

DUKE UNIVERSITY

CURRICULUM VITAE

Date Prepared: February 24th, 2023

Name: Lawrence Anthony David, Ph.D.

Primary academic appointment: Molecular Genetics & Microbiology

Secondary appointment: Biomedical Engineering; Core Faculty in Innovation & Entrepreneurship;
Associate of the Duke Initiative for Science & Society

Present academic rank and title: Associate Professor

Date and rank of first Duke Faculty appointment: July 1st, 2013; Assistant Professor

Date of birth: May 24th, 1983 Place: New York/NY/USA

Citizen of: United States & Philippines (dual citizenship)

Education:	<u>Institution</u>	<u>Date</u>	<u>Degree</u>
High School	<u>Regis High School, NY, NY</u>	<u>2001</u>	
College	<u>Columbia University, NY, NY</u> (Advisor: Chris Wiggins)	<u>2005</u>	<u>B.S.</u>
Graduate School	<u>Massachusetts Institute of Technology, Cambridge, MA</u> (Advisor: Eric Alm)	<u>2010</u>	<u>Ph.D.</u>

Professional training and academic career (chronologically, beginning with first postgraduate position):

<u>Institution</u>	<u>Position/Department</u>	<u>Dates</u>
<u>Harvard University</u>	<u>Junior Fellow & PI /Society of Fellows</u> (Advisor: Peter Turnbaugh)	<u>2010-2013</u>
<u>Duke University</u>	<u>Assistant Professor, Molecular Genetics & Microbiology</u>	<u>2013-2021</u>
<u>Duke University</u>	<u>Assistant Professor, Center for Genomic & Comp. Biol</u>	<u>2014-2021</u>
<u>Duke University</u>	<u>Assistant Professor, Biomedical Engineering</u>	<u>2016-2021</u>
<u>Duke University</u>	<u>Associate Director, Duke Microbiome Center</u>	<u>2017-2022</u>
<u>Duke University</u>	<u>Chair, MGM Diversity & Inclusion Committee</u>	<u>2018-present</u>
<u>Duke University</u>	<u>Associate Professor, Molecular Genetics & Microbiology</u>	<u>2021-present</u>
<u>Duke University</u>	<u>Associate Professor, Biomedical Engineering</u>	<u>2021-present</u>
<u>Duke University</u>	<u>Associate Professor, Center for Genomic & Comp. Biol</u>	<u>2021-present</u>
<u>Duke University</u>	<u>Co-Director, Duke Microbiome Center</u>	<u>2022-present</u>

Publications:

1. Refereed journals: (* denotes co-first authorship; ^ denotes co-senior authorship)
 - i. Named author
 1. CF Glenn, DK Chow, **L David**, C Cooke, M Gami, W Iser, K Hanselman, I Goldberg and CA Wolkow. Behavioral deficits during early states of aging in *Caenorhabditis elegans* result from locomotory deficits possibly linked to muscle frailty. J Gerontol A Biol Sci Med Sci, 59(12):1251-60, Dec 2004. PMID: 15699524.
 2. **LA David**, CH Wiggins. Benchmarking of dynamic Bayesian Networks from stochastic time-series data. Ann NY Acad Sci, 1115 90-101, Dec 2007. PMID: 17925346.
 3. DE Hunt*, **LA David***, D Gevers, SP Preheim, EJ Alm, MF Polz. Resource Partitioning and Sympatric Differentiation Among Closely Related Bacterioplankton. Science, 320(5879):1081-85, May 2008. PMID: 18497299.
 4. BJ Dubin-Thaler, JM Hofman, Y Cai, H Xenias, I Spielman, AV Shneidman, **LA David**, HG Dobreiner, CH Wiggins, MP Sheetz. Quantification of Cell Edge Velocities and Traction Forces Reveals Distinct Motility Modules during Cell Spreading. PLoS ONE, 3(11), Nov 2008. PMID: 19011687.
 5. SP Preheim, Y Boucher, H Wildschutte, **LA David**, D Veneziano, EJ Alm and MF Polz. Metapopulation structure of Vibrionaceae among coastal marine invertebrates. Environ Microbiol, 13:265-275, Jan 2011. PMID: 20819104.
 6. **LA David**, EJ Alm. Rapid evolutionary innovation during an Archean Genetic Expansion. Nature, 469(7328):93-96, Jan 2011. PMID: 21170026.
Press coverage included: Wired, BBC, Slashdot, GenomeWeb, USA Today, US News, New Scientist.
 7. CS Smillie*, MB Smith*, J Friedman, OX Cordero, **LA David**, EJ Alm. Ecology drives a global network of gene exchange connecting the human microbiome. Nature, 480(7376):241-244, Dec 2011. PMID: 22037308.
 8. G Szabo, SP Preheim, KM Kauffman, **LA David**, J Shapiro, EJ Alm, MF Polz. Reproducibility of Vibrionaceae Population Structure in Coastal Bacterioplankton. ISME J, 7:509-519, Mar 2013. PMID: 23178668.
 9. **LA David**, CF Maurice, RN Carmody, DB Gootenberg, JE Button, BE Wolfe, AV Ling, AS Devlin, Y Varma, MA Fischbach, SB Biddinger, RJ Dutton, PJ Turnbaugh. Diet rapidly and reproducibly alters the gut microbiome. Nature, 505(7484):559-563, Jan 2014. PMID: 24336217.
According to the NIH's metrics of research impact, this was the most impactful NIH-funded study of 2014. Press coverage included: New Scientist, Fox News, Daily News, The Scientist, Scientific American, NPR
 10. **LA David**, AC Materna, J Friedman, I Baptista, MC Blackburn, A Perrotta, SE Erdman, EJ Alm. Host lifestyle affects human human microbiota on daily timescales. Genome Biology, 15:R89, Jul 2014. PMID: 25146375.
Press coverage: Huffington Post, Vox, National Geographic.com, the Atlantic, Boston Globe.
 11. **LA David**, A Weil, ET Ryan, SB Calderwood, JB Harris, F Chowdhury, Y Begum, F Qadri, RC LaRocque, PJ Turnbaugh. Gut microbial succession follows acute secretory diarrhea in humans. mBio, 6(3):e00381-15, May 2015. PMID: 25991682.

