PAUL E. TURNER

Rachel Carson Professor of Ecology and Evolutionary Biology, Yale University

ADDRESS

 Yale University Tel: (203) 432-5918

 Department of Ecology & Evolutionary Biology Fax: (203) 432-5176

 165 Prospect Street Email: paul.turner@yale.edu

 P.O. Box 208106 Website: <http://turnerlab.yale.edu/>

###  New Haven, CT 06520-8106 ORCID: orcid.org/0000-0003-3490-7498

**RESEARCH INTERESTS**

 Virus evolution; host-parasite interactions; evolution of infectious disease; evolution of antibiotic resistance; vector-virus interactions; robustness; virus applications especially phage therapy.

**EDUCATION**

2000-2001 Intramural Research Training Award Postdoctoral Fellow (Advisor: Jeffrey Cohen)

 Laboratory of Clinical Investigation, National Institutes of Health

1999 National Science Foundation-NATO Postdoctoral Fellow (Advisor: Santiago Elena)

 Department of Genetics, University of Valencia, Spain

1995-1998 National Science Foundation Minority Postdoctoral Fellow (Advisor: Lin Chao)

 Department of Biology, University of Maryland, College Park

1991-1995 Michigan State University, East Lansing, Michigan

 Center for Microbial Ecology

 **Ph.D. Zoology (December 1995)**, Certificate in Ecology & Evolution

 Advisor: Richard E. Lenski

1989-1991 University of California, Irvine, California

 Transfer (March 1991), Program in Ecology & Evolutionary Biology

 Advisor: Richard E. Lenski

1984-1988 University of Rochester, Rochester, New York

 **B.A. Biological Sciences (May 1988)**

 Undergraduate Advisor: John Jaenike

**PROFESSIONAL APPOINTMENTS**

2019-present Chair of Biological Sciences Advisory Committee

 Faculty of Arts & Sciences, Yale University

2017-2018 Interim Dean of Science

 Faculty of Arts & Sciences, Yale University

2011-2017 Full Professor, and Departmental Chair

 Department of Ecology and Evolutionary Biology, Yale University

2011-present Visiting Faculty Fellow

 The Josephine Bay Paul Center for Comparative Molecular Biology and Evolution

 The Marine Biological Laboratory, Woods Hole, MA

2006-2011 Associate Professor with Tenure

 Department of Ecology and Evolutionary Biology, Yale University

2004-2005 Visiting Scholar

 Division of Biological Sciences, University of California, San Diego

2002-present Faculty Member

 Graduate Program in Microbiology, Yale University School of Medicine

2001-2006 Assistant Professor

 Department of Ecology and Evolutionary Biology, Yale University

**SELECTED HONORS, AWARDS AND EXAMPLES OF PEER RECOGNITION**

2019 Elected to Fellowship in the National Academy of Sciences

2019 Elected to Fellowship in the American Academy of Arts & Sciences

2019 Named endowed professorship: Rachel Carson Professor of Ecology and Evolutionary

 Biology, Yale University

2019-2022 Appointed member of the Biological Sciences Advisory Committee of the National

 Science Foundation

2019 Elected to Fellowship in the American Academy of Microbiology

2019 Nominated to Sigma Xi, The Scientific Research Honor Society

2019 American Academy of Microbiology Honorary Diversity Lecturer, awarded to

 outstanding underrepresented microbiologist at American Society for Microbiology’s

 annual Microbe conference. San Francisco, CA.

2019 Eighth annual MLK Week Memorial Lecture. Virginia Polytechnic Institute and State

 University, Blacksburg, VA

2019-2021 Elected Council Delegate, Biological Sciences Section, American Association for the

 Advancement of Science

2018 Edwin H. Lennette Memorial Lecturer. 37th Annual Meeting of the American Society

 for Virology. University of Maryland, College Park

2018 Roger Milkman Endowed Lecture in Microbial Biodiversity, Marine Biological

 Laboratory, Woods Hole, MA

2018 Innovator Award, Blavatnik Fund for Innovation at Yale U

2018 Klaus Hofmann Memorial Lecture, University of Pittsburgh School of Medicine

2018 Christianna Smith Memorial Lecture, Mount Holyoke College

2017 Named endowed Professor of Ecology and Evolutionary Biology, Yale University

2015- Associate Editor, *Virus Evolution*

2015-2016 Appointed member of Committee on Gene Drive Research in Non-Human Organisms:

 Recommendations for Responsible Conduct, National Research Council

2014-2017 Appointed member of the Biological Sciences Advisory Committee of the National

 Science Foundation

2014 Elected Chair of CNRS Jacques Monod Conference on Viral Emergence, to be held

 fall 2019

2013 Faculty Affiliate, BEACON Center for the Study of Evolution in Action, NSF Science

 and Technology Center

2012- Associate Editor, *Evolution, Medicine and Public Health*

2011 E.E. Just Endowed Research Fellowship, and William Townsend Porter Award.

 Marine Biological Laboratory, Woods Hole, MA.

2011 Division Councilor of American Society for Microbiology’s Division R: Evolutionary

 and Genomic Microbiology

2010 Elected to the Council of the American Genetic Association

2010 Chair of American Society for Microbiology’s Division R: Evolutionary and

 Genomic Microbiology

2010 Nominated for Councilor of the Society for the Study of Evolution

2010 Nominated as contributing Faculty Member for Faculty of 1000; Microbial Evolution

 and Genomics Section in the Microbiology Faculty

2009 Elected Chair of Gordon Research Conference on Microbial Population Biology, held

 July 2013 – as GRC chair, raised over $75,000 of external support from various

 federal agencies and industry sources

2009-2012 Associate Editor, *Evolution*: *International Journal of Organic Evolution*

2009 Dean’s Lecture, Houston 2009 Darwin Bicentennial Celebration. University of

 Houston

2007 Eighth Annual James Holland Memorial Lecture. Indiana University, Bloomington, IN

2007 American Society for Microbiology’s Division R (Evolutionary and Genomic

 Microbiology) Lecturer, 107th General Meeting of the American Society for

 Microbiology, Toronto

2004 Invited participant for the 2nd Annual National Academies Keck Futures Initiative Conference: Designing Nanostructures at the Interface between Biomedical and Physical Systems

2004-2005 Career Enhancement Fellowship for Junior Faculty, Woodrow Wilson National

 Fellowship Foundation

* 1. CNRS Visiting Faculty Fellowship to spend sabbatical year at Centre National de la

 Recherche Scientifique, Montpelier, France

2004-2005 Yale University Junior Faculty Fellowship in the Natural Sciences

2003 Alfred P. Sloan Foundation Award to attend Gordon Research Conference on

 Microbial Population Biology

2003 Top Ten Emerging Scholars Award, *Diverse Issues in Higher Education* (formerly *Black Issues in Higher Education*).

