CURRICULUM VITAE

PETER A. BELENKY, Ph.D.

Contact Information:

Peter Belenky, Ph.D.
Associate Professor
Department Molecular Microbiology and Immunology
Brown University
171 Meeting Street
Providence, RI 02912
peter_belenky@brown.edu
Twitter: @belenkylab
Lab website: https://sites.brown.edu/belenkylab/

Education:

2000 – 2004 **B.S. – Biochemistry**
B.A. – Studio Art
Brandeis University, Waltham, MA
Mentor: Dr. Lizbeth Hedstrom, Department of Biochemistry
Dissertation: "Inosine 5'-monophosphate Dehydrogenase Binds Nucleic Acids *in vitro*"

2004 – 2009 **Ph.D. – Biochemistry**
Dartmouth Medical School, Molecular and Cellular Biology, Hanover, NH
Mentor: Dr. Charles Brenner
Dissertation: "New Pathways of NAD^+ Metabolism and Longevity"

Professional Appointments:

2001 – 2003 **HHMI Undergraduate Fellow**
Brandeis University, Waltham, MA
Mentor: Dr. Lizbeth Hedstrom, Department of Biochemistry

2004 – 2009 **Ph.D. Candidate**
Dartmouth Medical School, Hanover, NH
Mentor: Dr. Charles Brenner, Department of Biochemistry

2009 – 2014 **Postdoctoral Associate**
Howard Hughes Medical Institute
Mentor: Dr. James J. Collins, HHMI/Boston University

2014 – 2021 **Assistant Professor**
Brown University, Providence, RI
Department of Molecular Microbiology and Immunology, Division of Biology and Medicine

2022 – present **Associate Professor (tenured)**
Brown University, Providence, RI
Department of Molecular Microbiology and Immunology, Division of Biology and Medicine

Awards and Honors:

2002	**Howard Hughes Medical Institute Undergraduate Fellow** Brandeis University, Waltham, MA
2003	**Howard Hughes Medical Institute Undergraduate Fellow** Brandeis University, Waltham, MA
2007 – 2008	**John H. Copenhaver, Jr. and William H. Thomas, MD 1952 Fellow** Dartmouth Medical School, Hanover, NH
2008 – 2009	**Institutional NIH NRSA Trainee in Molecular and Cellular Biology** Dartmouth Medical School, Hanover, NH
2009	**John W. Strohbehn Medal for Excellence in Biomedical Research** Dartmouth Medical School, Hanover, NH
2009	**Harold M. Weintraub Graduate Student Award** Fred Hutchinson Cancer Research Center, Seattle, WA
2015	**Salomon Award** Brown University

Consulting:

2016 – 2018 **Lynntech Inc.**, College Station, TX.

Other Experience and Professional Memberships:

2018- present Founder of the **Rhode Island Microbiome Consortium** https://sites.brown.edu/ri-microbiome/

2012 – present **American Society of Microbiology**, member

Completed Publications: (Refereed Journal Articles)

Google Scholar statistics 12/21

	All time	Since 2016
Citations	3972	2879
h-index	23	21
i10-index	27	27

https://scholar.google.com/citations?hl=en&user=CJKlVooAAAAJ&view_op=list_works&sortby=pubdate

Refereed Journal Articles (in chronological order)

1) McLean JE, Hamaguchi N, **Belenky P**, Mortimer SE, Stanton M, Hedstrom L. “Inosine 5'-monophosphate dehydrogenase binds nucleic acids in vitro and in vivo.” **Biochem J**. (2004) Apr 15;379(Pt 2):243-51. doi: 10.1042/BJ20031585. PubMed PMID: 14766016; PubMed Central PMCID: PMC1224093.

2) Belenky P, Bogan KL, Brenner C. “NAD+ metabolism in health and disease.” **Trends Biochem Sci**. (2007) Jan;32(1):12-9. doi: 10.1016/j.tibs.2006.11.006. 2006 Dec 11. Review. PubMed PMID: 17161604.

3) **Belenky P**, Racette FG, Bogan KL, McClure JM, Smith JS, Brenner C. “Nicotinamide riboside promotes Sir2 silencing and extends lifespan via Nrk and Urh1/Pnp1/Meu1 pathways to NAD+.” **Cell** (2007) May 4;129(3):473-84. doi: 10.1016/j.cell.2007.03.024. PubMed PMID: 17482543.

4) Tempel W, Rabeh WM, Bogan KL, **Belenky P**, Wojcik M, Seidle HF, Nedyalkova L, Yang T, Sauve AA, Park HW, Brenner C. “Nicotinamide riboside kinase structures reveal new pathways to NAD+.” **PLoS Biology** (2007) Oct 2;5(10):e263. doi: 10.1371/journal.pbio.0050263. PubMed PMID: 17914902; PubMed Central PMCID: PMC1994991.