12. S Wong, WZ Stephens, AR Burns, K Stagaman, **LA David**, BJM Bohannan, K Guillemin, JF Rawls. Ontogenetic Differences in Dietary Fat Influence Microbiota Assembly in the Zebrafish Gut. *mBio*, 6(5):e00687-15, Sept 2015. PMID: 26419876.
13. J Boursier, O Mueller, M Barret, M Machado, L Fizanne, F Araujo-Perez, C Guy, P Seed, J Rawls, **LA David**, G Hunault, F Oberti, P Cales, AM Diehl. The severity of NAFLD is associated with gut dysbiosis and shift in the metabolic function of the gut microbiota. *Hepatology*, 63(3):764-775, Mar 2016. PMID: 26600078.
14. AD Washburne, J Silverman, JW Leff, DJ Bennett, J Darcy, S Mukherjee, N Fierer, **LA David**. Phylogenetic factorization of microbiome data yields lineage-level associations in microbiome datasets. *PeerJ*, 5:e2969, Feb 2017. PMID: 28289558.
15. JD Silverman, A Washburne, S Mukherjee, **LA David**. A phylogenetic transform enhances analysis of compositional microbiota data. *eLife*, 10.7554/eLife.21887, Feb 2017. PMID: 28198697.
Press coverage included Duke Today and Breitbart News.
16. AT Reese, K Lulow, **LA David**, JP Wright. Plant community and soil conditions individually affect soil microbial community assembly in experimental mesocosms. *Ecology & Evolution*, 8:1196-1205, Jan 2018. PMID: 29375790.
17. FS Midani*, AA Weil*, F Chowdhury, YA Begum, AI Khan, MD Debela, HK Durand, AT Reese, SN Nimmagadda, JD Silverman, CN Ellis, ET Ryan, SB Calderwood, JB Harris, F Qadri, **LA David**^, RC LaRocque^. Human Gut Microbiota Predicts Susceptibility to *Vibrio cholerae* Infection. *J Infectious Disease*, 218(4), 645-653, Aug 2018. PMID: 29659916.
18. AT Reese, EH Cho, B Klitzman, SP Nichols, NA Wisniewski, MM Villa, HK Durand, FS Midani, SN Nimmagadda, TM O'Connell, JP Wright, MA Deshusses, **LA David**. Antibiotic-induced changes in microbial respiration disrupt redox dynamics in the mouse gut. *eLife*, 7:e35987, Jun 2018. PMID: 29916366.
19. AT Reese, FC Pereira, A Schintlmeister, D Berry, M Wagner, LP Hale, A Wu, S Jiang, HK Durand, Xiyu Zhou, R Premont, AM Diehl, TM O'Connell, SC Alberts, TR Kartzinel, RM Pringle, RR Dunn, JP Wright, **LA David**. Microbial nitrogen limitation in the mammalian large intestine *Nature Microbiology*, 3:1441-1450, Oct 2018. PMID: 30374168.
20. JD Silverman, HK Durand, RJ Bloom, S Mukherjee, **LA David**. Dynamic linear models guide design and analysis of microbiota studies within artificial human guts. *Microbiome*, 6:202, Nov 2018. PMID: 30419949.
21. A Washburne, J Silverman, J Morton, D Becker, D Crowley, S Mukherjee, **LA David**, R Plowright. Phylofactorization - a graph partitioning algorithm to identify phylogenetic scales of ecological data. *Ecological Monographs*, 89(2):e01353, May 2019.
22. AT Reese*, T Kartzinel*, B Petrone, PJ Turnbaugh, R Pringle^, **LA David**^. Using DNA metabarcoding to evaluate the plant component of human diets: a proof of concept. *mSystems*, 4(5) e00458-19, Oct 2019. PMID: 31594830.
mSystems Editor's Pick: Commentary written by Frank Maixner in mSystems, Nov 2019.
23. MM Villa*, RJ Bloom*, JD Silverman, HK Durand, S Jiang, A Wu, S Huang, L You, **LA David**. Inter-individual variation in dietary carbohydrate metabolism by gut bacteria revealed with droplet microfluidic culture. *mSystems*, 5(3) e00864-19, Jun 2020. PMID: 32606031. mSystems Editor's Pick.
24. I Levade, MM Saber, F Midani, F Chowdhury, AI Khan, YA Begum, ET Ryan, **LA David**, SB Calderwood, JB Harris, RC LaRocque, F Qadri, BJ Shapiro, AA Weil.

- Predicting *Vibrio cholerae* infection and disease severity using metagenomics in a prospective cohort study. J Infectious Diseases, jiaa358, Jul 2020. PMID: 32610345.
25. ZC Holmes, JD Silverman, HK Dressman, Z Wei, SC Armstrong, PC Seed, JF Rawls, **LA David**. Short-Chain Fatty Acid Production by Gut Microbiota from Children with Obesity Differs According to Prebiotic Choice and Bacterial Community Composition. mBio, 11(4) e00914-20, Aug 2020. PMID: 32788375.
 26. Cholan PM, Han A, Woodie BR, Watchon M, Kurz AR, Laird AS, Britton WJ, Ye L, Holmes ZC, McCann JR, **David LA**, Rawls JF, Oehlers SH. Conserved anti-inflammatory effects and sensing of butyrate in zebrafish. Gut Microbes. 2020 Nov 9;12(1):1-11. PMCID: PMC7575005.
 27. McCann JR, Bihlmeyer NA, Roche K, Catherine C, Jawahar J, Kwee LC, Younge NE, Silverman J, Ilkayeva O, Sarria C, Zizzi A, Wootton J, Poppe L, Anderson P, Arlotto M, Wei Z, Granek JA, Valdivia RH, **David LA**, Dressman HK, Newgard CB, Shah SH, Seed PC, Rawls JF, Armstrong SC. The Pediatric Obesity Microbiome and Metabolism Study (POMMS): Methods, Baseline Data, and Early Insights. Obesity. 2021 Mar;29(3):569-578. PMCID: PMC7927749.
 28. Becken B, Davey L, Middleton DR, Mueller KD, Sharma A, Holmes ZC, Dallow E, Remick B, Barton GM, **David LA**, McCann JR, Armstrong SC, Malkus P, Valdivia RH. Genotypic and Phenotypic Diversity among Human Isolates of *Akkermansia muciniphila*. mBio. 2021 May 18;12(3). PMID: 34006653.
 29. Silverman, JD, Bloom RJ, Jiang S, Durand HK, Dallow E, Mukherjee S, **David LA**. Measuring and mitigating PCR bias in microbiota datasets. PLoS Computational Biology. 2021 Jul; 17(7):e 10009113. PMCID: PMC8284789.
 30. Nixon MP, Letourneau J, **David L**, Mukherjee S, Silverman JD. A statistical analysis of compositional surveys. arXiv. Jan 2022. DOI: 10.48550/arXiv.2201.03616.
 31. Silverman J, Roche K, Holmes ZC, **David LA**, Mukherjee S. Bayesian Multinomial Logistic Normal Models through Marginally Latent Matrix-T Processes. J Machine Learning Research. 2022; 23(7) 1-42.
 32. Wu F, Ha Y, Weiss A, Wang M, Letourneau J, Wang S, Luo N, Huang S, Lee CT, **David LA**, You L. Modulation of microbial community dynamics by spatial partitioning. Nature Chemical Biology. 2022 Apr;18(4):394-402. PMID: 35145274.
 33. Holmes ZC, Villa MM, Durand HK, Jiang S, Dallow EP, Petrone BL, Silverman JD, Lin PH, **David LA**. Microbiota responses to different prebiotics are conserved within individuals and associated with habitual fiber intake. Microbiome 2022 Jul, 10, 114.
 34. Letourneau J, Holmes ZC, Dallow EP, Durand HK, Jiang S, Carrion VM, Gupta SK, Mincey AC, Muehlbauer MJ, Bain JR, **David LA**. Ecological memory of prior nutrient exposure in the human gut microbiome. ISME J. 2022 Nov;16(11):2479-2490.
 35. Wang T, Weiss A, Aqeel A, Wu F, Lopatkin AJ, **David LA**, You L. Horizontal gene transfer enables programmable gene stability in synthetic microbiota. Nature Chemical Biology. 2022 Nov;18(11):1245-1252.
 36. Holmes ZC, Tang H, Liu C, Bush A, Neubert BC, Jiao Y, Covington M, Cardona DM, Kirtley MC, Chen BJ, Chao NJ, **David LA**[^], Sung AD[^]. Prebiotic galactooligosaccharides interact with mouse gut microbiota to attenuate acute graft-versus-host disease. Blood. 2022 Nov 24;140(21):2300-2304.
 37. Midani FS[^], **David LA**[^]. Tracking defined microbial communities by multicolor flow cytometry reveals tradeoffs between productivity and diversity. Frontiers in Microbiology. 2023 Jan 5;13:910390.