2002-2004 Appointed member of Committee on the Biological Confinement of Genetically

 Engineered Organisms, National Research Council

2002 Member of US Delegation, Joint USA-Russia Workshop on Infectious Disease.

 Novosibirsk, Russia

**PUBLICATIONS**

Complete List of Published Work in MyBibliography:<http://www.ncbi.nlm.nih.gov/sites/myncbi/1HE8bZ0bB9hAN/bibliograpahy/49923152/public/?sort=date&direction=ascending>

\*Co-first authors

Undergraduate co-authors

1. Bono, L.M., J.A. Draghi and **P.E. Turner**. 2019. Opinion: Evolvability costs of niche expansion. *Trends in Genetics* (In press).
2. Okamoto, K.W., P. Amarasekare, D.M. Post, D.A. Vasseur, and **P.E. Turner**. 2019. The interplay between host community structure and pathogen life-history constraints in driving the evolution of host-range shifts. *Functional Ecology* (In press).
3. Wagner, J. 2004. [J. Wiemann, K. de Queiroz, T.B. Rowe, N.J. Planavsky, R.P. Anderson, J.P. Gogarten, **P.E. Turner**, and J.A. Gauthier.] 2019. Biota: converted clade name. In Phylonyms: A Companion to the Phylocode. (In press).
4. Burmeister, A.R., S.T. Abedon, and **P.E. Turner**. 2019.Bacteriophage ecology. *In* T. Schmidt (ed.), *Encyclopedia of Microbiology* (In press).
5. Wasik, B.R., B.R. Wasik, E.F. Foxman, A. Iwasaki, and **P.E. Turner**. 2019. Experimental evolution of human rhinovirus strains adapting to mouse cells. In W. Banzhaf et al. eds., Evolution in Action – Past, Present and Future. Springer Publishing, New York, NY (In press).
6. Kortright, K., B.K. Chan, J.L. Koff and **P.E. Turner**. 2019. Phage therapy: a renewed approach to combat antibiotic resistant bacteria. Special Focus issue on Bacteriophages for *Cell Host & Microbe* 25(2):219-232. DOI:https://doi.org/10.1016/j.chom.2019.01.014
7. Okamoto, K.W., D.M. Post,D.A. Vasseur, and **P.E. Turner**. 2018. Managing the emergence of pathogen resistance via spatially-targeted antimicrobial use. *Evolutionary Applications* 2018,00:1-20. https://doi.org/10.1111/eva.12683
8. Akusobi, C., B.K. Chan, E.S.C.P. Williams, J.E. Wertz, and **P.E. Turner**. 2018. Parallel evolution of host-attachment proteins in phage PP01 populations adapting to *Escherichia coli* O157:H7. Special issue on Phage Therapy and Phage-Mediated Biocontrol. *Pharmaceuticals* 11(2):60 https://doi.org/10.3390/ph11020060
9. Morley, V.J., M.G. Noval, R. Chen, S. Weaver, M. Vignuzzi, K. Stapleford, and **P.E. Turner**. 2018. Chikungunya virus evolution following a large 3´UTR deletion results in host-specific molecular changes in protein coding regions. *Virus Evolution* 4(1):vey012. https://doi.org/10.1093/ve/vey012
10. Wieczynski, D.J., **P.E. Turner**, and D.A. Vasseur. 2018. Temporally autocorrelated environmental fluctuations inhibit the evolution of stress tolerance. *American Naturalist* 191(6):e195-e207.
11. Chan, B.K., **P.E. Turner**, S. Kim, H.R. Mojibian, J.A. Elefteriades, and D. Narayan. 2018. Case Study: Phage treatment of an aortic graft infected with *Pseudomonas aeruginosa*. *Evolution, Medicine and Public Health* 2018(1):60-66. https://doi.org/10.1093/emph/eoy005

Featured in: *YaleNews; Mashable; NPR Science Friday; Vice Motherboard; AEON*

1. Shapiro, J.W., and **P.E. Turner**. 2018. Evolution of mutualism from parasitism in experimental virus populations. *Evolution* 72(3):707-712. https://doi.org/10.1111/evo.13440
2. Diaz, K.E., S.K. Remold, S. Onyiri, M. Bozeman, P. Raymond, and **P.E. Turner**. 2018. Growth comparisons among estuarine, household and clinical isolates of *Pseudomonas aeruginosa*. *Frontiers in Microbiology* 9:305. DOI:10.3389/fmicb.2018.00305.
3. Gloria-Soria, A., P.M. Armstrong, J.R. Powell, and **P.E. Turner**. 2017. Infection rate of *Aedes aegypti* mosquitoes with dengue virus depends on the interaction between temperature and mosquito genotype. *Proceedings of the Royal Society of London: Biological Sciences* 284:20171506. DOI: 10.1098/rspb.2017.1506. PMCID: PMC5647301

Featured in: *PNAS Blog*; *YaleNews*

1. Morley, V.J., and **P.E.** **Turner**. 2017. Dynamics of molecular evolution in RNA virus populations depend on sudden versus gradual environmental change. *Evolution* 71:872-883. DOI: 10.1111/evo.13193. PMID: 28121018.

*Winner of R.A. Fisher Prize from International Society for the Study of Evolution for most outstanding PhD thesis paper published in 2017 in the journal* Evolution*.*

1. Chan, B.K., K. Brown, K.E. Kortright, S. Mao, and **P.E. Turner**. 2016. Extending the lifetime of antibiotics: how can phage therapy help? *Future Microbiology* 11(9):1105-1107. DOI: 10.2217/fmb-2016-0133. PMID: 27545690.
2. National Academies of Sciences, Engineering, and Medicine (16 co-authors include **P.E. Turner**). 2016. *Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values*. The National Academies Press, Washington DC. DOI: 10.17226/23405.
3. Chan, B.K., M. Sistrom, J.E. Wertz, K.E. Kortright, D. Narayan, and **P.E. Turner**. 2016. Phage selection restores antibiotic sensitivity in MDR *Pseudomonas aeruginosa*. *Scientific Reports* 6:26717. DOI: 10.1038/srep26717. PMID: 27225966. PMCID: PMC4880932. http://rdcu.be/wqPD

Featured in: Public Radio International’s *Science Friday*; *The People’s Pharmacy* radio program; STAT online news; *The Nautilus* magazine.

1. Berg, J.M., N. Bhalla, P.E. Bourne, M. Chalfie, D.G. Drubin, J.S. Fraser, C.W. Greider, M. Hendricks, C. Jones, R. Kiley, S. King, M.W. Kirschner, H.M. Krumholz, R. Lehmann, M. Leptin, B. Pulverer, B. Rosenzweig, J.E. Spiro, M. Stebbins, C. Strasser, S. Swaminathan, **P.E. Turner**, R.D. Vale, K. VijayRaghavan, and C. Wolfberger. 2016. Preprints for the life sciences. *Science* 352(6288):899-901. DOI: 10.1126/science.aaf9133.
2. Shapiro, J.W., E.S.C.P. Williams, and **P.E. Turner**. 2016. Evolution of parasitism and mutualism between filamentous phage M13 and *Escherichia coli*. *PeerJ* 4:e2060. DOI 10.7717/peerj.2060. PMID: 27257543. PMCID: PMC4888304.
3. Williams\*, E.S.C.P., N. Morales\*, B.R. Wasik, V. Brusic, S. Whelan, and **P.E. Turner**. 2016. Repeatable population dynamics among vesicular stomatitis virus lineages evolved under high co-infection. *Frontiers in Microbiology* 7:370. DOI: 10.3389/fmicb.2016.00370. PMID: 27065953. PMCID: PMC4815288.

