes of gut microbial methylamine metabolism that may limit trimethylamine N-oxide, a trigger for atherosclerosis
J Krzycki (PI), **KC Wrighton**, D Ferguson; \$2,430,028, (\$500,000 Wrighton)
8. National Science Foundation, Dimensions of Biodiversity. 2014-2018.
Microbial Biodiversity and Functionality in Deep Shale and its Interfaces
P Mouser (PI), **KC Wrighton**, S Sharma, D Cole, MJ Wilkins;
\$1,645,610 (\$499,827 Wrighton)
9. National Institutes of Health. Allergy and Infections. 2014-2018 (\$500,000 Wrighton)
Salmonella, colonization resistance, and fructose-asparagine
B Ahmer (multi-PI), VH Wysocki (multi-PI), V Gopalan (multi-PI), **KC Wrighton** (multi-PI)
\$2,600,000 (\$240,000 Wrighton)
10. DOW Chemical-University Partnership Grant. April 2017-2020
Leveraging microbial metabolisms to influence production chemistry and well longevity during energy extraction
MJ Wilkins (PI) and **KC Wrighton**; \$245,729 Total Award (\$125,147 to Wrighton) each year for 3 years
11. Ohio Water Development Authority, 2014-2016. Expired
Opening the microbial black box: identifying microbial enzymatic control of carbon stability in Ohio Wetlands
KC Wrighton (PI) and G Bohrer; \$399,709 (\$289,000 Wrighton)
12. Gas Technology Institute. 2016-2017. Expired
Fee for service: Microbial communities in gas wells in Texas
KC Wrighton (sole PI); \$26,000

Grants Submitted, Pending

1. National Aeronautics Space Administration. Exobiology. Submitted March 2018
Methylamine cycling as a conserved metabolic strategy in conserved, subsurface saline habitats
MJ Wilkins (PI) and KC Wrighton; \$407,000 total

2. National Institutes of Health. Allergy and Infections. Submitted March 2018.
KC Wrighton (multi-PI), B. Ahmer, V. Wasycki \$1,600,000 total

Awarded Instrumentation Grants (only those with Wrighton as PI included)

1. Department of Energy. FICUS. 2016-2019
Deciphering controls on plant decomposition in Arctic ecosystems: Identifying unknown microbial condensed tannin degradation pathways
KC Wrighton (PI), A Hagerman, D Spalinger
 Value \$488,000 for metagenomics, metatranscriptomics, LC-MS, NMR, and metaproteomics
2. Department of Energy, Environmental Molecular Science Laboratory, 2014
High-resolution, parallel measurements of wetland organic carbon and microbial community metabolism under changing redox conditions
KC Wrighton (PI), CS Miller, and PJ Mouser
 Value \$142,000 for FT ICR MS and porewater metabolite analyses
3. Department of Energy, Joint Genome Institute. Small scale Community Sequencing Project. 2015
Identifying key genomes and metabolisms responsible for near-surface methane cycling in wetlands
KC Wrighton (PI), C.S. Miller
 Value of \$30,000 for metagenomic sequencing
4. Department of Energy. Large Scale Community Sequencing Project. 2015-2018
Life in the extreme deep terrestrial subsurface: microbial metabolism before and after shale gas extraction
KC Wrighton (PI), PJ Mouser, MJ Wilkins
 Value \$250,000 for 16S rRNA, metagenomes, isolate genomes, viromes, single cell, and metatranscriptome
5. Department of Energy. FICUS (JGI/EMSL). 2014-2016. Expired.
"Microbial controls on biogeochemical cycling in deep subsurface shale carbon reservoirs"
 for genomic, proteomic, microscopic and carbon analyses.
KC Wrighton (PI), MJ Wilkins, PJ Mouser; Value \$250,000

Oral Presentations by K.C. Wrighton

Summary: 42 total oral presentations both international and national since starting my laboratory in 2013. 2018 (6, 10 pending) 2017 (8), 2016 (9), 2015 (10), 2014 (8), and Fall 2013 (1)
Includes invitation to microbiome seminar series at the National Academy in DC and CA twice in four year