1. BJ Shapiro, **LA David**, J Friedman, EJ Alm. Looking for Darwin's footprints in the microbial world. Trends Microbiol, 17(5):196-204, May 2009. PMID: 19375326.
 2. JD Silverman, K Roche, S Mukherjee[^], **LA David**[^]. Naught all zeros in sequence count data are the same. Computational & Structural Biotechnology Journal. DOI: 10.1016/j.csbj.2020.09.014.
2. Position, and background papers
1. **LA David**. Towards personalized control of human gut bacterial communities. mSystems, 3(2) e00165-17, Mar 2018.
 2. JBH Martiny, KL Whiteson, BJM Bohannan, **LA David**, NA Hynson, M McFall-Ngai, JF Rawls, TM Schmit, Z Abdo, MJ Blaser, S Bordenstein, C Brechot, CT Bull, P Dorrestein, JA Eisen, F Garcia-Pichel, J Gilbert, KS Hofmockel, ML Holtz, R Knight, DB Mark Welch, D McDonald, B Methe, NJ Mouncey, NT Mueller, CA Pfister, L Proctor, JL Sachs. The emergence of microbiome centres. Nature Microbiology, 5(1):2-3, Jan 2020. PMID: 31857734.
3. Non-authored publications: (Faculty member formally acknowledged in the publication for her/his contributions.)
1. A Hu, N Jiao, R Zhang, Z Yang. Niche-partitioning of marine Crenarchaeota Group I in the euphotic and upper mesopelagic zones of the East China Sea. Appl Environ Microbiol 77(21):7469-79, 2011.
 2. J Friedman, EJ Alm. Inferring correlation networks from genomic survey data. PLoS Comp Biol 8(9):e1002687, 2012.
 3. CF Maurice, HJ Haiser, PJ Turnbaugh. Xenobiotics shape the physiology and gene expression of the active human gut microbiome. Cell 152(1-2):39-50, 2013.
 4. HJ Haiser, DB Gootenberg, K Chatman, CF Maurice, SCL Knowles, J Ladau, KS Pollard, A Fenton, AB Pedersen, PJ Turnbaugh. Marked seasonal variation in the wild mouse gut microbiota. ISME J 9:2423-2434, 2015.
 5. N Keren, FM Konikoff, Y Paitan, G Gabay, L Reshef, T Naftali, U Gophna. Interactions between the intestinal microbiota and bile acids in gallstones patients. Env Micro Rep 7(6):874-80, 2015.
 6. AT Reese, A Savage, E Youngstreadt, KL McGuire, A Koling, O Watkins, SD Frank, RR Dunn. Urban stress is associated with variation in microbial species composition –but not richness–in Manhattan. ISME J 10:751-760, 2016.
4. Other: Manuscripts submitted or in revision at peer-reviewed journals.
1. JD Silverman, L Shenhav, E Halperin, S Mukherjee[^], **LA David**[^]. Statistical considerations in the design and analysis of longitudinal microbiome studies. Submitted most recently to mSystems as invited review (peer-reviewed). Pre-print available at [bioRxiv](https://doi.org/10.1101/448332), doi.org/10.1101/448332.
 2. SN Nimmagadda, FS Midani, HK Durand, AT Reese, C Murdoch, B Nicholson, T Veldman, T Burke, C Woods, G Ginsburg[^], **LA David**[^]. Human nasal microbiota are robust to rhinoviral infection. In revision at J Infectious Disease.

3. Petrone BL, Aqeel A, Jiang S, Durand HK, Dallow EP, McCann JR, Dressman HK, Hu Z, Tenekjian CB, Yancy Jr. WS, Seed PC, Rawls JF, Armstrong SC, Stevens J, **David LA**. Diversity of plant DNA in stool is linked to dietary quality, age, and household income. In review. Pre-print available at: medRxiv 2022.06.13.22276343; <https://doi.org/10.1101/2022.06.13.22276343>.

Consultant appointments:

- 2013 Judge, Innocentive Competition
- 2015 Ad hoc reviewer, National Science Foundation
- 2016 Panel member: Discussion on Interdisciplinary Training, Burroughs Wellcome Fund
- 2017 Ad hoc reviewer, NIH Modeling and Analysis of Biological Systems Study Section
- 2019 Ad hoc reviewer, NCCIH/NIH NP-TEMPO, U41 Study Section
- 2020 Ad hoc technical expert, NIGMS/NIH, PAR-20-103
- 2021 Ad hoc reviewer, NIH ZGM1 TWD-5 (KR)
- 2021 Ad hoc reviewer, United Kingdom Research and Innovation, MRC
- 2022 Ad hoc reviewer, NSF CAREER award
- 2022 Ad hoc reviewer, Philippine-American Academy of Science & Engineering - GradMAP Graduate School Application Grant Program
- 2023 Ad hoc reviewer, Canada Research Chair, NSERC

Scholarly societies:

- 2005-present Tau Beta Pi
- 2011-present American Society for Microbiology
- 2020-present American Association for the Advancement of Science
- 2022-present Association of Filipino Scientists in America (mentor)

Professional awards and special recognitions:

- 2022 Chan Zuckerberg Initiative Science Diversity Leadership Award (1 of 25 nationwide)
- 2022 Gordon G. Hammes Faculty Teaching Award, Distinguished Nominee
- 2021 Langford Lecture, Duke University (1 of 4 recently promoted faculty)
- 2021 Investigator in the Pathogenesis of Infectious Disease, Burroughs Wellcome Fund (1 of 11)
- 2020 Scialog Microbiome, Neurobiology and Disease Fellow (1 of 50 nationwide)
- 2020 Inclusivity Award, Duke University Graduate and Professional Student Council
- 2018 Damon Runyon-Rachleff Innovator (1 of 6 nationwide)
- 2018 Early-Career Systems Microbiologist, mSystems
- 2016 SN10: ScienceNews 10 Scientists to Watch
- 2015 Beckman Young Investigator (1 of 8 nationwide)
- 2015 Searle Scholar (1 of 15 nationwide)
- 2015 Hartwell Investigator (1 of 12 nationwide)
- 2014 Alfred P. Sloan Research Fellow (1 of 12 biologists nationwide)
- 2013 Whitehead Scholar, Duke University
- 2010 Elected Junior Fellow, Harvard Society of Fellows
- 2009 MIT Whitaker Health Sciences Fund Fellowship
- 2005 National Defense Science and Engineering Graduate Fellowship

- 2005 Dept. of Energy Computational Science Graduate Fellowship [declined]
- 2005 Ford Foundation Diversity Predoctoral Fellowship [declined]
- 2005 Thomas “Pop” Harrington Award, Columbia University
- 2005 Robert E. and Claire S. Reiss Graduate Prize, Columbia University
- 2004 Elected, Tau Beta Pi
- 2004 Barry M. Goldwater Scholarship
- 2002 Westchester Filipino-American Scholarship
- 2001 Columbia C.P. Davis Scholar

Editorial Experience

a. Editorial Boards

- 2017-2018 Genome Magazine
- 2019-2022 mSystems

b. Ad Hoc scientific review journals

- Bioinformatics
- Biology Letters
- Biotechnology & Bioengineering
- BMC Bioinformatics
- British J of Nutrition
- Cell Host & Microbe
- Cell Reports
- Clinical Infectious Diseases
- Disease Models & Mechanisms
- eLife
- Environmental Microbiology
- Genome Biology
- Genome Research
- Gut Microbes
- ISMEJ
- J Biomedical Informatics
- J Clinical Investigation
- J Mammalogy
- mBio
- Microbiome
- Nature Microbiology
- Nature Reviews Gastroenterology
- npj Biofilms & Microbiomes
- PLoS Computational Biology
- PLoS One
- PLoS Pathogens
- Proceedings of the National Academy of Sciences
- Science Translational Medicine

- Scientific Reports
- Trends in Microbiology

Organizations and participation:

- 2011-present American Society for Microbiology (Founding member of annual meeting Junior Advisory Group, 2011-2013)
- 2016-2019 NCBiotech Microbiome Consortium. Founding member and Duke representative.
- 2019-present National Microbiome Centers. Co-organizer of inaugural meeting and Duke representative
- 2021-present Triangle Center for Evolutionary Medicine. Advisory board member.

External support:

a) Past:

Research Agreement (David) The Global Probiotic Council	7/1/2014 – 6/30/2015 \$46,402 total direct	1.2 calendar (10%)
“A high-throughput pipeline for identifying probiotic bacteria that selectively inhibit deleterious gut microbes” This proposal seeks to develop computational and experimental pipelines for identifying useful probiotic bacteria.		
BR2014-003 (David) Alfred P. Sloan Foundation	9/15/2014 – 9/15/2016 \$50,000 total direct	0.91 calendar (7.6%)
“Alfred P. Sloan Research Fellowship for Dr. Lawrence David in Computational & Evolutionary Molecular Biology” This award is to fund the general operations of the David Lab, whose overall goal is to understand how the human microbiome resists and responds to perturbation.		
Research Agreement (David) Hartwell Foundation	4/1/2015 – 3/31/2018 \$300,000 total direct	1.2 calendar (10%)
“Linking oxygen and bacterial ecology in necrotizing enterocolitis” The goal of this project is to relate oxygen and microbial ecology in necrotizing enterocolitis.		
15-SSP-184 Research Agreement (David) Searle Scholars Program	7/1/2015 – 6/30/2018 \$300,000 total direct	2.16 calendar (18%)
“Manipulating human-associated microbial communities” “The goal of this project is to develop computational models for inferring and manipulating ecological networks connecting human-associated bacteria.”		
1R21-DK110496-01 (Valdivia) NIH	7/01/2016 - 6/30/2018 \$275,000 total direct	0.6 calendar (5%)
“Genetic Analysis in an intractable gut microbe” The goal of this proposal is to develop methods and tools to perform a genetic analysis of functions related to the degradation of mucins by Akkermansia muciniphila, a gut microbe that is linked to obesity. Project Role: Co-Investigator		

1R24-DK110492-04 (MPI Rawls & Seed) NIH	7/01/2016 - 6/30/2021 ~\$4,375,000 total direct	1.2 calendar (10%)
<p>“A comprehensive research resource to define mechanisms underlying microbial regulation of host metabolism in pediatric obesity and obesity-targeted therapeutics”</p> <p>The major goal of this project is to establish a comprehensive research resource to define mechanisms underlying microbial regulation of host metabolism in adolescents with obesity before and after weight loss intervention.</p> <p>Project Role: Co-Investigator</p>		
NNX16A069A (David) Baylor College of Medicine/NASA	10/1/2017 – 9/30/2019 \$251,570 total direct	1.8 calendar (15%)
<p>“Personalizing prebiotic therapies for astronauts' gut microbiota”</p> <p>The objective is to create a pipeline for rationally designing prebiotic treatments for astronauts.</p>		
Research Grant (David) Arnold and Mabel Beckman Foundation	9/1/2015 – 8/30/2020 (NCE) \$750,000 total direct	3.6 calendar (30%)
<p>“Using natural bacterial interactions to control host-associated microbial communities”</p> <p>The goals of this project are to develop methods for finding inhibitory interactions between gut microbes and <i>E. coli</i>, and to test those interactions in vivo.</p>		
1R01-DK116187-03 (David) National Institutes of Health	12/1/2017 – 11/30/2022 \$1,125,000 total direct	3.6 calendar (30%)
<p>“Personalizing prebiotic therapies that target human gut microbiota”</p> <p>The major goal of this project is to rationally design prebiotic and probiotic therapies that can modulate production of short-chain fatty acids in the human gut.</p>		
49-18 (David/Sung) Damon Runyon Cancer Research Foundation	1/1/2018 – 12/31/2022 \$550,000 total direct	0.12 calendar (1%)
<p>“Personalized prebiotics to optimize microbiota metabolism and improve transplant outcomes”</p> <p>The goal of this project is to develop personalized prebiotic treatments to prevent graft-vs-host disease</p>		
N00014-18-1-2616 (David) Office of Naval Research	6/01/2018 - 05/31/2021 \$362,741 total direct	0.6 calendar (1%)
<p>“Predicting prebiotic effects on human microbiota, behavior, and cognition.”</p> <p>The major goal is to measure and predict the impact of prebiotic treatment on multiple aspects of human performance.</p>		
Research Grant (David) North Carolina Biotechnology Center	8/01/2019 – 06/31/2021 \$110,000 total direct	0.12 calendar (1%)
<p>“Accurate and automated tracking of patient urine and stool”</p> <p>The major goal of this project is to develop a hospital device capable of distinguishing urine and stool events during toilet use, as well as measuring their mass.</p>		

b) Present:

Pathogenesis of Infectious Disease (David) Burroughs Wellcome Fund	7/1/2021 – 7/1/2026 \$500,000 total direct	0.6 calendar (5%)
<p>“Dietary strategies for enhancing bacterial pathogen resistance in the gut.”</p>		

Here, we will develop strategies for enhancing microbiota colonization resistance (CR) via diet. To do so, we will: identify dietary components that shape microbiota CR; investigate how microbiota variation between individuals affects dietary responses and CR; and, examine longitudinal dosing strategies to maximize CR.