\**These authors contributed equally to the work.*

1. McDonald, S.M., M.I. Nelson, **P.E. Turner**, and J.T. Patton. 2016. Reassortment in segmented RNA viruses: mechanisms and outcomes. *Nature Reviews Microbiology* 14:448-460. DOI:10.1038/nmicro.2016.46. PMID: 27211789. PMCID: PMC5119462.
2. **Turner, P.E.** 2016. Evolutionary medicine. Chapter 7 *In* J.B. Losos and R.E. Lenski (eds.), *How Evolution Shapes our Lives: Essays on Biology and Society.* Princeton University Press.
3. Wasik, B.R., A.R. Muñoz-Rojas, K.W. Okamoto, K. Miller-Jensen\*, and **P.E. Turner**\*. 2016. Generalized selection to overcome innate immunity selects for host breadth in an RNA virus. *Evolution* 70(2):270-281. DOI: 10.1111/evo.12845. PMID: 26882316.

\**Co-corresponding authors.*

1. Sistrom\*, M., D. Park\*, H. O’Brien, D. Guttman, Z. Wang, J. Townsend, and **P.E. Turner**. 2015. Genomic and gene-expression comparisons among phage-resistant type-IV pilus mutants of *Pseudomonas syringae* pathovar *phaseolicola*. *PLoS ONE* 10(12):e0144514. DOI:10.1371/journal.pone.0144514. PMID: 26670219. PMCID: PMC4687649.

\**These authors contributed equally to the work.*

1. Morley, V.J., M. Sistrom, J. Usme Ciro, S.K. Remold, and **P.E.** **Turner**. 2015. Evolution in spatially mixed host environments increases divergence for evolved fitness and intrapopulation genetic diversity in RNA viruses. *Virus Evolution* 2(1):vev022. DOI: 10.1093/ve/vev022. PMID: 27774292. PMCID: PMC4989875.
2. Morley, V., S. Mendiola, and **P.E.** **Turner**. 2015. Rate of novel host invasion affects adaptive outcomes for an evolving RNA virus. *Proceedings of the Royal Society of London: Biological Sciences* 282:20150801. DOI: 10.1098/rspb.2015.0801. PMID: 26246544. PMCID: PMC4632612.
3. Morley, V.J., and **Turner, P.E**. 2015. Understanding adaptation through experimental evolution with viruses: from simple to complex environments. Chapter 8 *in* S.C. Weaver, M.R. Denison, M. Roossinck, and M. Vignuzzi (eds.), Virus Evolution. Horizon Scientific Press, Norfolk, UK.
4. Pesko, K., E. A. Voigt, A. Swick, V.J. Morley, C. Timm, J. Yin, and **P.E. Turner**. 2015. Genome rearrangement affects RNA virus adaptability on prostate cancer cells. *Frontiers in Genetics* 6:121. DOI: 10.3389/fgene.2015.00121. PMID: 25883601. PMCID: PMC4381649.
5. Foxman, E., J.A. Storer, M.E. Fitzgerald, B.R. Wasik, L. Hou, H. Zhao, **P.E. Turner**, A.M. Pyle, and A. Iwasaki. 2015. Temperature-dependent innate defense against the common cold virus limits viral replication at warm temperature in mouse airway cells. *Proceedings of the National Academy of Sciences USA* 112(3):827-832. DOI: 10.1073/pnas.1411030112. PMID: 25561542. PMCID: PMC4311828.
6. Walther, V., D. Shibata, C.T. Hiley, C. Swanton, **P.E. Turner**, and C.C. Maley. 2015. Can oncology recapitulate paleontology? What oncologists might learn from species extinctions. *Nature Reviews Clinical Oncology* 12:273-285. DOI: 10.1038/nrclinonc.2015.12. PMID: 25687908. PMCID: PMC4569005.
7. Wasik, B.R.\*, A. Bhushan\*, C.B. Ogbunugafor, and **P.E. Turner.** 2014. Delayed transmission selects for increased survival of vesicular stomatitis virus. *Evolution* 69(1):117-125. PMID: 25311513.

\**These authors contributed equally to this work.*

1. **Turner, P.E**., E.S.C.P. Williams, C. Okeke, V.S. Cooper, S. Duffy, and J. Wertz. 2014. Antibiotic resistance correlates with transmission in plasmid evolution. *Evolution* 68(12):3368-3380.PMID: 25351426.
2. Shapiro, J.W. and **P.E. Turner**. 2014. The impact of transmission mode on the evolution of benefits provided by microbial symbionts. *Ecology and Evolution* 4(17):3350-3361. DOI: 10.1002/ece3.1166. PMID: 25535552. PMCID: PMC4228610.
3. Goldhill, D., and **P.E. Turner**. 2014. The evolution of life history trade-offs in viruses. *Current Opinion in Virology* 8:79-84. PMID: 25087040.
4. Goldhill, D., A. Lee, E.S.C.P. Williams, and **P.E. Turner**. 2014. Evolvability and robustness in populations of RNA virus 6. *Frontiers in Evolutionary and Genomic Microbiology* 5:35. DOI: 10.3389/fmicb.2014.00035. PMID: 24550904. PMCID: PMC3913886
5. Díaz-Muñoz, S.L., O. Tenaillon, D. Goldhill, K. Brao, **P.E. Turner** and L. Chao. 2013. Electrophoretic mobility confirms reassortment bias among geographic isolates of segmented RNA phages. *BMC Evolutionary Biology* 13:206. DOI: 1186/1471-2148-13-206. PMID: 24059872. PMCID: PMC3848951
6. Dennehy, J.J., S. Duffy, K.J. O'Keefe, S.V. Edwards, and **P.E. Turner**. 2013. Frequent co-infection reduces RNA virus population genetic diversity. *Journal of Heredity* 104(5):704-712. PMID: 23828608.
7. Wasik, B, and **P.E. Turner**. 2013. On the biological success of viruses. *Annual Review of Microbiology* 67:519-541. DOI: 10.1146/annurev-micro-090110-102833. PMID: 23808330.
8. **Turner, P.E.** 2013. Evolutionary medicine. Pp. 733-740 *In* J.B. Losos, D.A. Baum, D.J. Futuyma, H.E. Hoekstra, R.E. Lenski, A.J. Moore, C.L. Peichel, D. Schluter and M.C. Whitlock (eds.), *The Princeton Guide to Evolution.* Princeton University Press, Princeton, NJ.
9. Alto, B., B. Wasik, N. Morales, and **P.E. Turner**. 2013. Stochastic temperatures impede RNA virus adaptation. *Evolution* 67:969-979. PMID: 23550749.
10. Ogbunugafor, C.B., B.W. Alto, T. Overton, A. Bhushan, N. Morales, and **P.E. Turner**.2013.Evolution of increased survival in RNA viruses specialized on cancer-derived cells. *American Naturalist* 181(5):585-595. PMID: 23594543.
11. McBride, R.C., N. Boucher, D. Park, **P.E. Turner**, and J.P. Townsend. 2012. Yeast global gene expression response to LA virus indicates co-adaptation during mycoviral infection. *FEMS Yeast Research* 13:162-179. DOI: 10.1111/1567-1364.12019. PMID: 23122216.
12. Dessau\*, M., D. Goldhill\*, R.C. McBride, **P.E. Turner**, and Y. Modis. 2012. Selective pressure causes an RNA virus to trade reproductive fitness for increased structural and thermal stability of a viral enzyme. *PLoS Genetics* 8(11): e1003102. doi:10.1371/journal.pgen.1003102. PMID: 23209446. PMCID: PMC3510033