2018

Stanford University, Dept. Environmental Earth System Science (Jan 2018), CA
 Lawrence Berkeley National Laboratory, Climate Division (Jan 2018), CA
 Department of Energy Genome Sciences PI Meeting (Feb 2018), Washington DC
 University of California Berkeley, Department of Microbiology (April 2018), CA
 Department of Energy Subsurface Biogeochemical Research, Rapid Fire (April 2018), Washington DC
 American Society of Microbiology, Applied and Environmental Division (June 2018), GA
[PENDING BELOW]
 Colorado State University, Department of Biochemistry (Aug 2018), CO
 International Society of Microbial Ecology, Subsurface Microbiology (Aug 2018), Germany
 Department of Energy Lawrence Berkeley National Laboratory, PI meeting (Sept 2018), CO
 University of Illinois, Department of Microbiology (Sept 2018), IL
 University of California Irvine, Earth Systems Science (Oct 2018), CA
 Microbiome Symposium University of Nebraska (Oct 2018), NE
 Shanghai Jiao Tong University-USA Deep Carbon Observatory Meeting (Oct 2018), China
 Microbiome Symposium University of British Columbia (Nov 2018), Canada
 DOW-Dupont Microbiome (Nov 2018), DE

American Geophysical Union (Dec 2018), Washington DC

2017

Department of Energy, Pacific Northwest National Laboratory (Feb 2017), WA
Biology Department, University of Oregon (Feb 2017), OR
Deep Carbon Observatory (Apr 2017), Scotland
American Society of Microbiology (June 2017), LA
Gordon Research Conference Applied and Environmental Microbiology (July 2017), MA
Department of Geosciences, Pennsylvania State University (Aug 2017), PA
Department of Biology, Howard University (Aug 2017), Washington DC
Department of Soils and Crop Sciences, Colorado State University (Dec 2017), CO

2016

DOW Chemical (Feb 2016), PA
Kavli Fellow (Mar 2016), Germany-US National Academy Exchange, Germany
Department of Energy Terrestrial Aquifer Interface Workshop Talk (Mar 2016)
Louisiana State University (Apr 2016), Department of Biology, LA
Department of Energy, Environmental Molecular Sciences Laboratory (Apr 2016), WA
Joint Genome Institute, Annual Meeting (Apr 2016), CA
International Society of Microbiology, inferring physiology from genomics (Aug 2016), Canada
Ecological Society of America, National Meeting (Aug 2016), FL
National Academy *Chemistry of Microbiome* Speaker Series (Sept 2016), Washington DC

2015

Exxon Energy (Jan 2015), NJ
Columbia University (Jan 2015), NY
University of Georgia, Marine Sciences Department (Mar 2015), GA
University of Oklahoma, Department of Microbiology (Apr 2015), OK
Oklahoma State University, Department of Microbiology (Apr 2015), OK
Ohio State University, Biophysics Graduate Group (Apr 2015), OH
Kavli Fellow, India-USA National Academy (Aug 2015), CA
Multi-omics meeting Pacific Northwest National Laboratory, (Sept 2015), WA
Argonne National Laboratory Soil Metagenomics (Oct 2015), IL
American Geophysical Union (Dec 2015), CA

2013-2014

Switzerland Geophysical Union Annual Meeting (Nov 2013), Switzerland
American Society of Geological Society of America (Apr 2014), NE
Ohio American Society of Microbiology (Apr 2014), OH
American Society of Microbiology (May 2014), MA
Gordon Research Conference on C1 metabolism (Aug 2014), MA
European Metagenomics Workshop (Oct 2014), Netherlands
Miami University of Ohio, Department of Microbiology (Oct 2014), OH
Ohio State University, School of Earth Sciences (Nov 2014), OH
American Geophysical Union (Dec 2014), CA

Publications

Summary: Since 2008- <50 publications, Total citations as of July 2018: 2924 (h-index 22, i-10 33)