5) **Belenky P**, Moga TG, Brenner C. “Saccharomyces cerevisiae YOR071C encodes the high affinity nicotinamide riboside transporter Nrt1.” **J. Biological Chemistry** (2008) Mar 28;283(13):8075-9. doi: 10.1074/jbc.C800021200. 2008 Feb 6. PubMed PMID: 18258590.

6) **Belenky P**, Christensen KC, Gazzaniga F, Pletnev AA, Brenner C. “Nicotinamide riboside and nicotinic acid riboside salvage in fungi and mammals. Quantitative basis for Urh1 and purine nucleoside phosphorylase function in NAD+ metabolism.” **J. Biological Chemistry** (2009) Jan 2;284(1):158-64. doi: 10.1074/jbc.M807976200. 2008 Nov 11. PubMed PMID: 19001417; PubMed Central PMCID: PMC2610512.

7) Bogan KL, Evans C, **Belenky P**, Song P, Burant CF, Kennedy R, Brenner C. “Identification of Isn1 and Sdt1 as glucose- and vitamin-regulated nicotinamide mononucleotide and nicotinic acid mononucleotide [corrected] 5'-nucleotidases responsible for production of nicotinamide riboside and nicotinic acid riboside.” **J. Biological Chemistry** (2009) Dec 11;284(50):34861-9. doi: 10.1074/jbc.M109.056689. 2009 Oct 21. PubMed PMID: 19846558; PubMed Central PMCID: PMC2787348.

8) **Belenky P**, Stebbins R, Bogan KL, Evans CR, Brenner C. “Nrt1 and Tna1-independent export of NAD+ precursor vitamins promotes NAD+ homeostasis and allows engineering of vitamin production.” **PLoS One** (2011) May 11;6(5):e19710. doi: 10.1371/journal.pone.0019710. PubMed PMID: 21589930; PubMed Central PMCID: PMC3092764.

9) **Belenky P**, Collins JJ. Microbiology. “Antioxidant strategies to tolerate antibiotics.” **Science** (2011) Nov 18;334(6058):915-6. doi: 10.1126/science.1214823. PubMed PMID: 22096180.

10) **Belenky P**, Camacho D, Collins JJ. “Fungicidal drugs induce a common oxidative-damage cellular death pathway.” **Cell Reports** (2013) Feb 21;3(2):350-8. doi: 10.1016/j.celrep.2012.12.021. 2013 Feb 14. PubMed PMID: 23416050; PubMed Central PMCID: PMC3656588.

11) Dwyer DJ*, **Belenky P***, Yang JH, MacDonald IC, Martell JD, Takahashi N, Chan CT, Lobritz MA, Braff D, Schwarz EG, Ye JD, Pati M, Vercruysse M, Ralifo PS, Allison KR, Khalil AS, Ting AY, Walker GC, Collins JJ. “Antibiotics induce redox-related physiological alterations as part of their lethality.” **Proc Natl Acad Sci USA** (2014) May 20;111(20): E2100-9. doi: 10.1073/pnas.1401876111. 2014 May 6. PubMed PMID: 24803433; PubMed Central PMCID: PMC4034191.

[*denotes equal contribution]

Publications while at Brown (current/former: graduate student G, postdoc P, undergraduate student U)

12) Lobritz MA*, **Belenky P***, Porter CB, Gutierrez A, Yang JH, Schwarz EG, Dwyer DJ, Khalil AS, Collins JJ. “Antibiotic efficacy is linked to bacterial cellular respiration.” **Proc Natl Acad Sci.** (2015) Jul 7;112(27):8173-80. doi: 10.1073/pnas.1509743112. 2015 Jun 22. PubMed PMID: 26100898; PubMed Central PMCID: PMC4500273.

13) **Belenky P#**, Ye JD, Porter CB, Cohen NR, Lobritz MA, Ferrante T, Jain S, Korry BJ G, Schwarz EG, Walker GC, Collins JJ. “Bactericidal antibiotics induce toxic metabolic perturbations that lead to cellular

damage". **Cell Reports** (2015) Nov 3;13(5):968-80. doi: 10.1016/j.celrep.2015.09.059. (2015) Oct 22. PubMed PMID: 26565910; PubMed Central PMCID: PMC4648786.

[**# corresponding author**]

14) Rowan AD [G], Cabral DJ [G], **Belenky P**. "Bactericidal antibiotics induce programmed metabolic toxicity". **Microbial Cell** (2016) Mar 9;3(4):178-180. doi: 10.15698/mic2016.04.493. PubMed PMID: 28357350; PubMed Central PMCID: PMC5349092.

15) Cohen NR, Ross CA, Jain S, Shapiro RS, Gutierrez A, **Belenky P**, Li H, Collins JJ. "A role for the bacterial GATC methylome in antibiotic stress survival." **Nature Genetics** (2016) May;48(5):581-6. doi: 10.1038/ng.3530. 2016 Mar 21. PubMed PMID: 26998690; PubMed Central PMCID: PMC4848143.