\**These authors contributed equally to this work.*

1. **Turner,** **P.E.,** R.C. McBride, S. Duffy, R. Montville, L.-S. Wang, Y. Yang, S.-J. Lee, and J. Kim. 2012. Evolutionary genomics of host-use in bifurcating demes of RNA virus phi-6. *BMC Evolutionary Biology* 12:153. DOI: 10.1186/1471-2148-12-153. PMID: 22913547. PMCID: PMC3495861
2. **Turner, P.E.** 2012. The struggle for existence: mutualism. *In* S. Maloy and R. Kolter (eds.), Microbes and Evolution: The World That Darwin Never Saw. ASM Press, Washington DC.
3. **Turner, P.E,** J.A. Draghi, and R. Wilpiszeski. 2012. High-throughput analysis of growth differences among phage genotypes. *Journal of Microbiological Methods* 88:117-121.
4. Ogbunugafor, C.B., J.B. Pease, and **P.E. Turner.** 2010. On the possible role of robustness in the evolution of infectious diseases. *Chaos: An Interdisciplinary Journal of Nonlinear Science* 20:026108. PMCID: PMC 2909313
5. **Turner, P.E.**, N.M. Morales, B.W. Alto, and S.K. Remold. 2010. Role of evolved host breadth in the initial emergence of an RNA virus. *Evolution* 64(11):3273-3286.
6. Dennehy, J.J., N.A. Friedenberg, R.C. McBride, R.D. Holt and **P.E. Turner**. 2010. Experimental evidence that source genetic variation drives pathogen emergence. *Proceedings of the Royal Society: Biological Sciences* 277:3113-3121. PMCID: PMC2982052
7. O’Keefe, K., O.K. Silander, H. McCreery, D.M. Weinreich, K.M. Wright, L. Chao, S.V. Edwards, S.K. Remold and **P.E. Turner**. 2010. Geographic differences in sexual reassortment in RNA phage. *Evolution* 64(10):3010-3023.
8. Ogbunugafor, C.B., S. Basu, N. Morales, and **P.E. Turner**. 2010. Combining mathematics and empirical data to predict emergence of RNA viruses that differ in reservoir use. *Philosophical Transactions of the Royal Society B: Biological Sciences* 365:1919-1930. PMCID: PMC2880119
9. Alto, B, and **P.E. Turner**. 2010. Consequences of host adaptation for RNA virus infection in novel thermal environments. *Evolutionary Ecology* 24:299-315.
10. Ogbunugafor, C.B., R.C. McBride and **P.E. Turner**. 2009. Predicting virus evolution: the relationship between genetic robustness and evolvability of thermotolerance. *Cold Spring Harbor Symposia on Quantitative Biology* 74:109-118.
11. **Turner,** **P.E.,** R.C.McBride**,** and C.W. Zeyl. 2009. Sexual exploits in experimental evolution, Chapter 16 (Pp. 479-521) *In* T. Garland Jr. and M.R. Rose (eds.), *Experimental Evolution: Concepts, Methods and Applications of Selection Experiments*. University of California Press, Berkeley, CA.
12. **Turner, P.E.,** S.T. Abedon, and S. Duffy. 2009. Bacteriophage Ecology. Pp 42-57 in *Encyclopaedia of Microbiology*, 3rd Edition, M. Schaechter (ed.), Elsevier Publishers, Philadelphia, PA.
13. McBride, R.C., C.B. Ogbunugafor, and **P.E. Turner.** 2008. Robustness promotes evolvability of thermotolerance in an RNA virus. *BMC Evolutionary Biology* 8:231.
14. McBride, R.C., and **P.E. Turner**. 2008. Genetic robustness and evolvability of viruses. *Microbe* 3(9):409-415.
15. Remold, S.K., A. Rambaut, and **P.E. Turner**. 2008. Evolutionary genomics of host adaptation in VSV. *Molecular Biology and Evolution* 25(6):1138-1147.
16. Duffy, S., and **P.E. Turner**. 2008. Introduction to phage evolutionary biology. Chapter 6 *in* S.T. Abedon (ed.), *Bacteriophage Ecology: Population Growth, Evolution, and Impact of Bacterial Viruses.* Cambridge University Press, Cambridge, UK.
17. **Turner, P.E.** and S. Duffy. 2008. Evolutionary ecology of multiple phage adsorption and infection. Chapter 8 *in* S.T. Abedon (ed.), *Bacteriophage Ecology: Population Growth, Evolution, and Impact of Bacterial Viruses*. Cambridge University Press, Cambridge, UK.
18. Koella, J.C., and **P.E. Turner**. 2007. Evolution of parasites. *In* S.C. Stearns and J.C. Koella (eds.), *Evolution in Health and Disease,* 2nd ed. Oxford University Press.
19. Kysela, D.T., and **P.E. Turner**. 2007. Optimal bacteriophage mutation rates for phage therapy. *Journal of Theoretical Biology* 249:411-421.
20. **Turner, P.E.** 2007. Bacteria and Virus Evolution: A Model for the Study of Natural Selection. *In* R. Nesse (ed.), Evolution and Medicine: How New Applications Advance Research and Practice, The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd, London (online at http://www.hstalks.com/?t=BL0141531-Turner)
21. Duffy, S., C. L. Burch, and **P.E. Turner**. 2007. Evolution of host specificity drives reproductive isolation among RNA viruses. *Evolution* 61:2614-2622.
22. Dennehy, J.J., S.T. Abedon, and **P.E. Turner.** 2007. Host density impacts relative fitness of bacteriophage 6 genotypes in structured habitats. *Evolution* 61: 2516-2527.
23. Dennehy, J.J., N.A. Friedenberg, Y.W. Yang, and **P.E. Turner**. 2007. Virus population extinction via ecological traps. *Ecology Letters* 10:230-240*.*
24. Draghi, J.A., and **P.E. Turner**. 2006. DNA secretion and its implications for bacterial evolution. *Microbiology* 152:2683-2688.
25. O’Keefe, K.J., N.M. Morales, H. Ernstberger, G. Benoit, and **P.E. Turner**. 2006. Laboratory-dependent bacterial ecology: a cautionary tale. *Applied and Environmental Microbiology* 72:3032-3035.
26. Dennehy, J.J., N.A. Friedenberg, R.D. Holt, and **P.E. Turner**. 2006. Virus ecology and the maintenance of novel host use. *American Naturalist* 167:429-439.
27. Dennehy, J.J., N.A. Friedenberg, Y.W. Yang, and **P.E. Turner**. 2006. Bacteriophage migration via nematode vectors: host-parasite-consumer interactions in laboratory microcosms. *Applied and Environmental Microbiology* 72:1974-1979. PMCID: PMC1393236
28. Duffy, S., **P.E. Turner**, and C. L. Burch. 2006. Pleiotropic costs of niche expansion in the RNA bacteriophage Φ6. *Genetics* 172:751-757. PMCID: PMC1456241
29. **Turner, P.E.** 2006. On with the game – respond. *American Scientist* 94:4.
30. Silander, O., D. Weinreich, K. Wright, K. O’Keefe, C. Rang, **P.E. Turner**, and L. Chao. 2005. Widespread genetic exchange among terrestrial bacteriophages. *Proceedings of the National Academy of Sciences USA* 102(52):19009-19014. PMCID: PMC1323146
31. Montville\*, R., R. Froissart\*, S.K. Remold, O. Tenaillon, and **P.E. Turner.** 2005. Evolution of mutational robustness in RNA viruses. *PLoS Biology* 3(11):1939-1945. PMCID: PMC1456243