Research Grant (David) 5/15/2022 - 5/14/2023 0.48 calendar (4%)
 Springer Nature Limited \$110,000 including indirects
 “Dietary determinants of infant microbiome metabolism”
 The primary goal of this project is to test the hypothesis that dietary plant diversity and gut microbiome metabolic potential are linked among infants at risk of enteric illness.

1R01-AI142376-01 (Valdivia) 9/21/2018 – 8/31/2023 0.6 calendar (2%)
 National Institutes of Health \$1,200,000 total direct
 “Genetic analysis of mucin utilization by *Akkermansia muciniphila* and its impact on host physiology”
 The goal of this project is to determine the role that mucin metabolism by *Akkermansia muciniphila* plays in controlling the composition of gut microbial communities and its impact on the function of intestinal epithelia and host physiology.
 Project Role: Co-Investigator

1R01-HL151365-01 (Sung) 4/1/2020 – 3/31/2025 0.24 calendar (2%)
 National Institutes of Health \$1,125,000 total direct
 “Prebiotics to Optimize the Microbiota and Improve Outcomes of Allogeneic Hematopoietic Stem Cell Transplantation”
 Our long-term goal is to understand how prebiotic interventions, the microbiota, and bacterial metabolites affect HCT. We expect the data, models, stool and blood based biomarkers profiles resulting from this study will lead to a future clinical trial in which we use microbiota-based diagnostic assays to select HCT patients for prebiotic treatment.
 Role: Co-investigator

1R21AG077143-01 (Davy) 5/15/2022 - 2/28/2023 0.6 calendar (5%)
 National Institutes of Health \$60,269 including indirect costs
 “Ultra-processed food consumption, gut microbiota, and glucose homeostasis in mid-life adults”
 The major goal is to examine the role of the microbiome when older and young adults consume ultraprocessed foods.
 Role: Co-investigator

1R21-AG1075930-01A1 (Davy) 7/1/2022 - 6/30/2024 0.6 calendar (5%)
 National Institutes of Health \$65,696 including indirect costs
 Major Goals: “Vascular consequences of ultra-processed food consumption in middle-age”
 To determine the influence of UPF consumption on flow-mediated dilation and arterial stiffness in middle-aged adults and to determine the influence of UPF consumption on gut microbial composition and function, intestinal inflammation and permeability, serum endotoxin concentrations, and inflammatory cytokines in middle-aged adults.
 Role: Co-investigator

1R01-DK128611-01A1 (David) 9/1/2022 - 6/30/2026 1.38 calendar (11.5%)
 National Institutes of Health \$2,136,546 including indirect costs
 ‘Using DNA sequencing to assess dietary species richness’

We will use these studies to validate that metabarcoding species richness reflects existing measures of dietary diversity measured by standard surveys of dietary intake, as well as illustrate how metabarcoding can be integrated into models of metabolic disease risk, examine temporal trends in metabarcoding results, and identify potential geographic and socioeconomic determinants of dietary diversity.

Research Project (David) 9/1/2022 - 8/31/2027 1.2 calendar (10%)
 Chan Zuckerberg Initiative \$1,000,000 in direct costs
 ‘A computational pipeline for DNA metabarcoding’
 Major Goals: The major goal of this project is to develop a computational pipeline for processing and analyzing DNA metabarcoding data.

EEC- 2133504-01 (Gunsch) 9/1/2022 - 8/31/2027 0.24 calendar (2%)
 NSF \$26,000,000 (including Indirect Costs)
 NSF Engineering Research Center for Precision Microbiome Engineering (PreMiEr)
 Major Goals: The major goal of the Precision Microbiome Engineering Research Center is to develop an integrated framework that advances microbiome technologies at the intersection of human health and the built environment.
 Role: Co-Investigator

Research Project (David) 1/1/2023 - 12/31/2025
 Gerber Foundation \$318,181 in direct costs
 ‘Insights and Interventions for Infant Diet via DNA metabarcoding’
 Major Goals: In this study, we will apply DNA metabarcoding to a large cohort of infants, which will give us the ability to explore the association of dietary diversity and health outcomes. Using machine learning, we will use this data to simplify and standardize measures of dietary diversity among infants and identify specific foods associated with health outcomes, which can then be used to inform a new generation of infant dietary guidelines. Finally, we will assess whether personalized data return of diet metabarcoding data improves compliance of caregivers with dietary recommendations.

c) Pending:

2R01-DK116187-06A1 (David) 05/31/2023 - 05/30/2028 2.4 calendar (20%)
 National Institutes of Health \$2,380,639 including indirects
 ‘Dietary plant diversity and the human gut microbiome’
 The main goal of this project is to investigate the factors underlying relationships between dietary plant diversity and the gut microbiome.
 Status: Reviewed and Impact Score of 31 (11%)

1R33-HL167251-01 (David) 7/1/2023 - 6/30/2025 2.4 calendar (20%)
 National Institutes of Health \$950,353 including indirects
 ‘Accurate and Automated Measurement of Patient Urine and Stool’
 The goal of this project is to develop a device for tracking patient urine and stool output in the setting of hematopoietic stem cell transplantation. Here, we will validate the accuracy of our working prototype device. We will then assess the performance of our device in a hospital-based patient trial
 Status: Awaiting review

Mentoring activities

i. Faculty

- 2015-2019 Ana Weil, M.D. Massachusetts General Hospital. T32 and K08 co-mentor.
2021-present Sweta Patel, M.D. Duke University. SOC committee member.
2022-present Seth Morrison, M.D. University of North Carolina, T32 advisory committee.

ii. Fellows, doctoral, post docs (direct trainees)