Peer-reviewed articles

1. MA Borton, DW Hoyt, S Roux, RA Daly, SA Welch, CD Nicora, S Purvine, EK Eder, AJ Hanson, JM Sheets, DM Morgan, S Sharma, TR Carr, DR Cole, PJ Mouser, MS Lipton, MJ Wilkins, **KC Wrighton**. *In vitro* interactions scaled to *in situ* conditions: microorganisms predict field scale biogeochemistry in hydraulically fractured shale. *Proceedings of the National Academy of Sciences*. 2018. DOI:10.10763/pnas.1800155115.
2. LM Solden, AE Naas, S Roux, RA Daly, WB Collins, CD Nicora, SO Purvine, DW Hoyt, J Schuckel, B Jorgensen, W Willats, DE Spalinger, JL Firkins, MS Lipton, MB Sullivan, PB Pope, **KC Wrighton**. Interspecies cross-feedings orchestrate carbon degradation in the rumen ecosystem. *Nature Microbiology*. (in press)
3. S Roux, EM Adriaenssens, BE Dutilh, EV Koonin, AM Kropinski, M Krupovic, JH Kuhn, R Lavigne, JR Brister, A Varsani, RK Aziz, SR Bordenstein, P Bork, M Breitbart, G Cochrane, RA Daly, C. Desnues, MB Duhaime, JB Emerson, F Enault, JA Fuhrman, P Hingamp, P Hugenholtz, BL Hurwitz, NN Ivanova, JM Labonte, RR Malmstrom, M Martinez-Garcia, F Martinez-Hernandez, I Mizrahi, H Ogata, D Paez-Espino, M-A Petit, C Putonti, T Rattei, A Reyes Munoz, F Rodriguez-Valera, K Rosario, L Schriml, F Schulz, GF Steward, MB Sullivan, S Sunagawa, CA Suttle, B Temperton, SG Tringe, RV Thurber, NS Webster, KL Whiteson, SW Wilhelm, KE Wommack, T Woyke, **KC Wrighton**, P Yilmaz, T Yoshida, MJ Young, N Yutin, LZ Allen, EA Eloe-Fadrosh, NC Kyrpides. Minimum information about uncultivated virus genomes (MIUViG): a community consensus on standards and best practices for describing genome sequences from uncultivated viruses. *Nature Biotechnology*. (in press)
4. JB Emerson, S Roux, JR Brum, B Bolduc, BJ Woodcroft, HB Jang, CM Singleton, LM Solden, AE Naas, JA Boyd, SB Hodgkins, RM Wilson, G Trubl, C Li, S Frolking, PB Pope, **KC Wrighton**, PM Crill, JP Chanton, SR Saleska, GW Tyson, VI Rich, MB Sullivan. Host-linked soil viral ecology along a permafrost thaw gradient. *Nature Microbiology*, 1
5. AC Rey-Sanchez, TH Morin, KC Stefanik, **KC Wrighton**, G Bohrer. 2018. Determining total emissions and environmental drivers of methane flux in a Lake Erie estuarine marsh. *Ecological Engineering* 114:7-15
6. G Trubl, HB Jang, S Roux, JB Emerson, N Solonenko, DR Vik, L Solden, Jared Ellenbogen, Alexander T Runyon, Benjamin Bolduc, Ben J Woodcroft, Scott R Saleska, Gene W Tyson, **KC Wrighton**, Virginia I Rich, Matthew B Sullivan 2018. Soil viruses are underexplored players in ecosystem carbon processing. bioRxiv <https://doi.org/10.1101/338103>
7. J Panescu, RA Daly, **KC Wrighton**, PJ Mouser. Draft genome sequences of two chemosynthetic *Arcobacter* strains isolated from hydraulically fractured wells in Marcellus and Utica shales. *Genome Announcements*. 2018. 6(20)e00159-18
8. S Tummings, J Panescu, RA Daly, **KC Wrighton**, PJ Mouser. Draft genome sequences of *Marinobacter* strains recovered from Utica shale-produced fluids. *Genome Announcements*. 2018. 6(14)e00155-18.
9. Naas, A; Solden, LM, Norbeck AD, Brewer H, Hagen L, Heggnes I, McHardy AC, Mackie RI, Pasa-Tolic L, Arntzen M, Eijsink V, Koropatkin N, Hess M, **Wrighton KC**, Pope PB. 2018. *Candidatus* Paraporphyromonas polyenzymogenes encodes multi-modular cellulases linked to the Type IX secretion system. *Microbiome* (6)1,44
10. Wu, J, Sabag-Daigle A, Borton MA, Kop L, Szkoda BE, Deatherage Kaiser BL, Lindemann SR, Renslow RS, Wei S, Nicora CD, Weitz K, Kim YM, Adkins JN, Metz TO, Boyaka P, Gopalan V, **Wrighton KC**, Wysocki VH, Ahmer BMM. 2018. *Salmonella*-mediated inflammation eliminates competitors for fructose-asparagine in the gut. *Infection and Immunity*. pii: e00945-17
11. McLean JS, B Batbileg, T Thao, K Kearns, LM Solden, **KC Wrighton**, Z He, S. Wenyua. 2018. Evidence of independent acquisition and adaptation of ultra-small bacteria to human hosts across the highly diverse yet reduced genomes of the phylum *Saccharibacteria*. bioRxiv <https://doi.org/10.1101/258137>
12. Angle JC, Morin TH, Solden LM, Smith GJ, Narro AB, Borton MA, Daly RA, Hoyt DW, Riley WR, Miller CS, Bohrer G, **Wrighton KC**. 2017. Methanogenesis in oxygenated soils is an unrecognized driver of wetland methane emissions. *Nature Communications*, (8)1, 1567