\**These authors contributed equally to this work.*

1. **Turner, P.E.** 2005.Parasitism between co-infecting bacteriophages. *Advances in Ecological Research* 37:309-332.
2. **Turner, P.E**. 2005. Cheating viruses and game theory. *American Scientist* 93:428-435.
3. Dennehy, J.J. and **P.E. Turner**. 2004. Reduced fecundity is the cost of cheating in RNA virus 6. *Proceedings of the Royal Society: Biological Sciences* 271:2275-2282. PMCID: PMC1691856
4. Froissart, R., C. Wilke, R. Montville, S.K. Remold, L. Chao, and **P.E. Turner**. 2004. Co-infection weakens selection against epistatic mutations in RNA viruses. *Genetics* 168:9-19. Corrigendum: *Genetics* (2006) 172:2705. PMCID: PMC144811
5. **Turner, P.E.** 2004. Phenotypic plasticity in bacterial plasmids. *Genetics* 167:9-20. PMCID: PMC147087
6. National Research Council (12 co-authors). 2004. *Biological Confinement of Genetically Engineered Organisms*. National Academy Press, Washington DC.
7. Burch, C.L., **Turner,** **P.E.**, and K. Hanley. 2003.Patterns of epistasis in RNA viruses: a review of the evidence from vaccine design. *Journal of Evolutionary Biology* 16:1223-1235.
8. **Turner, P.E.** 2003. A virus booster for game theory. *American Society of Microbiology News* 69(6):289-295.
9. **Turner, P.E.** 2003. Searching for the advantages of virus sex. *Origins of Life and Evolution of the Biosphere* 33:95-108.
10. **Turner, P.E.,** and L. Chao. 2003. Escape from prisoner’s dilemma in RNA phage 6. *American Naturalist* 161(3):497-505.
11. Souza, V., M. Travisano, **P.E. Turner,** and L.E. Eguiarte. 2002. Does experimental evolution reflect patterns in natural populations? *E. coli* strains from long-term studies compared with wild isolates. *Antonie von Leeuwenhoek Journal* 81:143-153.
12. Elena, S.F., R. Sanjuán, A.V. Bordería, and **P.E. Turner**. 2002. Differential effects of vertical and horizontal transmission in the fitness of an RNA virus: a reanalysis. *Infection, Genetics and Evolution* 1:307-309.
13. Elena, S.F., A.V. Bordería, R. Sanjuán, and **P.E. Turner**. 2001. Transmission bottlenecks and the evolution of fitness in rapidly evolving RNA viruses. *Infection, Genetics and Evolution* 1:41-48.
14. **Turner, P.E.**, and S.F. Elena. 2000. Cost of host radiation in an RNA virus. *Genetics* 156:1465-1470. PMCID: PMC1461356.
15. Chao,L., K.A. Hanley, C.L. Burch, C. Dahlberg, and **P.E.** **Turner.** 2000. Kin Selection and parasite evolution: higher and lower virulence with hard and soft selection. *Quarterly Review of Biology* 75:261-275.
16. Elena, S.F., R. Miralles, J.M. Cuevas, **P.E. Turner**, and A. Moya. 2000. The two faces of mutation: extinction and adaptation in RNA viruses. *IUBMB Life* 49:5-9.
17. **Turner, P.E.,** and L. Chao. 1999. Prisoner's dilemma in an RNA virus. *Nature* 398:441-443.
18. **Turner, P.E.**, C. Burch, K. Hanley, and L. Chao. 1999. Hybrid frequencies confirm limit to coinfection in the RNA bacteriophage **6. *Journal of Virology* 73:2420-2424. PMCID: PMC104488.
19. **Turner, P.E.,** and L. Chao. 1998. Sex and the evolution of intrahost competition in RNA virus **6. *Genetics* 150:523-532. PMCID: PMC 1460345
20. **Turner, P.E.**, V.S. Cooper, and R.E. Lenski. 1998. Tradeoff between horizontal and vertical modes of transmission in bacterial plasmids. *Evolution* 52:315-329.
21. Souza, V., **P.E. Turner,** and R.E. Lenski. 1997. Long-term experimental evolution in *Escherichia coli*. V. effects of recombination with immigrant genotypes on the rate of bacterial evolution. *Journal of Evolutionary Biology* 10:743-769.
22. **Turner, P.E.**, V. Souza, and R.E. Lenski. 1996. Tests of ecological mechanisms promoting the stable coexistence of two bacterial genotypes. *Ecology* 77:2119-2129.
23. **Turner, P.E.** 1995. Bacteria and conjugative plasmids: model systems for testing evolutionary theory. Doctoral Thesis. Michigan State University.

**NON PEER-REVIEWED PUBLICATIONS**

**Turner, P.E.** 2019. Viruses: The Ugly, the Bad, and the Good. Natural History Magazine.

**Turner, P.E.** 2018. Introduction: Manipulating Biology: Costs, Benefits and Controversies. National Teachers Institute.

Eisthen, H.L., K.M. Halanych, D.B. Kelley, S.A. White, S.M. Phelps, and 66 co-authors including **P.E. Turner**. 2018. New NSF policy will stifle innovation. *Science* 362:297. DOI:10.1126/science.aav4793

**Turner, P.E.** 2016. The promise of phage biotechnology. Report to BASF Corporation.

**Turner, P.E.** 2014. Introduction: Microbes Rule! National Teachers Institute.

**Turner, P.E.** 2013. Introduction: Asking Questions in Biology: Discovery vs. Knowledge. Yale New Haven Teachers Institute.

**Turner, P.E.** 2012. Introduction: Asking Questions in Biology: Discovery vs. Knowledge. National Teachers Institute.

**Turner, P.E.** 2010. Introduction: Evolutionary Medicine. National Teachers Institute.

**Turner, P.E.** 2009. Introduction, Volume V: Evolutionary Medicine. Yale New Haven Teachers Institute.

**Turner, P.E.** 2003. Forging U.S.-Russian ties to combat emerging viruses and bioterrorism. *Yale Environmental News* 8(1):35-37.

**Turner, P.E.** 1998. Letter to the editor: A rare black doctorate in zoology. *Journal of Blacks in Higher Education* 19:5.