16) Meylan S, Porter CBM, Yang JH, **Belenky P**, Gutierrez A, Lobritz MA, Park J, Kim SH, Moskowitz SM, Collins JJ. "Carbon Sources Tune Antibiotic Susceptibility in Pseudomonas aeruginosa via Tricarboxylic Acid Cycle Control." **Cell Chemical Biology** (2017) Feb 16;24(2):195-206. doi: 10.1016/j.chembiol.2016.12.015. 2017 Jan 19. PubMed PMID: 28111098; PubMed Central PMCID: PMC5426816.

17) Cabral DJ [G], Wurster JI [G], Flokas ME, Alevizakos M, Zabat M [U], Korry BJ [G], Rowan AD [G], Sano WH, Andreatos N, Ducharme RB, Chan PA, Mylonakis E, Fuchs BB, **Belenky P**. "The salivary microbiome is consistent between subjects and resistant to impacts of short-term hospitalization." **Scientific Reports** (2017) Sep 8;7(1):11040. doi: 10.1038/s41598-017-11427-2. PubMed PMID: 28887570; PubMed Central PMCID: PMC5591268.

18) Cabral DJ [G], Wurster JI [G], **Belenky P**. "Antibiotic persistence as a metabolic adaptation: stress, metabolism, the host, and new directions". **Pharmaceuticals** (2018) Feb 1;11(1). doi:10.3390/ph11010014. Review. PubMed PMID: 29389876; PubMed Central PMCID: PMC5874710.

19) Cabral DJ [G], Penumutchu S [G], Norris C [U], Morones-Ramirez JR, **Belenky P**. "Microbial competition between *Escherichia coli* and *Candida albicans* reveals a soluble fungicidal factor." **Microb Cell** (2018) Mar 7;5(5):249-255. doi: 10.15698/mic2018.05.631. PubMed PMID: 29796389; PubMed Central PMCID: PMC5961918.

20) Zabat MA [U], Sano WH, Wurster JI [G], Cabral DJ [G], **Belenky P**. "Microbial Community Analysis of Sauerkraut Fermentation Reveals a Stable and Rapidly Established Community." **Foods** (2018) May 12;7(5). doi: 10.3390/foods7050077. PubMed PMID: 29757214; PubMed Central PMCID: PMC5977097.

21) Zabat MA [U], Sano WH, Cabral DJ [G], Wurster JI [G], **Belenky P**. "The impact of vegan production on the kimchi microbiome." **Food Microbiol** (2018) Sep;74:171-178. doi: 10.1016/j.fm.2018.04.001. 2018 Apr 3. PubMed PMID: 29706333; PubMed Central PMCID: PMC5965696.

22) Lee KM, Morris-Love J, Cabral DJ [G], **Belenky P**, Opal SM, Jamieson AM. "Coinfection with influenza a virus and *Klebsiella oxytoca*: an underrecognized impact on host resistance and tolerance to pulmonary infections." **Front Immunol** (2018) ;9:2377. doi: 10.3389/fimmu.2018.02377. 2018. PubMed PMID: 30420852; PubMed Central PMCID: PMC6217722.

23) Ajibola O, Rowan AD [G], Ogedengbe CO, Mshelia MB, Cabral DJ [G], Eze AA, Obaro S, **Belenky P**. "Urogenital schistosomiasis is associated with signatures of microbiome dysbiosis in Nigerian adolescents." **Sci Rep** (2019) Jan 29;9(1):829. doi: 10.1038/s41598-018-36709-1. PubMed PMID: 30696838; PubMed Central PMCID: PMC6351658.

24) Rowan-Nash AD [G], Korry BJ [G], Mylonakis E, **Belenky P**. "Cross-domain and viral interactions in the microbiome." **Microbiol Mol Biol Rev** (ASM) (2019) Mar;83(1). doi: 10.1128/MMBR.00044-18. PMID: 30626617; PubMed Central PMCID: PMC6383444.

25) Cabral DJ [G], Penumutchu S[G], Reinhart EM, Zhang C, Korry BJ[G], Wurster JI[G], Nilson R[G], Guang A., Sano W. H., Rowan-Nash A[G] D., Li H., **Belenky P.** "Microbial metabolism modulates antibiotic susceptibility within the murine gut microbiome". **Cell Metabolism** (2019) Oct 30, 4, 800-823.e7 https://doi.org/10.1016/j.cmet.2019.08.020 PMCID: PMC6948150

26) Reinhart EM, Korry BJ [G], Rowan AD [G], **Belenky P**. "Defining the distinct skin and gut microbiomes of the northern pike (Esox lucius)". **Frontiers in Microbiology** (2019) 12,9, https://doi.org/10.3389/fmicb.2019.02118 2019, PMCID: PMC6751255