13. Borton MA, Sabag-Daigle A, Wu J, Solden LM, O'Banion BS, Daly RA, Wolfe RA, Gonzalez JF, Wysocki V, Ahmer BMM, **Wrighton KC**. 2017. Chemical and pathogen induced inflammation disrupt the murine intestinal microbiome. *Microbiome*, 5(1), 47
14. Danzack RE, Johnston MD, Kenah C, Slattery M, **Wrighton KC**, Wilkins MJ. 2017. Members of the Candidate Phyla Radiation are functionally differentiated by carbon and nitrogen cycling capabilities. *Microbiome*, 5(1):112
15. Booker AE, Borton MA, Daly RA, Welch S, Nicora CD, Hoyt DW, Wilson T, Purvine SO, Sharma S, Mouser PJ, Cole DR, Lipton MS, **Wrighton KC**, Wilkins MJ. 2017. Sulfide generation by dominant colonizing *Halanaerobium* microorganisms in hydraulically fractured shales. *mSphere*, 2(4)
16. Narrowe AB, Angle JC, Daly RA, Stefanik K, **Wrighton KC**, Miller CS. 2017. High-resolution sequencing reveals unexplored archaeal diversity in methane-emitting freshwater wetland soils. *Environmental Microbiology*, (19)6:2192-2209
17. Sabag-Daigle A, Wu J, Borton MA, Sengupta A, Gopalan V, **Wrighton KC**, Wysocki V, and B MM Ahmer. Identification of bacterial species that can utilize fructose-asparagine. *Applied and Environmental Microbiology* (2017). 84 (5)- e01957-17
18. Booker AE, Johnston MD, Daly RA, **Wrighton KC**, Wilkins MJ. 2017. Draft Genome Sequences of Multiple *Frackibacter* Strains Isolated from Hydraulically Fractured Shale Environments. *Genome Announcements*, 5(32), e00608-17.
19. Solden LM, Hoyt DW, Collins WB, Plank JE, Daly RA, Hildebrand E, Beavers TJ, Wolfe RA, Nicora CD, Purvine SO, Carstensen M, Lipton MA, Spalinger DE, Firkins JL, Wolfe BA, **Wrighton KC**. 2016. New roles in hemicellulosic sugar fermentation for the uncultivated Bacteroidetes family BS11. *The ISME Journal*, 11:691-703.
20. Solden LM, K Lloyd, **Wrighton KC**. 2016. The bright side of microbial dark matter: lessons learned from the uncultivated majority. *Current opinion in Microbiology*, 31: 217-226
21. Daly RA, Borton MA, Wilkins M, Hoyt DW, Kountz DJ, Wolfe RA, Welch SA, Marcus DN, Trexler RV, MacRae J, Krzycki JA, Cole DR, Mouser PJ, **Wrighton KC**. 2016. Microbial metabolisms in a 2.5-km-deep ecosystem created by hydraulic fracturing in shales. *Nature Microbiology*, 1:16146.
22. Mouser PJ, Borton MA, Darrah TH, Hartsock A, and **Wrighton KC**. 2016. Hydraulic fracturing offers view of microbial life in the deep terrestrial subsurface. *FEMS Microbiology Ecology*, 11:166.
23. Russell JA, León-Zayas R, **Wrighton KC**, Biddle JF. 2016. Deep subsurface life from North Pond: enrichment, isolation, characterization and genomes of heterotrophic bacteria. *Frontiers in Microbiology*,
24. **Wrighton KC**, Castelle CJ, Varaljay VA, Satagopan S, Brown CT, Wilkins MJ, Thomas BC, Sharon I, Williams KH, Tabita FR, and Banfield JF. 2016. RubisCO of a nucleoside pathway known from Archaea is found in diverse uncultivated phyla in bacteria. *The ISME Journal*, 11:2702-2714.
25. Varaljay VA, Satagopan S, North JA, Witte B, Dourado MN, Anantharaman K, Arbing MA, Hoefl S, McCann, Oremland RS, Banfield JF, **Wrighton KC**, Tabita FR. 2016. Functional metagenomic selection of ribulose 1, 5-bisphosphate carboxylase/oxygenase from uncultivated bacteria. *Environmental Microbiology*, 18:1187-1199.
26. Brown CT, Hug LA, Thomas BC, Sharon I, Castelle CJ, Singh A, Wilkins MJ, **Wrighton KC**, Williams KH, and Banfield JF. 2015. Unusual biology across a group comprising more than 15% of domain Bacteria. *Nature*, 523:208–211.
27. Luef B, Frischkorn KR, **Wrighton KC**, Holman N, Birarda G, Thomas BC, Singh A, Williams KH, Siegerist CE, Tringe SG, Downing KH, Comolli LR, Banfield JF. 2015. Diverse uncultivated ultra-small bacterial cells in groundwater. *Nature Communications*, 6:6372.