- 2021-present Teresa Kaza McDonald, PhD student, Molecular Genetics & Microbiology, Duke University. Awarded NSF GFRP fellowship.
2021-present Benjamin Neubert, PhD student, Computational Biology and Bioinformatics, Duke University.
2021-present Ammara Aqeel, PhD student, Molecular Genetics & Microbiology, Duke University.
2020-present Jun Zeng, PhD student, Molecular Genetics & Microbiology, Duke University.
2018-present Brianna Petrone, MD/PhD Candidate, Molecular Genetics & Microbiology, Duke University.
2018-2022 Jeffrey Letourneau, PhD student, Molecular Genetics & Microbiology, Duke University. Awarded NSF GFRP fellowship. Now Computational Biologist at Novartis
2017-2021 Zachary Holmes, PhD student, Molecular Genetics & Microbiology, Duke University. Awarded Department of Defense NDSEG graduate fellowship; NSF GFRP fellowship (declined).
2016-2017 Alex Washburne, Ph.D. Postdoctoral Associate, Molecular Genetics & Microbiology, Duke University. Now postdoctoral scholar at Montana State University
2015-2020 Max Villa, Ph.D. Postdoctoral Associate, Molecular Genetics & Microbiology, Duke University. Received Burroughs Wellcome Postdoctoral Enrichment Program Award. Now Scientist at Baebies, Inc.
2015-2019 Justin Silverman, MD/PhD student, Computational Biology & Bioinformatics, Duke University. Went directly to Pennsylvania State University tenure-track faculty position following graduation.
2014-2018 Firas Midani, PhD student, Computational Biology & Bioinformatics, Duke University. Now postdoctoral scholar at Baylor University.
2014-2019 Rachael Bloom, PhD student, University Program in Genetics & Genomics, Duke University. Awarded NSF GFRP fellowship. Now Scientist at Novozymes.
2013-2017 Aspen Reese, PhD student, University Program in Ecology, Duke University Awarded NSF GFRP and Department of Defense NDSEG graduate fellowship (declined). Became Junior Fellow (3-year PI position) at Harvard Society of Fellows in 2017; now tenure-track faculty at University of California, San Diego.

iii. Medical students

- 2018-present Diana Dayal, MD student, University of North Carolina. Will become Zuckerman Fellow (full scholarship School of Public Health, Harvard University) in 2020.

iv. Thesis committees

2010-2013	Sena Bae, PhD student, Biomedical Engineering. Primary advisor: Raphael Valdivia
2014-2017	Hannah Meredith, PhD student, Biomedical Engineering. Primary advisor: Lingchong You
2014-2017	Allison Lopatkin, PhD student, Biomedical Engineering. Primary advisor: Lingchong You
2014-2018	Qinglong Zeng, PhD student, Biology. Primary advisor: Allen Rodrigo
2015-2019	Gabrielle Grandchamp, PhD student, Microbiology & Immunology (University of North Carolina). Primary advisor: Elizabeth Shank
2015-2019	Lydia Greene, PhD student, University Program in Ecology. Primary advisor: Christine Drea
2016-2017	Meghana Rao, Undergraduate honors thesis, Biology. Primary advisor: Jenny Tung
2016-2020	Feilun Wu, PhD student, Biomedical Engineering. Primary advisor: Lingchong You
2016-present	Jonathan Bethke, PhD student, Molecular Genetics & Microbiology. Primary advisor: Lingchong You
2017-2017	Bryan Brown, PhD student, University Program in Ecology. Primary advisor: Jen Wernegreen
2017-2017	Kara McGaughey, Undergraduate honors thesis, Biology. Primary advisor: Doug Williamson
2017-2018	Lauren Frei, MS student, Civil & Environmental Engineering. Primary advisor: Marc Deshusses
2017-present	Hannah McMillan, PhD student, Cell & Molecular Biology. Primary advisor: Meta Kuehn
2017-present	Kevin Zhu, PhD student, Molecular Genetics & Microbiology. Primary advisor: Hiro Matsunami
2017-present	Rui Xi, PhD student, Biomedical Engineering. Primary advisor: Xiling Shen.
2017-present	Jeff Bourgeois Jr., PhD student, Molecular Genetics & Microbiology. Primary advisor: Dennis Ko
2018-2020	Diana Vera Cruz, PhD student, Biology. Primary advisor: Katia Koelle
2018-2020	Courtney Swink, PhD student, Marine Sciences. Primary advisor: Zackary Johnson
2019-2022	Anders Dohlman, PhD student, Biomedical Engineering. Primary advisor: Xiling Shen
2018-2022	Kimberly Roche, PhD student, Computational Biology & Bioinformatics. Primary advisor: Sayan Mukherjee
2020-2022	Teng Wang, PhD student, Biomedical Engineering. Primary advisor: Lingchong You
2018-present	Cece Kelly, PhD student, Cell & Molecular Biology. Primary advisor: John Rawls
2018-present	Daniel Rodriguez, PhD student, Biomedical Engineering. Primary advisor: Claudia Gunsch
2019-present	Jay Jawahar, PhD student, Molecular Genetics & Microbiology. Primary advisor: John Rawls
2020-present	Zeni Rodriguez, PhD student, Molecular Genetics & Microbiology. Primary advisor: Neil Surana
2020-present	Elissa Foss, PhD Student, UPGG. Primary advisor: Anne Yoder.

2022-present Agastya Sharma, PhD Student, MGM. Primary advisor: Raphael Valdivia
2022-present Ozge Kuddar, PhD Student, NCSU. Primary advisor: Ben Callahan

v. Postdoc mentoring team

2017-2017 Tatyana Sysoeva, Biomedical Engineering, K12 KURe Career Development Program. Primary advisor: Lingchong You
2020-present Carolina Smith, K99 Career Development Program. Primary advisor: Staci Bilbo.
2021-present Alfredo Blakely-Ruiz, North Carolina State University. T32 advisory committee. Primary advisor, Manuel Kleiner.