27) Thomson GJ, Hernon C, Austriaco N, Shapiro RS, **Belenky B**, Bennett RJ "Metabolism-induced oxidative stress and DNA damage selectively trigger genome instability in polyploid fungal cells." **EMBO J**. (2019) Oct 38:e101597 DOI: 10.15252/embj.2019101597 PMCID: PMC6769381

28) **Belenky P**, & Johnston RA " Filling a hole in ozone research: The impacts of early life microbiome alterations on pulmonary responses to a non-atopic asthma trigger" **Physiological Reports** (2020). Jan 8(1): e14346. PMCID: PMC6971409

29) Rowan-Nash AD [G], Araos R, D'Agata E MC, **Belenky P**, "Antimicrobial resistance gene prevalence in a population of patients with advanced dementia is related to specific pathobionts" **iScience** (2020), Feb 23(3) doi: 10.1016/j.isci.2020.100905 PMCID: PMC7044522

30) Korry BJ [G], Cabral DJ [G], **Belenky P.**, "Metatranscriptomics reveals antibiotic-induced resistance gene expression in the murine gut microbiota" **Frontiers in Microbiology** (2020), Mar, 11 doi: 10.3389/fmicb.2020.00322 PMCID: PMC7069102

31) Liu RT, Rowan-Nash AD [G], Sheehan AE, Walsh RFL, Sanzari CM, Korry BJ [G], **Belenky P.**, "Reductions in anti-inflammatory gut bacteria are associated with depression in a sample of young adults" **Brain, Behavior, and Immunit,** (2020) Mar 27;S0889-1591(19)31531-4. doi: 10.1016/j.bbi.2020.03.026 PMCID: PMC7415740

32) Heinzinger LR [U], Johnson A[U], Wurster JI [G], Nilson R [G], Penumutchu S [G], **Belenky P.** Oxygen and metabolism: digesting determinants of antibiotic susceptibility in the gut. **iScience** (2020) Dec 23;12. DOI: 10.1016/j.isci.2020.101875. PMID: 33354661 PMCID: PMC7744946.

33) Cabral DJ [G], Wurster JI.[G], Korry B.J [G], Penumutchu S [G], **Belenky P.** "Consumption of a western-style diet modulates the response of the murine gut microbiome to ciprofloxacin". **mSystems** (2020) Jul 28;5(4):e00317-20. doi: 10.1128/mSystems.00317-20. PMID: 32723789; PMCID: PMC7394352.

34) Perler BK, Reinhart EM, Montgomery M, Maynard M, Shapiro JM, **Belenky P.,** Chan P. A., "Evaluation of the microbiome in men taking pre-exposure prophylaxis for hiv prevention". **AIDS Behavior and Immunity** 2021 Jan 4. doi: 10.1007/s10461-020-03130-7 PMCID: PMC8169604

35) Diamond E [U], Hewlett K [U], Penumutchu S[G], Belenky A. and **Belenky P.**, "Coffee consumption modulates amoxicillin-induced dysbiosis in the murine gut microbiome" **Frontiers in Microbiology** (2021) Jul 7. 12 1711 DOI=10.3389/fmicb.2021.637282

36) Korry B.J. [G], Lee SYE [U], Chakrabarti AK [U], Choi AH [U], Ganser C. [G], Machan J.T., **Belenky P**. "Genotoxic agents produce stressor-specific spectra of spectinomycin resistance mutations based on mechanism of

action and selection in *Bacillus subtilis"*. **Antimicrob Agents Chemother (ASM)** (2021) Aug 2:AAC0089121. doi: 10.1128/AAC.00891-21. PMID: 34339280.

37) McDonough L.D., Mishra A.A., Tosini N., Kakade P., Penumutchu S.[G], Liang S.H., Maufrais C., Zhai B., Taur Y., **Belenky P.**, Bennett R.J., Hohl T.M., Koh A.Y., Ene I.V.. "*Candida albicans* Isolates 529L and CHN1 Exhibit Stable Colonization of the Murine Gastrointestinal Tract". **mBio**. 2021 Nov 2;:e0287821. doi: 10.1128/mBio.02878-21. PMID: 34724818; PMCID: PMC8561340.

38) Wurster J.I.[G], Peterson R.L., Brown C.E.[U], Penumutchu S.[G], Guzior D.V., Neugebauer K., Sano W.H., Sebastian M.M., Quinn R.A., **Belenky P**.. "Streptozotocin-induced hyperglycemia alters the cecal metabolome and exacerbates antibiotic-induced dysbiosis". **Cell Reports**. 2021 Dec 14;37(11):110113. doi: 10.1016/j.celrep.2021.110113. PubMed PMID: 34910917.