28. Castelle CJ, **Wrighton KC**, Thomas C, Hug LA, Brown CT, Wilkins MJ, Frischkorn KR, Tringe SG, Singh A, Markillie LM, Taylor RC, Williams KH, Banfield JF. 2015. Genomic expansion of domain Archaea highlights roles for organisms from new phyla in anaerobic carbon cycling. *Current Biology*, 25:690–701.
29. Handley KM, **Wrighton KC**, Miller CS, Wilkins MJ, Kantor RS, Thomas BC, Williams KH, Gilbert JA, Long PE, Banfield JF. 2014. Disturbed subsurface microbial communities follow equivalent trajectories despite different structural starting points. *Environmental Microbiology*, 17:622–636.
30. Holmes DE, Giloteaux L, Chaurasia AK, Williams KH, Luef B, Wilkins MJ, **Wrighton KC**, Thompson CA, Comolli LR, Lovley DR. 2014. Evidence of *Geobacter*-associated phage in a uranium-contaminated aquifer. *The ISME Journal*, 9:333–346.
31. **Wrighton KC**, Castelle CJ, Wilkins MJ, Hug LA, Sharon I, Thomas BC, Handley KM, Mullin SW, Nicora CD, Singh A, Lipton MS, Long PE, Williams KH, Banfield JF. 2014. Metabolic interdependencies between phylogenetically novel fermenters and respiratory organisms in an unconfined aquifer. *The ISME Journal*, 8:1452–1463.
32. Merkley ED, **Wrighton KC**, Castelle CJ, Anderson BJ, Wilkins MJ, Shah V, Arbour T, Brown JN, Singer SW, Smith RD, Lipton MS. 2014. Changes in protein expression across laboratory and field experiments in *Geobacter bemidjensis*. *Journal Proteome Research*, 14:1361–1375.
33. Castelle CJ, Hug LA, **Wrighton KC**, Thomas BC, Williams KH, Wu D, Tringe SG, Singer SW, Eisen JA, Banfield JF. 2013. Extraordinary phylogenetic diversity and metabolic versatility in aquifer sediment. *Nature Communications*, 4:2120.
34. Yelton AP, Williams KH, Fournelle J, **Wrighton KC**, Handley KM, Banfield JF. 2013. Vanadate and acetate biostimulation of contaminated sediments decreases diversity, selects for specific taxa, and decreases aqueous V⁵⁺ concentration. *Environmental Science and Technology*, 47:6500–6509.
35. Kantor RS, **Wrighton KC**, Handley KM, Sharon I, Hug LA, Castelle CJ, Thomas BC, Banfield JF. 2013. Small genomes and sparse metabolisms of sediment-associated bacteria from four candidate phyla. *MBio*, 4(5):e00708-13.
36. Giloteaux L, Holmes DE, Williams KH, **Wrighton KC**, Wilkins MJ, Montgomery AP, Smith JA, Orellana R, Thompson CA, Roper TJ, Long PE, Lovley DR. 2013. Characterization and transcription of arsenic respiration and resistance genes during *in situ* uranium bioremediation. *The ISME Journal*, 7:370–383.
37. Holmes DE, Giloteaux L, Williams KH, **Wrighton KC**, Wilkins MJ, Thompson C, Roper TJ, Long PE, and DR Lovley. 2013. Enrichment of specific protozoan populations during *in situ* bioremediation of uranium-contaminated groundwater. *The ISME Journal*, 7:1286–98.
38. Hug LA, Castelle CJ, **Wrighton KC**, Thomas BC, Sharon I, Frischkorn KR, Williams KH, Tringe SG, Banfield JF. 2013. Community genomic analyses constrain the distribution of metabolic traits across the *Chloroflexi* phylum and indicate roles in sediment carbon cycling. *Microbiome*, 1:22.
39. Miller CS, Handley KM, **Wrighton KC**, Frischkorn KR, Thomas BC, Banfield JF. 2012. Short-read assembly of full-length 16S amplicons reveals bacterial diversity in subsurface sediments. *PLoS One*, 8(2):e56018.
40. SC Di Rienzi, I Sharon, **KC Wrighton**, O Koren, LA Hug, BC Thomas, JK Goodrich, JT Bell, TD Spector, JF Banfield, and RE Ley. 2013. The human gut and subsurface harbor non-photosynthetic Cyanobacteria. *Elife*, 2:e01102.
41. Wilkins MJ, **Wrighton KC**, Nicora CD, Williams KH, McCue LA, Handley KM, Miller CS, Giloteaux L, Montgomery AP, Lovley DR, Banfield JF, Long PE, Lipton MS. 2013. Fluctuations in species-level protein expression occur during element and nutrient cycling in the subsurface. *PLoS One*, 8:e57819.
42. Luef B, Fakra SC, Csencsits R, **Wrighton KC**, Williams KH, Wilkins MJ, Downing KH, Long PE, Comolli LR, Banfield JF. 2012. Iron-reducing bacteria accumulate ferric oxyhydroxide nanoparticle aggregates that may support planktonic growth. *The ISME Journal*, 7:338–350.