Education / Teaching activities

1. Teaching and supporting Learners

1. Oct 2013: Lecture (1 hr), CBB 520: Genome Tools & Technologies
2. Oct 2013: Lecture (1 hr), IGSP Focus Class, Genomics of Symbiosis
3. Nov 2013: Lecture (1 hr), UPGEN 778 Module: Science Communication
4. Nov 2013: Lecture (1 hr), GENOME508S: Genomics & Global Health
5. Feb 2014: Lecture (1 hr), GENOME 256: Genome Sciences & Society
6. Mar 2014: Lecture (1 hr), MGM 582: Microbial Pathogenesis
7. Nov 2014: Lecture (1 hr), BIO 417S: Genetic Engineering & Biotechnology
8. Nov 2014: Lecture (1 hr), IGSP Focus Class, Genomics of Symbiosis
9. Dec 2014: Mentor, CMB Symposium Series
10. Mar 2015: Lecture (1 hr), MGM 582: Microbial Pathogenesis
11. Oct 2015: Q&A (1 hr), GENOME 256: Genome Sciences & Society
12. Nov 2015: Lecture (1 hr), Bioethic 605S: Bioethics and Science Policy
13. Mar 2016: Lecture (1 hr), MGM 582: Microbial Pathogenesis
14. Oct 2016: Lecture (1 hr), IBIEM Collaborative Science Practicum
15. Oct 2016: Mock reviewer (2 hrs), MGM 702: Grantwriting
16. Mar 2017: Lectures (2 hrs), MGM 582: Microbial Pathogenesis
17. Mar 2018: Lecture (1 hr), Bass Connections, Blue Devil Resistome
18. Mar 2018: Lectures (2 hrs), MGM 582: Microbial Pathogenesis
19. Jul 2018: Lecture (1 hr), Biological Sciences Undergraduate Research Fellows
20. Sep 2018: Lectures (3 hrs), UPGEN 778: Microbiome Module
21. Nov 2018: Mock reviewer (2 hrs), MGM 702: Grantwriting
22. Feb 2019: Lectures (2 hrs), MGM 582: Microbial Pathogenesis
23. Nov 2019: Lectures (3 hrs), UPGEN 778: Microbiome Module
24. Feb 2020: Lectures (2 hrs), MGM 582: Microbial Pathogenesis
25. Nov 2020: Lectures (3 hrs), UPGEN 778: Microbiome Module
26. Nov 2020: Mock reviewer (2 hrs), MGM 702: Grantwriting
27. Feb 2021: Lecture (1.5 hrs), MGM 582: Microbial Pathogenesis
28. Nov 2021: Lectures (3 hrs), UPGEN 778: Microbiome Module
29. Oct 2021: Mock reviewer (2 hrs), MGM 702: Grantwriting
30. Feb 2021: Lecture (1.5 hrs), MGM 582: Microbial Pathogenesis
31. Jul 2022: Lecture (1 hr), Biological Sciences Undergraduate Research Fellows
32. Sep 2022: Lectures (3 hrs), UPGEN 778: Microbiome Module
33. Feb 2023: Lecture (1.5 hrs), MGM 582: Microbial Pathogenesis

2. Development of courses/educational programs

1. 2015: Course reviewer, MGM720 (Prof. Fred Dietrich)
2. 2018: Course development: UPGEN 778: Microbiome Module

3. Education management/ Leadership

1. Oct 2016: “What Makes Me a Scientist” Lecture, Duke BioCoRE program

Invited Lectures and Presentations

i. Named Lectures

1. Cornell EvoDay (Harrison Keynote Lecture), Ithaca, NY, May 2019

ii. Visiting Professorships

1. International Center for Diarrhoeal Disease & Research, Bangladesh Seminar, Dhaka, Bangladesh, Aug 2012
2. National Institute of Health, Manila, Philippines, Feb 2013
3. Pasteur Fellowship Visiting Scholar, Institut Pasteur, Paris, France, Feb 2014
4. LadHyX Seminar, Ecole Polytechnique, Palaiseau, France, Feb 2014
5. Biology of Populations Colloquium, Princeton University, Princeton, NJ, Dec 2014
6. Digestive Disease Lecture Series, University of Chicago, Chicago, IL, Nov 2015
7. Department of Microbiology and Immunology Seminar, McGill University, Montreal, Canada, Dec 2015
8. Inflammation, Immunity, and Infectious Diseases Seminar, University of Utah, Salt Lake City, UT, May 2017
9. Special Seminar, Molecular Biology & Biochemistry, UC Irvine, Irvine, CA, Apr 2019
10. Infectious Diseases Institute Seminar, the Ohio State University, Columbus, OH, Sep 2020
11. IMP Spring Seminar Series, University of Massachusetts Medical School, Worcester, MA, Nov 2020
12. Guest Lecture Series, Institute of Systems Biology, Seattle WA, Nov 2021 (virtual)
13. Microbiome Seminar Series, University of Virginia, Charlottesville, VA Dec 2021 (virtual)
14. Environmental Microbiology Seminar, Eawag/ETH Zurich, Apr 2022 (virtual)
15. Department of Biology, University of Connecticut, Storrs, CT, Aug 2022
16. Department of Plant & Microbial Biology, North Carolina State University, Raleigh, NC, Jan 2023
17. Department of Nutrition, University of North Carolina, Chapel Hill, NC, Apr 2023
18. Department of Biology, East Carolina University, Greenville, NC, Apr 2023

iii. International Meetings

1. Duke-NUS Symposium, Duke-NUS Graduate Medical School, Singapore, Mar 2015
2. Food-Microbiome Interaction: Implications for Human Health and Disease, Royal Society, London, UK, May 2016 (invited)
3. 3rd International Symposium on Biology, Prevention, and Treatment of Toxicities After Transplantation and Cellular Therapy, Memorial Sloan Kettering Cancer Center, New York, NY, Apr 2023
4. International Scientific Association for Probiotics & Prebiotics, Jun 2023 (invited)

iv. National Scientific Meetings (invited)

1. Memorial Sloan-Kettering Cancer Center, New York, NY, Feb 2012
 2. International Research in Infectious Diseases Annual Meeting, Bethesda, MD, May 2012
 3. Genomics Standards Consortium 15, Bethesda, MD, Apr 2013
 4. The 20th International Microbial Genomes Conference, UCLA Conference Center, Lake Arrowhead, CA, Sep 2014
 5. US Probiotics Scientific Board Meeting, New York, NY, Feb 2016
 6. Molecular Pathogenesis & Host Response Meeting, Cold Spring Harbor Laboratory, Cold Spring, NY, Sep 2017
 7. Bioinformatics for the Microbiome Symposium, Stanford University, Palo Alto, CA, Sep 2017
 8. 11th International Conference in Bioinformatics, Georgia Tech, Atlanta, GA, Nov 2017
 9. ASBMB Annual Meeting, Orlando, FL, Apr 2019
 10. Department of Defense Tri-Service Microbiome Consortium 3rd Annual Meeting, Wright Patterson Air Force Base, Fairborn, OH, Oct 2019
 11. International Conference on Microbiome Engineering, Boston, MA, Dec 2019
 12. ASM Microbe 2020, Chicago, IL, Jul 2020
 13. Anaerobe Congress, Seattle, WA, Jul 2020
 14. Society of In Vitro Biology, May 2021 (virtual)
 15. Harvard Chan Microbiome Symposium, Harvard University, May 2022 (virtual)
 16. Microbiome Meeting, Cold Spring Harbor, October 2022 (nutrition session co-chair)
- v. Instructional courses, workshops, symposiums (International)
1. IDESHI genomics course, ICDDR,b, Dhaka, Bangladesh Mar 2014 (Co-organizer)
 2. PCTS Workshop: Space: The Final Frontier of Microbial Communities, Princeton University, Princeton, NJ, Jan 2023
- vi. Instructional Courses, workshops, symposiums (National)
1. DCEG Fellows Training Symposium, NIH/NCI, Bethesda, MD, Mar 2014
 2. Bollum Symposium, University of Minnesota, Minneapolis, MN, May 2014
 3. Hartwell Foundation Symposium, University of Wisconsin, Madison, WI, Sep 2015
 4. HHMI Science Symposium, University of Richmond, Richmond, VA, Sep 2015 (Keynote)
 5. Symposium on Biotechnology, University of Missouri, St. Louis, MO, Nov 2015
 6. First Workshop on Statistical and Algorithmic Challenges in Microbiome Data Analysis, New York, NY, Feb 2016
 7. Hartwell Foundation Symposium, Case Western University, Cleveland, OH, Sep 2016
 8. TRISH Red Risk School, Houston, TX, Dec 2020 (virtual)
 9. mSystems Thinking Lecture Series, Apr 2021 (virtual)
 10. Microbiome and Neuroscience Workshop, NIEHS/NIH, Aug 2021 (virtual)
- vii. Posters (National meeting)
1. Beckman Symposium, Irvine, CA, Aug 2015
 2. Searle Scholars Meeting, Chicago, IL, Feb 2016
 3. Beckman Symposium, Irvine, CA, Aug 2016
- viii. Regional presentations and posters
1. Duke University Program in Genetics & Genomics Seminar, Durham, NC, Sep 2013
 2. Duke Genomic and Personalized Medicine Forum, Durham, NC, Sep 2013
 3. Duke Computational Biology & Bioinformatics Seminar, Durham, NC, Sep 2013