39) Wurster, J.I.; Peterson, R.L.; **Belenky, P.** Streptozotocin-Induced Hyperglycemia Is Associated with Unique Microbiome Metabolomic Signatures in Response to Ciprofloxacin Treatment. **Antibiotics** 2022, *11*, 585. https://doi.org/10.3390/antibiotics11050585

Google Scholar
https://scholar.google.com/citations?hl=en&user=CJKlVooAAAAJ&view_op=list_works&sortby=pubdate

Select Invited Presentations:

2003 "Inosine 5'-monophosphate dehydrogenase binds nucleic acids," **Hughes Summer Mini-Symposium**, Brandeis University, Waltham, MA.
2007 "Nicotinamide Riboside Promotes Sir2-Dependent Silencing and Extends Lifespan" **MCB Symposium**, Hanover, NH.
2007 "Living Longer Through NAD^+," **D.M.S. Biochemistry Retreat**, Jackson, NH.
2008 "New Pathways of NAD^+ Metabolism and Longevity," **Harvard Medical School**, Boston, MA.
2009 "New Pathways of NAD^+ Metabolism and Longevity," **Fred Hutchinson Cancer Research Center**, Seattle, WA.
2010 "A Common Mechanism of Antifungal Induced Cell Death Mediated by Reactive Oxygen Species," **2010 Biomedical Engineering Society Meeting**, Austin, TX.
2012 "Fungicidal Drugs Induce a Common Oxidative Damage Cellular Death Pathway," **American Society for Microbiology General Meeting**, San Francisco, CA.
2011 "A Systems Approach to Antifungal Action," **Edificio 2 of FIME Inaugural Talk**, Universidad Autonoma de Nuevo Leon, Monterrey, Mexico.
2014 "Bacteriostatic Antibiotics Inhibit Cellular Respiration to Prevent Killing by Bactericidal Antibiotics," **Boston Bacterial Meeting**, Boston, MA.
2015 "Bacteriostatic Antibiotics Inhibit Cellular Respiration to Prevent Killing by Bactericidal Antibiotics," **Providence College**, Providence, RI.
2015 "Section Chair," **Boston Bacterial Meeting**, Boston, MA.
2016 "Microbial Metabolism and Antibiotic Efficacy," **ASM Northwest Branch**, Dartmouth, MA.
2016 "Microbial Metabolism and Antibiotic Efficacy," **ASCLS Central New England**, Waltham, MA.
2016 "Microbial Metabolism and Antibiotic Efficacy," **UNH**, Durham, NH.
2016 "Microbial Metabolism and Antibiotic Efficacy," Memphis, TN.
2017 "New insights into mechanisms of antibiotic action," **Experimental Biology 2017**, Chicago, IL.
2018 "Antibiotic Resistance and Tolerance," **Boston Bacterial Meeting** Special Panel, Boston, MA.
2019 "Linking microbial metabolism to antibiotic susceptibility in the microbiome" **2019 Rhode Island NIH IDeA Symposium**, Providence, RI.

2019 "Microbial Metabolism is a Determinant of Antibiotic-induced Disruption of the Gut Microbiome" **IDMP Seminar Broad Institute** Cambridge, MA.
2019 "Vegetable fermentation: What is the starter culture" **2019 AIChE Annual Meeting**, Orlando FL.
2019 "Antibiotic-induced Perturbation of the Gut Metabolome is Associated with Differential Susceptibility of the Murine Microbiome to Antibiotic Disruption." **Metabolomics Association of North America 2019 Georgia Tech,** Atlanta GA.
2020 "The Role of Microbial and Host Metabolism in Antibiotic-Induced Dysbiosis" **Rhode Island Microbiome Symposium 2020**, North Kingston RI
2020 "Microbial Metabolism is a Determinant of Antibiotic-induced Disruption of the Gut Microbiome" **RISE Program/ Programa MARC, UPR-Río** Piedras San Juan, PR.
2020 "Antibiotics Metabolism and the Microbiome" **Microbiology and Physiological System, UMass Med,** Worcester, MA.
2020 "Microbial Metabolism is a Determinant of Antibiotic-induced Disruption of the Gut Microbiome" **Microbiology and Immunology Dartmouth Medical School,** Hanover, NH.
2020 "Microbial Metabolism is a Determinant of Antibiotic-induced Disruption of the Gut Microbiome" **Bacteriology & the Biology Program University of Wisconsin Madison,** Madison, WI.
2020 "Host and Microbial Metabolism as Determinants of Antibiotic-induced Disruption in the Microbiome" **2020 North American Cystic Fibrosis Conference,** Phoenix (virtual), AZ.
2021 "Microbial metabolism is a modulator of antibiotic efficacy and dysbiosis in the microbiome" **Mayo Clinic MPET**, Rochester MN.
2021 "Microbial and host metabolism regulate the susceptibility of the microbiota to antibiotic disruption" **2021 Boston Area Antimicrobial Resistance Network Annual Meeting**, Cambridge MA.