43. **Wrighton KC**, Thomas BC, Sharon I, Miller CS, Castelle CJ, VerBerkmoes NC, Wilkins MJ, Hettich RL, Lipton MS, Williams KH, Long PE, and Banfield JF. 2012. Fermentation, hydrogen, and sulfur metabolism in multiple uncultivated bacterial phyla. *Science*, 337:1661–1665.
44. Handley KM, **Wrighton KC**, Piceno YM, Andersen GL, DeSantis TZ, Williams KH, Wilkins MJ, N’Guessan A, Peacock A, Bargar J, Long PE, Banfield JF. 2012. High-density PhyloChip profiling of stimulated aquifer microbial communities reveals a complex response to acetate amendment. *FEMS Microbiology Ecology*, 81: 188–204.
45. **Wrighton KC**, Thrash JC, Melnyk RA, Bigi JP, Byrne-Bailey KG, Remis JP, Schichnes D, Auer M, Chang CJ, Coates JD. 2011. Evidence for direct electron transfer by a Gram-positive bacterium isolated from a microbial fuel cell. *Applied and Environmental Microbiology*, 77:7633–7639.
46. van Trump IJ, **Wrighton KC**, Thrash JC, Weber KA, Andersen GL, Coates JD. 2011. Humic acid-oxidizing, nitrate-reducing bacteria in agricultural soils. *MBio*, 2(4):e00044-11.
47. Byrne-Bailey KG[#], **Wrighton KC**[#], Melnyk RA, Agbo, Hazen TC, Coates JD. 2010. Complete genome sequence of the electricity-producing *Thermincola potens* strain JR. *Journal of Bacteriology*, 192:4078–4079.
[#]contributed equally
48. Engelbrektson A, Kunin V, **Wrighton KC**, Zvenigorodsky N, Chen F, Ochman H, and Hugenholtz P. 2010. Experimental factors affecting PCR-based estimates of microbial species richness and evenness. *The ISME Journal*, 4:642–647.
49. **Wrighton KC**, Viridis B, Clauwaert P, Read ST, Daly RA, Boon N, Piceno Y, Andersen GL, Coates JD, Rabaey K. 2010. Bacterial community structure corresponds to performance during cathodic nitrate reduction. *The ISME Journal*, 4:1443–1455.
50. **Wrighton KC**, Agbo P, Warnecke F, Weber KA, Brodie EL, DeSantis TZ, Hugenholtz P, Andersen GL, Coates JD. 2008. A novel ecological role of the Firmicutes identified in thermophilic microbial fuel cells. *The ISME Journal*, 2:1146–1156.

Invited, non-peer reviewed contributions

1. LM Solden and **KC Wrighton**. 2017. Invited Perspective. Finding Life’s Missing Pieces. *Nature Microbiology* 2(11): 1458
2. **KC Wrighton**, RA Daly, MJ Wilkins. 2017. National Academies of Sciences, Engineering, and Medicine. *The Chemistry of Microbiomes: Proceedings of a Seminar Series*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24751>. [Wrighton first and corresponding]
3. **KC Wrighton**, AE Engelbrektson, IC Clark, RA Melnyk, JD Coates. 2011. Gram-positive reduction of metals: Accentuate the positive. In J.F. Stolz and R.S. Oremland (Eds.), *Microbial Metal and Metalloid Metabolism: Advances and Applications*. Washington DC: ASM Press.

Peer reviewed articles submitted

1. **RA Daly**, S Roux, MA Borton, DM Morgan, MD Johnston, AE Booker, DW Hoyt, T Meulia, RA Wolfe, AJ Hanson, PJ Mouser, MB Sullivan, **KC Wrighton**, MJ Wilkins. Viruses control dominant bacteria colonizing the terrestrial deep biosphere after hydraulic fracturing. *Nature Microbiology*. (in revision)
2. M Volker Evans, J Panescu, AJ Hanson, SA Welch, JM Sheets, N Nastasi, RA Daly, DR Cole, TH Darrah, MJ Wilkins, **KC Wrighton**, PJ Mouser. Influence of *Marinobacter* and *Arcobacter* taxa on system biogeochemistry during early production of hydraulically fractured shale gas wells in the Appalachian Basin. *Frontiers in Microbiology*.
3. GJ Smith, JC Angle, LM Solden, MA Borton, TH Morin, RA Daly, MD Johnston, KC Stefanik, R Wolfe, G Bohrer, **KC Wrighton**. Members of the *Methylobacter* are inferred to account for the majority of aerobic methane oxidation in oxic soils from a freshwater wetland. *mBio*.