**AUDIO-VISUAL INSTRUCTION**

**Turner, P.E.** 2007. Bacteria and Virus Evolution: A Model for the Study of Natural Selection, in Nesse, R. (ed.), Evolution and Medicine: How New Applications Advance Research and Practice, The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd, London (online at <http://www.hstalks.com/?t=BL0141531-Turner)>

**Turner, P.E.** 2017. iBiology lecture: Virus ecology and evolution. <https://www.ibiology.org/ibioseminars.html>

**Turner, P.E.** 2017. iBiology lecture: Virus adaptation. <https://www.ibiology.org/ibioseminars.html>

**Turner, P.E.** 2017. iBiology lecture: Phage therapy. <https://www.ibiology.org/ibioseminars.html>

**OUTREACH**

2019 Panelist. State Congressional Forum on Economic Impact of NIH Investment in New Haven, CT. Yale West Campus, Yale University, New Haven, CT.

2019 Panel discussion among Yale URM faculty: Yale BBS Diversity and Inclusion Collective. Yale Graduate Program in the Biological and Biomedical Sciences (BBS), Yale University, New Haven, CT.

2019 Harvard Museum of Natural History: ‘Evolution Matters’ seminar series. Public presentation on viruses. Cambridge, MA.

2019 Master Class, Academy for Teachers: “The Rise and Fall of Antibiotics: Developing Novel Therapies to Combat Bacterial Pathogens.” The Museum of the City of New York.

2019 Presentation: “Using evolution-thinking to develop viruses in medical therapy”. Colloquium on Ecology & Evolution: Yale Journal of Biology and Medicine. Yale University, New Haven, CT

2018 Panel discussion: Yale Explores … Planetary Health: Safeguarding Human Health and the Natural Systems on Which It Depends. The Yale Club of Philadelphia, National Constitution Center, Philadelphia, PA.

2018 Presentation: “Viruses: the good, the bad, and the ugly”, Annual Dinner Meeting, Yale Club of Cleveland. The Music Box Supper Club, Cleveland, OH.

2018 Presentation to visiting Yale alumni in “Morning at Yale” program for Yale College Reunions.

2017 Lasker Public Lecture in Honor of Al Sommer: Viruses, the Good, the Bad and the Ugly. Secret Science Club at The Bell House bar, Brooklyn, NY.

2017 Presentation to visiting Yale alumni in “Morning at Yale” program for Yale College Reunions.

2017 Presentation: “Invisible Biodiversity”, lecture to 7th grade students at John C. Daniels Interdistrict Magnet School of International Communication, New Haven, CT.

2016 Participant for MAPS (Minority Association of Pre-Medical Students) panel on STEM careers and education. Celebration of Black Life Festival, Afro-American Cultural Center, Yale University.

2014 Yale Peabody Museum Science Café. Public discussion on viruses. BAR restaurant, New Haven, CT

2014 Presentation: “Viruses: the good, the bad, and the ugly”, lecture to students at Co-op Arts & Humanities High School, New Haven, CT.

2013 Panel participant for “*Women Faculty and Faculty of Color: Building Diversity at Yale*”; panel discussion organized by Yale University undergraduates.

2012-13 Instructor for seminar “Asking Questions in Biology: Discovery vs. Knowledge” in Yale New Haven Teacher’s Institute, and National Teaching Initiative. These programs allow Yale professors to instruct K-12 teachers from the public schools in New Haven and nationwide, with the goal to develop new curriculum units for the classroom.

2012 Presentation on microbiology and public reading of “Horton Hears a Who!” to schoolchildren at 40th Anniversary Celebration of Edith B. Jackson Child Care.

2011 Advisory Council; NIH Science Education and Partnership Award: “*Climate Change and Patterns of Vector-borne Disease: development of translational science curricula”* (#1R25 RR-032187), Yale Peabody Museum.

2011 Presentation: “Virus evolution-in-action”, lecture in the Minority Student Researchers Lounge, an academic forum for underrepresented minorities in science, Yale School of Medicine.

2011 Lectures: “Evolution and Religion”, and “Humans as Caretakers of the Earth”, public lectures delivered at First Presbyterian Church of New Haven, CT.

2010 Presenter and panel participant for Common Hour event open to the public: “The Practical Value of Understanding Evolutionary Principles”, Connecticut College, New London, CT.

2010 Instructor for seminar “Evolutionary Medicine” in the Yale National Initiative, a program where Yale professors instruct K-12 teachers from public school systems across the United States, with the goal to develop new curriculum units.

2009 Presentation: “Viruses and how they evolve”, lecture and discussion with New Haven K-12 school teachers in P. Rex Club of the Yale Peabody Museum of Natural History.

2009 Presentation: “The Role of Viruses in Causing and Treating Human Disease”, 40th Anniversary of the Afro-American Cultural Center at Yale.

2009 Research findings featured in the public exhibit “Darwin: 150 Years of Evolutionary Thinking” at the Yale Peabody Museum of Natural History.

2009 Instructor for seminar “Evolutionary Medicine” in Yale New Haven Teacher’s Institute, a program where Yale professors instruct K-12 teachers from the New Haven Public School System, with the goal to develop new curriculum units.

2009 Presentation “Darwin and Disease”, lecture to local high school students and the general public in the symposium A Day for Darwin: Celebration of the 150th Anniversary of the *Origin of Species* and 200th Birthday of the Man with a Dangerous Idea. Queens College, City University of New York.

2009 Provided commentary in the Science Channel television episode “Sci-Trek: Killer Germs”.

2009 Presentation “Virus evolution”, lecture to the lay public in the Dean’s Lecture Series in celebration of the Houston 2009 Darwin Bicentennial Celebration. Alliance for Graduate Education and the Professoriate, Department of Biology and Biochemistry, University of Houston.

2008 Presentation “Viruses: the Good, the Bad, and the Ugly” in the Science Saturdays for Kids public lecture series at Yale, where professional scientists present to elementary school aged children.

2007 Presentation “Viruses and viral pandemics” in the lecture series T:IPS (Talks: Interesting People Speak), Hill Regional Career High School, New Haven, CT.

2007 Panel discussant in the public symposium Small Matters: Microbes and Their Role in Conservation. Center for Biodiversity and Conservation at the American Museum of Natural History. New York City.

2007 Presentation “Evolution in a Petri dish” in the O.C. Marsh Fellows Program at the Yale Peabody Museum, Yale University.

2007 Presentation “Virus evolution” for the lay public; 8th Annual James P. Holland Memorial Lecture. Indiana University, Bloomington, IN.

2006 Presentation “Virus evolution and epidemics” in the Yale Peabody Museum’s Summer Institute Science Education Partnership Award.

2004 Public meeting with minority undergraduates on the subject: “Under the microscope: underrepresented scientists and the university tenure process”. Mental Pabulum: A Discussion Series Presented by the Afro-American Cultural Center at Yale University.

2004 Participant in Graduate Student Discussion: So what do you do? Navigating the Subspecialties in Your Discipline. Office for Diversity and Equal Opportunity, Yale University.

2005 Guest interview on the radio program “Are We Alone?”, hosted by S. Shostak of NASA’s SETI Institute ([www.seti.org/radio](http://www.seti.org/radio)); program topic: Emerging Viruses.