Patents:

United States Patent No. 20090202680, dated 13 August 2009: "Yeast Strain and Method for Using the Same to Produce Nicotinamide Riboside." Belenky P., Bogan K., and Brenner C.

Grants:

Active Support:

1) NCCIH/NIH, R21AT010366 PI 09/15/19-08/31/22 (NCE)
"Dietary fiber to mitigate antibiotic-induced microbiome dysbiosis: a multi-omics approach"
The aim is to identify the impact of different dietary fibers on antibiotic-induced dysbiosis in the gut microbiome.

2) USDA, 2020-67017-31697 PI 06/01/20-05/31/23
"Mitigating antibiotic-induced microbiome disruption with whole grains"
The aim is to determine if a diet high in whole grains can impact the susceptibility of gut commensals to antibiotics in the gut.

3) NIH/NIDDK, R01DK125382 PI 08/01/20-05/31/25
"Relating impacts of antibiotics on the gut metabolome and microbiome to host physiology and weight"
The aim is to determine how antibiotics perturb the circulatory and gut metabolome and how t these perturbations contribute to changes in host physiology and predisposition to obesity.

4) RI Stac PI PI 01/01/22-12/31/22
"Metagenomics and Metatranscriptomics to Profile Microbial Activity as a Determinant of Methane Production in Narragansett Bay Sediment"

Student Support:

1) Swathi Penumutchu- **NSF Graduate Research Fellowship**, 2019 – 2022

Completed Support:

1) Bill & Malinda Gates Foundation (CoPI, Boston University), 5/1/12 – 5/1/14
"Synthetic Probiotic to Identify and Prevent Cholera"

2) Salomon Award – Brown University, 1/30/15 – 6/30/16
"The Impact of Antibiotics on Horizontal Gene Transfer in the Microbiome"

3) DEANS Award - Brown University, 7/1/15 – 6/30/16
"The response of the microbiome to narrow vs broad-spectrum antibiotic therapy"

4) RI IDeA Network for Excellence in Biomedical Research, 5/1/15 – 4/30/17
"The impact of cellular NAD^+ metabolism on antifungal toxicity"

5) SEED Award - Brown University, 7/1/15 – 6/30/16
"Metatranscriptomic analysis to profile oral microbiome responses to broad-spectrum antibiotics during treatment of community-acquired pneumonia"

6) STAC Rhode Island Research Alliance Collaborative Grant Award, 1/26/16 – 6/31/17
"Monitoring the Impact of Climate Change Stressors on Horizontal Gene Transfer in Marine Microbial Populations"

7) NIH COBRE CBHD Pilot Award, 1/1/17 – 12/30/17
"Changes in Community Structure and Functional Responses of the Human Microbiome During Antibiotic Treatment in the Outpatient Setting"

8) COBRE Center for Computational Biology of Human Disease 3/1/18–graduated
"Project 3: The role of tolerance and resistance mechanism in the response of the microbiome to antibiotics"

9) Brown Institute for Brain Science Neurosciences Institute Award, 4/1/17 – 7/3/19
"A population-based analysis of the enteric microbiome, depression, and suicide"

10) COBRE Center for Antimicrobial Resistance and Therapeutic Discovery (CARTD)
P20GM121344 10/1/18–12/31/20 graduated
"Project 3: Changes in Microbiome Structure and Functional Responses During Antibiotic Treatment"

11) Lynntech, Inc./NIH 10/01/19-09/30/20
"Rapid, Simple Antimicrobial Determination and POC Diagnostic for Gonorrhea"

12) RI Stac Co-PI Co-PI 01/01/20-08/31/21
"Pathways to the modeling of microbial ecology in the Narragansett Bay through deep omics sequencing"

13) U.S. Department of Defense W81XWH18101198 PI 06/01/18-11/30/21 (NCE)
"Antibiotic Tolerance and Therapeutic Failure in Diabetic Infections"
The aim is to identify the impacts of host hyperglycemia on antibiotic efficacy and antibiotic-induced microbiome disruption in the gut.

Completed Students Support

1) Damien Cabral – **NSF Graduate Research Fellowship**, 2016 – 2019

2) Jenna Wurster – **NSF Graduate Research Fellowship**, 2018 – 2021
3) Benjamin Korry – **NSF Graduate Research Fellowship**, 2018 – 2021

University Teaching Roles:

Classes Taught:

2014-2021	**BOL1950-1960** 28 students total
Fall 2014	Guest-lectured BIOL190(R/S): Phage Hunters
Spring 2015	Guest lectured BIOL0510: Introductory Microbiology
Fall 2018	Guest lectured BIOL 0100 Living Biology at Brown and Beyond

Effectiveness of instruction scoring: 2016-2019 scoring was 5-1, with one as the highest. 2020- the scoring is reversed to 1-5, with five as the highest.