Some highlighted press-related to Wrighton laboratory led research

Top 100 Discoveries of 2016 in *Discover Magazine* for my groups genomic insight and ultimate isolation of a new bacterial genus in fractured shales

Article on my laboratory's hydraulic fracturing research published in PNAS

<https://news.osu.edu/methane-producing-microbial-communities-found-in-fracking-wells/>

Article in *Daily Beast*, related to my group's recent paper in PNAS

<https://www.thedailybeast.com/the-surprising-way-frackings-microbes-could-illuminate-heart-health>

PBS NOVA article on my group's deep biosphere research

<http://www.pbs.org/wgbh/nova/next/earth/deep-life>

Article in *Science News*, related to review my laboratory wrote on Microbial Dark Matter

<https://www.sciencenews.org/article/microbial-matter-comes-out-dark>

Article on my laboratory's hydraulic fracturing research- based on my AGU talk 2015

<http://phys.org/news/2015-12-gas-hydraulic-fracturing-source.html>

Articles on my laboratory's recent Nature Microbiology paper

<http://arstechnica.com/science/2016/09/fracking-creates-an-ecosystem-2-5km-beneath-the-earths-surface/>

Mentoring

Current Doctoral Students Dissertation Advisor-

2017-current Bridget McGivern (Soil and Crop Sciences, PhD)

2017-current Josue Rodriquez Ramos (Ecology Graduate Program, PhD)

2016-current Mikayla Borton (Soil and Crop Sciences, PhD)

2015-current Garrett Smith (OSU Microbiology, Phd)

Former Graduate Student Dissertation Advisor-

2013-2018 Lindsey Solden (OSU Microbiology, PhD, June)

2013-2018 Jordan Angle (OSU Microbiology, PhD, June)

2015-2017 Dan Marcus (Microbiology, MS, June 2016)

2018 Linnea Kopp (co-advised, MS research mentor)

Doctoral Student (Dissertation Committee Member)

2013-2017 Kyle Mohler. The Ohio State University, Microbiology

2013-2017 Tim Morin. The Ohio State University, Environmental Sciences Graduate Program

2015-2017 Kelsey Crossen. The Ohio State University, Microbiology

2013-2018 Robert Danczak. The Ohio State University, Microbiology

2013-2018 Sukirth Gahanes. The Ohio State University, Department of Dentistry

2014-2018 Ben Jahnes. The Ohio State University, Microbiology

2014-2018 Anne Booker. The Ohio State University, Microbiology

2015-Present Anne Gregory. The Ohio State University, Microbiology

2015-Present Gary Trubl. The Ohio State University, Microbiology

2015-Present Dean Vik. The Ohio State University, Microbiology

2016-2018 Casey Saup. The Ohio State University, School of Earth Sciences (SES)

2016-2018 Sarah Haines. The Ohio State University, Department of Engineering

2016-2018 Nathan Lee. The Ohio State University, School of Environment and Natural Resources

2016-2018 Jenny Panescu. The Ohio State University, Environmental Sciences Graduate Program

2017-2018 Arslan Arshad. Radboud University, Netherlands

2018-Present Ahmed Zayed. Ohio State University, Microbiology

2018-Present Kaela Amundson. Colorado State University, Soil and Crop Sciences

Current Undergraduate laboratory researchers-

2017-current Scott Hastings (Medical Technology)

2018-current Alexandra Pappas (Microbiology)

Former Undergraduate laboratory researchers-

2015-2017	Bridget O'Banion (School of Environment and Natural Resources, now UT Phd Microbiology)
2015-2017	David Morgan (Microbiology, now Children's hospital)
2013-2015	Ray McVeety (Neuroscience, now OSU medical school)
2014-2015	Timothy Beavers (Microbiology/Political Science, now OSU Law School)
2014	Melanie De La Rosa (Puerto Rico, Soil Science, summer internship via SROP)