**SELECTED MEDIA AND POPULAR PRESS**

Schmidt, C. 2019. Is Phage Therapy Here to Stay? *Scientific American*. 321(5):50-57 (November 2019). doi:10.1038/scientificamerican1119-50 <https://www.scientificamerican.com/article/phage-therapy-could-beat-drug-resistant-illnesses/>

This Week in Evolution (TWiEVO) podcast 44: The enemy of my enemy is my phage. June 27, 2019. Podcast at ASM Microbe in San Francisco, hosted by Drs. Nels Elde and Vincent Raccaniello. <http://www.microbe.tv/twievo/twievo-44/>

Lontok, K. 2019. Evolution in the Wild. Microcosm magazine. ASM Press.

Valich, L. Summer 2019. What Are You Researching? Rochester Review: University of Rochester Alumni Gazette. Page 39.

New Frontiers in Functional Medicine. March 2019. Podcast interview on phage therapy.

Associated Press News. February 26, 2019: <https://www.apnews.com/b4c7e8aace4d45bca6d4b2f6b2ee0ac0>

Monosson, E. April 12, 2018. Viral rescue: when antibiotics fail could phage therapy succeed? The germ’s eye view of infection might open up revolutionary treatments. AEON:

 [https://aeon.co/essays/how-a-cocktail-of-live-viruses-can-work-when-antibiotics-fail](https://urldefense.proofpoint.com/v2/url?u=https-3A__aeon.co_essays_how-2Da-2Dcocktail-2Dof-2Dlive-2Dviruses-2Dcan-2Dwork-2Dwhen-2Dantibiotics-2Dfail&d=DwMFaQ&c=cjytLXgP8ixuoHflwc-poQ&r=-fVd7ujn7Q0iMdUq_IY_eKllO4ukU9ABp45e9ObjQXE&m=omHn-cWv6zvm4w47bH1WXkOh2xfk57oqgAB-WlWLA9A&s=hqiSn8uUAcsQWx4K-pK5hIAnqIIRO6B4_mg-uV2luHk&e=)

# Where We Live. April 6, 2018. As the Antibiotic Resistance Problem Grows, Could Viruses Offer a Solution? WNPR (Connecticut Public Radio) interview on phage therapy.

#  <http://wnpr.org/post/antibiotic-resistance-problem-grows-could-viruses-offer-solution>

# Dance, A. October 20, 2017. *Proceedings of the National Academy of Sciences USA Blog*. Journal Club: Cooler temperatures might make some mosquitoes better dengue spreaders. <http://blog.pnas.org/2017/10/journal-club-cooler-temperatures-might-make-some-mosquitoes-better-dengue-spreaders/>

Zimmer, C. December 7, 2016. A virus, fished out of a lake, may have saved a man’s life – and advanced science. STAT online news: <https://www.statnews.com/2016/12/07/virus-bacteria-phage-therapy/>

Walter, K. December 8, 2016. Will viruses save us from superbugs? *Nautilus* magazine: <http://nautil.us/issue/43/heroes/will-viruses-save-us-from-superbugs>

The People’s Pharmacy. July 2016. Show 1052: The Challenge of Antibiotic Resistant Superbugs.

Public Radio International. June 3, 2016. NPR Science Friday interview on phage therapy.

Gammon, K. December 12, 2013. Cancer, the consummate traveler. *Nautilus* magazine.

Gawrylewski, A. February 2009. Darwinian Time: Does adaptation to an environment act as a speed bump for evolutionary change? *The Scientist* 23(1):26-34.

Hopkin, K. December 2008. Profile: First sex, then cheating. *The Scientist* 22(12):52-54.

Johnson, C. 2008. Spotlight on minority microbiology scientists: Paul E. Turner. *Minority Microbiology Mentor Newsletter* vol. 3 (no. 2). American Society for Microbiology.

Long, C.D., K. Turner-Shelef, and D.A. Relman. 2007. Building a better virus trap. *Trends in Biotechnology* 25(12):535-538.

Ginsburg, J. 2007. Virus traps: Weapons of mass deception. *New Scientist*. October 20, 2007. 96(2626):43-45.

Anonymous. 2007. Speciation: A god of small things. Natural selection in the laboratory creates a new species of virus. *The Economist*. October 6th – 12th, 2007. 385(8549):95.

Durresi, E. 2007. A Final Cure? Using trap cells to lure viruses into extinction. *Yale Scientific Magazine* 80(4): 22-24.

Zimmer, C. 2007. Tuesday Science Times: Scientists Explore Ways to Lure Viruses to their Death. *New York Times* Tuesday March 27, 2007.

Barry, Herbert. October 2006. Rapid Evolution. *Western Pennsylvania Mensa’s PHOENIX* magazine.

July 2006. Interviewee for PBS documentary series: “The Future of Medicine”, Ikana Media LLC.

Zimmer, C. 2006. Evolution in a Petri dish. *Yale Alumni Magazine* May/June 2006, Vol. LXIX (5):38-45.

Sarmast, S. 2006. Sexual tension: a virus weighs the pros and cons of sexual reproduction. *Yale Scientific Magazine* 79(3):14-16.

Taylor, D.E. (ed.). 2005. Career profile, pp 135 – 137 in *The Paths We Tread: Profiles of the Careers of Minority Environmental Professionals*. Minority Environmental Leadership Development Initiative, University of Michigan.

Klarreich, E. July 24, 2004. Generous players: game theory explores the Golden Rule’s place in biology. *Science News* 166:58-60.

Kenski, R. September 2003. A nossa menor ameaça. *Superinteressante Magazine* (Brazil) 192:78-83.

Wright, L.M. 2003. To vanquish a virus. *Scientific American Online* July 21.

Roach, R. 2003. The evolution of an expert. *Black Issues in Higher Education* 19(23):27.

Ratel, H. 1999. Le virus et le dilemme du prisonnier. *Sciences et Avenir Magazine* (France) July:94-95.

Nowak, M., and K. Sigmund. 1999. News and Views: Phage-lift for game theory. *Nature* 398:367-368.

Holmes, B. 1996. Gut bacteria recycle rivals' waste. *New Scientist* 12 October:15.

**PATENT APPLICATIONS**

A method for the production of bacteriophage-based virulence-targeted antibiotics. Patent application with Dr. J. Wertz (*E. coli* Genetic Stock Center, Yale University), December 2005.

A method for engineering red blood cells to trap HIV and other pathogenic human viruses. Patent application with Yul Yang (Yale University), February 2007.