BIOL0510:

Spring 2016	**BIOL0510:** Introductory Microbiology Lecture Hrs: 12 Students: 99 Effectiveness of Instruction Score: 1.44
Spring 2017	**BIOL0510**: Introductory Microbiology Lecture Hrs: 12 Students: 84 Effectiveness of Instruction Score: 1.52
Spring 2018	**BIOL0510**: Introductory Microbiology Lecture Hrs: 12 Students: 92 Effectiveness of Instruction Score: 1.38
Spring 2019	**BIOL0510**: Introductory Microbiology Lecture Hrs: 16 Students: 116 Effectiveness of Instruction Score: 1.29
Spring 2020	**BIOL0510**: Sabbatical
Spring 2021	**BIOL0510**: Introductory Microbiology Lecture Hrs: 12 Students: 61 Effectiveness of Instruction: 4.70 (1-5)

BIOL1250:

Spring 2017	**BIOL1250:** Host-microbiome Interactions in Health and Disease Lecture Hrs: 16 Students: 13 Effectiveness of Instruction Score: 1.15
Spring 2018	**BIOL1250**: Host-microbiome Interactions in Health and Disease Lecture Hrs: 20 Students: 15 Effectiveness of Instruction Score: 1.57
Spring 2019	**BIOL1250**: Host-microbiome Interactions in Health and Disease Lecture Hrs: 24 Students: 18 Effectiveness of Instruction Score: 1.21
Spring 2020	BIOL1250: Sabbatical
Spring 2021	**BIOL1250**: Host-microbiome Interactions in Health and Disease Lecture Hrs: 12 Students: 18 Effectiveness of Instruction: 4.62 (1-5)

Research Mentoring:

Current Graduate Students:

Noelle Curtis-Joseph	2022 – present
Melanie Ortiz Alvarez De La Campa	2022 – present
Swathi Penumutchu	2018 – present
Rachael Nilson	2019 – present

Completed Graduate Students PhD

Aislinn Rowan	2015 – 2019	(Research Scientist at Finch Therapeutics)
Damien Cabral	2015 – 2019	(Senior Scientist at Merck)
Jenna Wurster	2017 – 2021	(Seres Therapeutics)
Benjamin Korry	2017 – 2022	(Day Zero Diagnostics)

Current postdoctoral associates

Chapman Beekman	2021 – present
Stephen Costa	2022 – present

Past postdoctoral associates

Katherine Antosca	2020 – 2021 (Bioinformatics Scientist at Xbiome inc)

Undergraduate Students (Research):

Michelle Zabat* '18	2014 – 2018	Brown University
Timothy Jeng '18	2014 – 2015	Brown University
Swathi Penumutchu '17	2015 – 2016	Leadership Alliance, UMBC
Naveen Balakrishnan* '17	2016 – 2017	Brown University
Joshaya Trotman '18	2016 – 2018	Brown University
Emma Caviness '19	2016 – 2018	Brown University
Ye Eun Lee * '20	2017 – 2019	Brown University
Amit Chakrabarti * 21'	2017 – 2021	Brown University
Rinnie Hewlett * 21'	2017 – 2021	Brown University
Colby Norris '2019	2017 – 2021	Bryant University
Subhanik Purkayastha 21'	2017 – 2018	Brown University
Melanie Ortiz 20'	2018	Leadership Alliance UPR
Emma L Diamond* 21'	2019 – 2021	Brown University
Madison Gowett 20'	2019	Leadership Alliance
Ben Ma 22'	2019 –2019	Brown University
Ashley Choi * 21'	2019 – 2021	Brown University
Claire Brown 22'	2019 – present	Brown University
Angus Johnson	2020	Leadership Alliance
Lauren Heinzinger	2020	Leadership Alliance
Manu Onteeru	2021	Leadership Alliance
	* Senior thesis	

High School Students (Research):

Angel Mendez Rivera	Summer 2015	Central Falls High School

Visiting Scholars:

Ted Cotter	Spring 2015	Foster-Glocester Regional School District

**K12 Teacher Research Program with Brown's Broader Impacts Committee*

University Thesis Committee:

Chapman Beekman	2015 – 2019
Kellyanne Duncan	2016 – 2019
Gregory Thomson	2017 – 2020
Shellyhan J. Gordon	2016 – 2017
Shen-Huan Liang	2017 – 2021
Mae Staples	2018 – 2021

Japheth Omonira	2016 – 2017
Ethan FitzGerald	2018 – 2022
Iliana Escobar	2019 – 2021
Schertler, Matthew	2018 – 2019
David M. Morgan	2019 – 2022
Maryam Bonakdar	2019 – present
Gyles Ward	2019-2021

Undergraduate Thesis Committee:

Roy Chen	2016
Denis Huang	2016
Eleanor Kim	2017
Adrija Darsha	2018
Katerina Tori	2018
Kelly Carey-Ewend	2019
Silei Li	2020
Quynh Lam Tran	2021
Gracie Whelan	2021