Student Awards and Fellowships

OSU Presidential Graduate Fellowship. 2018, Lindsey Solden. \$30,864, plus \$500 travel award
 NSF Graduate Student Research Fellowship (GRFP). 2016-2019, Garrett Smith. \$34,000/yr for three years
 OSU Fay Graduate Fellowship in Environmental Sciences. 2016-2017. Mikayla Borton. \$23,100/yr
 Fulbright Fellowship to Poland. 2016-2018. Timothy Beavers.
 OSU Summer Undergraduate Research Office Summer Fellowship, 2016, Bridget O'Banion \$3500
 Undergraduate Government Academic Enrichment Grant (\$600, 2016), Bridget O'Banion
 OSU Undergraduate Research Office Summer Fellowship, 2016, David Morgan, \$3500 David Morgan
 OSU Summer Research Opportunity for Underrepresented Students, 2014, Melanie De La Rosa, Puerto Rico
 Undergraduate researchers have been contributing authors to 4 publications from OSU

Teaching Experience

Ohio State University, Department of Microbiology

Environmental Microbiology 5155

Undergraduate/Graduate elective

Topic: This class investigates factors that impact microbial communities across different ecosystems. The objective is to expose students to topics in metabolism, phylogeny, ecology, and bio(geo)chemical cycling

Overall SEI score: 4.9/5.0 (2014), 4.6/5.0 (2015), 4.7/5.0 (2016), 4.8/5.0(2017)

Guest Lectures External to OSU

Colorado State University

Soil Microbiology (Dec 2017, 3%)

Undergraduate/Graduate- Soil and Crop Sciences

Topic: Perchlorate reduction a rocket fueled microbial metabolism in soils

Pennsylvania State University

Geomicrobiology (Aug 2017, 3%), Dr. Jen Macalady

Undergraduate/Graduate- Department of Geosciences

Topic: What is inside the geomicrobiologist's microbial toolbox?

Guest Lectures at OSU

Physiology meets Pathogenesis (Feb 2016, 2017, 2018 20%). Drs. Henkin and Wozniak

Graduate only. Department of Microbiology, multiple lectures and 20% of final exam

Topic: The human microbiome in the genomics era

Community Ecosystems Ecology (Feb 2018, 3%). Dr. Marie Miriti

Undergraduate/Graduate. Ecology, Evolution Organismal Biology

Topic: Wetland ecosystem services

Biodegradation (Feb 2015, 2016, 3%). Dr. Paula Mouser

Undergraduate/Graduate. Department of Civil, Environmental, and Geodetic Engineering

Topic: Hydrocarbon bioremediation: Approaches and considerations

Geomicrobiology (Oct 2014, 2015, 15%). Dr. Mike Wilkins

Undergraduate/Graduate. School of Earth Sciences

Topic: Microbial extracellular respiration: from microbial fuel cells to iron biogeochemistry

Microbial Ecology (Nov 2013, 3%). Dr. Olli Tuovinen

Undergraduate/Graduate Department of Microbiology

Topic: Microbial ecology tool box

Leadership and Service

Ohio State Service

OSU and State of Ohio Service.

Infectious Disease Institute, Co-director, Microbial Communities, 2017-2018

Ohio State Supercomputer Allocations Committee. 2014-2017

OSU Faculty Candidate Searches.

Subsurface Energy Resource Center, Director Candidate Search- School of Earth Sciences. 2016

Genomics Candidate Pharmacy/Microbiology. 2014-2016.

Microbial Data Analytics 2014-2015

Department of Microbiology Service.

Creator and Faculty mentor to the “Students for the Advancement of Microbiology” 2015-2018

Graduate student Committee. 2014, 2015, 2017

Outreach to Howard University, representing STEM opportunities. 2017

Scientific Leadership

Session organization:

International Society of Microbial Ecology ISME 15 2016- Panelist on Roundtable on new tools for investigating microbial metabolism

American Society of Microbiology 2015- Organizer Key biochemical functions of microbial dark matter

General meeting American Geophysical Union 2014- Organizer Shale Biogeochemistry

International Society of Microbial Ecology ISME 14 2012- Convener Genetic potential and expression: key functions in microbial communities

International Society of Microbial Ecology ISME 13 2010- Organizer Evolution, ecology, and physiology of extremophiles roundtable

Workshop Participant and Report Co-Author:

Panelist, National Academy. Invited to speak in a four-section seminar series on the chemistry of microbiomes. “Earth Microbiome” section

<http://nas-sites.org/csr/2016/06/23/chemistry-of-microbiomes-earth-seminar/>

Panelist and Author, DOE Basic Research Needs for Environmental Management. Panel 3-Contaminant Fate and Transport in Geological Environments. July 2015.

http://science.energy.gov/~media/bes/pdf/reports/files/BRNEM_rpt.pdf

Panelist, DOE Terrestrial Ecosystems Sciences Workshop on Terrestrial Aquatic Interfaces. September 2016. Environmental Biology 2015, 2017