4. Duke Marine Lab Fall Seminar, Beaufort, NC, Sep 2013
5. Duke Marine Lab Fall Seminar, Beaufort, NC, Sep 2013
6. Duke University Program in Ecology Seminar, Durham, NC, Nov 2013
7. Grand Rounds, Department of Gastroenterology, Duke University School of Medicine, Durham, NC, Sep 2014
8. Oral Biology Seminar Series, School of Dentistry, University of North Carolina, Chapel Hill, NC, Sep 2014
9. Grand Rounds, Pediatrics, Duke University School of Medicine, Durham, NC, Sep 2014
10. Human & Environmental Microbiome Symposium, Duke University, Durham, NC, Sep 2014
11. Board of Trustees Meeting, Duke University, Durham, NC, Sep 2014
12. Alumni Association Board Meeting, Duke University, Durham, NC, Feb 2015
13. Infectious Disease Seminar, NC State College of Veterinary Med., Raleigh, NC, Apr 2015
14. Microbiome Research in Progress Seminar, UNC Chapel Hill, Chapel Hill, NC, Mar 2016
15. Bioinformatics and Genomics Seminar, UNC Charlotte, Charlotte, NC, Apr 2016
16. BASF Plant Science, Research Triangle Park, NC May 2016
17. Triangle Microbial Interactions Seminar, Chapel Hill, NC, Dec 2016
18. RTP 180: Microbiomes, Raleigh, NC, Jan 2017
19. Microbiology Seminar, NC State University, Raleigh, NC, Mar 2017
20. Pharmaceutical Sciences Conference, UNC Chapel Hill, Chapel Hill, NC, May 2017
21. Precision Medicine World Conference, Duke University, Durham, NC, May 2017
22. Seminar Series, AgBiome, Research Triangle Park, NC, Dec 2017
23. CGIBD Seminar Series, UNC Chapel Hill, Chapel Hill, NC, Apr 2018
24. Pharmaceutical Sciences Conference, UNC Chapel Hill, Chapel Hill, NC, Jun 2018
25. Precision Medicine World Conference, Duke University, Durham, NC, Sep 2018
26. Reimagining the Duke Community as Research and Pedagogy Expand, Board of Trustees Meeting, Duke University, Durham, NC, Feb 2019
27. Grand Rounds, Division of Endocrinology, Duke University School of Medicine, Durham, NC, Aug 2019
28. Inaugural Research Week, School of Medicine, Duke University, Durham NC, Oct 2019
29. Oktoberfest, Diet & Fitness Center, Duke University, Durham NC, Oct 2019
30. Symposium on Food Systems, Nutrition, and the Microbiome, Duke University, Durham NC, Nov 2019
31. CGIBD Seminar Series, UNC Chapel Hill, Chapel Hill, NC, Feb 2020
32. Microbiome Symposium, NC Biotechnology Center, Durham, NC Oct 2020
33. University Scholars Program, Duke University, Durham NC, Nov 2020 (virtual)
34. IBIEM Focus Series, Duke University, Durham NC, Nov 2020 (virtual)
35. Seminar Series, Duke Molecular Physiology Institute, Durham NC, Apr 2022
36. Board of Visitors Meeting, Duke School of Medicine, Durham, NC, Oct 2022

Public Science Outreach

1. Storycollider Series, Boston, MA, Dec 2012
2. Seminar, Museum of Science, Boston, MA, Mar 2013
3. Periodic Tables Lecture Series, Motorco, Durham, NC, Jan 2019
4. Scitech Lecture Series, NC Museum of Natural Sciences, Raleigh, NC Apr 2021 (virtual)
5. Public Health America Radio Series, Mercy College, NY Oct 2021 (virtual)

Participation in academic and administrative activities of the University and Medical Center

i. Administrative positions

1. 2013-present Advisor, Duke Microbiome Shared Resource
2. 2014 Co-organizer, GeMS Symposium
3. 2015 Co-organizer, Microbiome Synthesis MedX Colloquia
4. 2015-2017 Co-organizer, MGM departmental retreat
5. 2016 Co-organizer, MGM departmental website redesign
6. 2016 Faculty liaison, CBB seminar series
7. 2017 Co-organizer, Duke Integrative Bioinformatics for Investigating and Engineering Microbiomes Symposium
8. 2019 Co-organizer, Symposium on Food Systems, Nutrition, and the Microbiome
9. 2022 Co-organizer, Symposium on Biological Design and Machine Learning

ii. Committees

1. 2013 CBB graduate admissions committee
2. 2014 MGM graduate admissions committee
3. 2015 UPGG graduate admissions committee
4. 2015 Duke internal advisor for Hartwell Investigator awards
5. 2015 Duke Red Team reviewer for Searle Scholar Program
6. 2016 CBB graduate admissions committee
7. 2016 Duke internal advisor for Hartwell Investigator awards
8. 2016 Duke internal advisor for Beckman Young Investigator awards
9. 2016 Duke Red Team reviewer for Searle Scholar Program
10. 2018 Duke internal advisor for Hartwell Investigator awards
11. 2019 Duke Red Team reviewer for Keck Foundation proposal
12. 2019 Reviewer, Duke Microbiome Center Development Grant competition
13. 2020 Reviewer, Duke Microbiome Center COVID-19 Grant competition

iii. Leadership positions

1. 2014 Participant, Duke LEADER program
2. 2015 Participant, Duke Path to Independence Program
3. 2017-2018 Co-chair, Provost's Science Initiative, Genomics Subgroup
4. 2017-2022 Associate Director, Duke Microbiome Center
5. 2022-present Interim Director, Duke Microbiome Center
6. 2018-present Chair, MGM Diversity & Inclusion Committee