Service to the University:

Advising:

2015 – present	Concentration Advisor, 12 students
2016 – present	First Year Advisor, 30 students

University Committees:

2015 – 2016	2015-2016 Pathobiology Admissions Committee, member
2014 – 2015	2015-2016 Pathobiology Admissions Committee, member
2015 – 2018	K12 Teacher Research Program with the Broader Impacts Committee, developer
2016 – present	Food Studies at Brown, member
2018 – 2019	2018-2019 Pathobiology Admissions Committee, member
2019 – 2019	2018-2019 MMI Junior Faculty Search Committee, member
2018	2018 Spring UTRA Committee, reviewer
2019 – 2020	Biology Curriculum Committee, member
2019	2019 Spring UTRA Committee, reviewer
2020 – 2023	University IACUC Committee, member
2020	Pathobiology Graduate Program Steering Committee, member
2021	MMI Lecturer Search Committee, member
2021– 2022	Admissions Committee Therapeutic Sciences PhD program, member
2022 – 2023	Admissions Committee Therapeutic Sciences PhD program, member
2022 – 2023	2018-2019 Pathobiology Admissions Committee, member

Other service:

2018	Host 2018 Pathobiology Retreat

Community outreach:

2019	Context & Conversation program Providence Public Library, and Trinity Repertory Company (Little Shop of Horrors VS antibiotic resistance). I was a panel member for a public discussion relating the issue of antibiotic resistance to the plot of this "science fiction" play.
2019	Founder of the RI microbiome consortium https://sites.brown.edu/ri-microbiome/
2019-2020	Rhode Island Microbiome Symposium 2020, developer and Steering Committee, member (helped launch, plan, and organize this conference that brings bring in researchers form around New England attendance ~120)
2021-2022	Rhode Island Microbiome Symposium 2022, developer and Steering Committee member (helped plan organize the conference)

Service to the Profession:

Conference organizing:

1) Rhode Island Microbiome Symposium 2020 developer and Steering Committee. 2019-2020
2) Rhode Island Microbiome Symposium 2020 developer and Steering Committee. 2021-2022

Academic Editor:

1) *Microbial Cell* 2016-

2) *iScience* 2020-

Ad hoc *Journal Reviewer:*

1) *PLoS One*	2015 – 2021
2) *Cell*	2020
3) *Genes*	2015
4) *ADDR*	2015
5) *Virulence*	2016
6) *Synthetic Biology*	2019,2020
7) *Scientific Reports*	2016 – 2019
8) *AMB Express*	2016
9) *Bioorganic & Medicinal Chemistry*	2016
10) *MBio*	2016 – 2017
11) *Frontiers* in…	2017– 2021
12) *Antibiotics*	2017, 2019
13) *Nature Microbiology*	2017– 2019
14) *PNAS*	2018
15) *Microbial Cell*	2017-2019
16) *Current Biology*	2018
17) A & E microbiology	2019

18) Cell metabolism	2019	
19) Molecules	2019	
20) BMC Biology	2019	
21) mSphere	2019	
22) Foods	2018, 2019	
23) Physiological *Reports*	2019	
24) Science	2021	
25) Cell reports	2021	

Ad hoc *Grant Reviewer:*

1)	Breast Cancer Now (UK)	2015
2)	PSI Foundation Canada	2015 – 2016
3)	Brown CFAR	2016, 2019
4)	Peer Reviewed Medical Research Program (PRMRP) Department of Defense	2019
5)	Brown CTR	2019
6)	University of Macau (MYRG)	2020
7)	Graduate Women in Science (GWIS) National Fellowship Program	2020

NIH Grant Reviewer

1)	NIDDK F31/32 Fall 2020	2021/01 ZDK1 GRB-7 (J1) 1	2020
2)	NIDDK F31/32 Spring 2021	2021/05 ZDK1 GRB-7 (M1) 1	2021
3)	NIDDK RO1/R21	2021/10 NMHD	2021
4)	ZAI1 LG-M (S1) 2022	2022/10 NIH	2022
5)	ZRG1 DCAI-J (03) M	2023/01 NIH	2022

Training in Mentoring, Inclusivity, and Diversity:

1)	Mentor Training - Leadership Alliance	2015-
2)	Center for Improvement of Mentored Experiences in Research (MCBGP): "*Maintaining Effective Communication, Aligning Expectations Addressing Equity and Inclusion"*	2020
3)	Culturally Aware Mentoring (CAM)	2020-2021
4)	Diversity & Inclusion in STEM Workshop: Can We Talk***?***	2020
5)	Teach-in on Colonialism in STEM, Brown University.	2021
6)	Center for Improvement of Mentored Experiences in Research (MCBGP): *Assessing Understanding and Fostering Independence*.	2021