**INVITED LECTURES**

2020 New York University (Biology); Washington University in St. Louis School of Medicine (Molecular Microbiology & Microbial Pathogenesis); Gettysburg College (Cross-Disciplinary Science Institute); Fred Hutchinson Cancer Center

2019 Vanderbilt University (Pathology, Microbiology and Immunology); Brandeis University (Joint Biology and Neuroscience Program); Yale University (Molecular Biophysics & Biochemistry); Yale School of Public Health (Epidemiology of Microbial Diseases); University of California, Berkeley (Integrative Biology); Harvard Medical School (Systems Biology); Cornell University (Host-Microbe Interactions & Disease; Microbiology & Immunology); University of Michigan (Microbiology & Immunology); Wesleyan University (Biology); University of California Irvine (Center for Virus Research); Vassar College (Undergraduate Research Summer Institute); University of Pittsburgh, School of Medicine (Microbiology & Molecular Genetics); Max Planck Institute for Evolutionary Biology (Microbial Population Biology)

2018 University of Pittsburgh (university wide lecture); Mount Holyoke College (Biological Sciences); Microbiotix Inc., Worcester, MA; Harvard Chan School of Public Health (Immunology & Infectious Disease); University of Oregon (Institute of Ecology and Evolution); Connecticut Innovations, Rocky Hill, CT

2017 University of Minnesota (Ecology, Evolution and Behavior); University of St. Thomas, MN (Biology); Bard College (Citizen Science Program)

2016 University of Chicago (Institute for Genomics and Systems Biology); University of Chicago (Committee on Genetics, Genomics and Systems Biology); Richard Gilder Graduate School, American Museum of Natural History (Comparative Biology, *invited by departmental graduate students*); Brooklyn College (Biology); Bard College (Biology); Fred Hutchinson Cancer Center (*invited by departmental graduate students*); University of California San Diego (Biology Division); University of California Los Angeles (Ecology and Evolutionary Biology)

2015 Yale School of Public Health (Epidemiology of Microbial Diseases); Washington University in St. Louis (Evolution, Ecology & Population Biology, *invited by departmental graduate students*); Harvard University (Microbial Sciences Initiative); Pennsylvania State University (Center for Infectious Disease Dynamics) Trinity College (Department of Biology); University of Maryland Baltimore County (MARC U\*STAR/HHMI Undergrad Scholars); San Francisco State University (Cell and Molecular Biology); University of California San Francisco (Medical Center at Mission Bay)

2014 Rutgers University (Joint Molecular Biosciences Graduate Student Association, *invited by departmental graduate students*); Yale School of Medicine (Infectious Disease & Rheumatology)

2013 Michigan State University (BEACON Center for Evolution in Action); Massachusetts Institute of Technology (Microbial Systems Seminar Series); University of Connecticut (Molecular & Cell Biology); University of Kansas (Ecology and Evolutionary Biology)

2012 Lafayette College (Programs in Environmental Science and Environmental Studies); California Institute of Technology (Division of Biology)

2011 City College of New York (Sophie Davis School of Biomedical Education); University at Albany, State University of New York (Biological Sciences); University of Michigan (Ecology and Evolutionary Biology)

2010 Fred Hutchinson Cancer Research Center, Seattle; Bowdoin College (Biology); University of Florida (Emerging Pathogens Institute); University of South Florida (Marine Sciences); University of Calgary (Biology)

2009 Harvard Medical School (Microbiology & Molecular Genetics); University of Houston (Biology & Biochemistry); University of Rhode Island (Biology)

2008 Fordham University (Biology, *invited by departmental graduate students*)

2007 SUNY Stony Brook (Ecology and Evolutionary Biology); University of Washington (Pathobiology, *invited by departmental graduate students*); Duke University (Biology)

2006 University of Pennsylvania (Biology); University of Idaho (Biological Sciences); Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey (Biochemistry); Stanford University (Biology); University of New Hampshire (Microbiology)

2005 Montana State University (Microbiology); University of California, San Diego

 (Evolutionary Genetics Group)

2004 Yale University (Anthropology); University of Massachusetts, Amherst (Microbiology); Rockefeller University (Center for Physics and Biology): University of Rochester Medical School (Microbiology and Immunology); SUNY Albany (Biological Sciences); Harvard Medical School (Microbiology & Molecular Genetics); SUNY Stony Brook (Ecology and Evolutionary Biology)

2003 Harvard University (Population & Evolutionary Genomics/Genetics Group); Yale University (Yale Institute for Biospheric Studies); University of Florida at Gainesville (Zoology); St. John’s University (Biological Sciences, Darwin Day Celebration)

2002 Wesleyan University (Biology); University of Massachusetts, Boston (Biology)

2001 Wake Forest University (Biology)

2000 National Institutes of Health (National Institute of General Medical Sciences):

 University of California, Irvine (Ecology and Evolution); University of Washington, Seattle (Zoology); Yale University (Ecology and Evolution); Duke University (Zoology); Rice University (Biology); Michigan State University (Biology); New York University (Biology); University of Houston (Ecology and Evolution); University of California, Davis (Ecology and Evolution); University of Michigan (Ecology and Evolution)

**SPECIAL LECTURES AND SYMPOSIA**

2020 “Co-evolutionary genomics of virus-bacteria interactions in phage therapy.” 23rd International Microbial Genomes Conference, Lake Arrowhead, CA.

 Virus Genomics and Evolution Conference. Wellcome Genome Campus Conference Center, Hinxton, Cambridge, UK.

 Annual Symposium of the Miller Institute of UC Berkeley. Marconi Center, Point Reyes, CA.

 Microbiome Conference at the Cold Spring Harbor Laboratories. Cold Spring Harbor, NY.

 Mathematics of Microbial Evolution: Beyond the Limits of Classical Theory. Banff International Research Station. Canada.

 “Developing viruses as ‘evolution-proof’ therapies against drug-resistant bacteria and cancers.” Gordon Research Conference on Drug Resistance. Bryant University, Smithfield, Rhode Island.

 “Phage therapy to combat infections by antibiotic-resistant bacteria.” Gordon Research Conference on Biology of Acute Respiratory Infection. Hotel Galvez, Galveston, TX.

 American Thoracic Society International Conference. Session on Novel Therapeutic Management of Non-Tuberculosis Mycobacteria. Philadelphia, PA.

 Keynote lecture in Carl Woese Institute for Genomic Biology Fellows Symposium. University of Illinois at Urbana-Champaign.

 “Using phages to select for reduced virulence in pathogenic bacteria.” Keystone Symposium on The Global Virome in Health and Disease. Tahoe City, CA.

 “Developing phage as ‘evolution-proof’ therapies against antibiotic-resistant bacteria.” Gordon Research Conference on New Antibacterial Discovery and Development. Lucca (Barga), Italy.

2019 “Bacteriophage therapy targeting non-tuberculous mycobacteria.” Continuing Medical Education Course: Bronchiectasis and Non-Tuberculous Mycobacteria Symposium. New York University.

 “Viruses: the good, the bad and the ugly”, and “Phage therapy to combat infections by antibiotic-resistant bacteria”. 35th Perspectives in Biology Symposium. Wake Forest University. Winston-Salem, NC.

 “Using phages to select for reduced virulence in pathogenic bacteria.” Lucian Symposium. St Edward’s University. Austin, TX.

 “Leveraging evolutionary trade-offs and phage selection pressure to reduce bacterial pathogenicity.” CNRS Jacques Monod Conference: Virus evolution on the mutualist-parasite continuum. Roscoff, Brittany, France.

 “Biology of phages and their use in combating pathogenic bacterial infections of the CF lung”. North American Cystic Fibrosis Conference. Nashville, TN.

 Faculty Perspective: Virus Evolution. First-year Scholars at Yale Program

 Keynote talk: “Virus and Phage Biodiversity: Potential for Human Therapy ”. 3rd Young Investigator Research Day. Origin and Function of Meta-organisms Collaborative Research Centre. GEOMAR Helmholtz Centre for Ocean Research, Kiel University, Germany.

 “Using phage selection to force drug sensitivity in MDR *P. aeruginosa*.” Cystic Fibrosis Foundation Research Conference on Pushing the Frontiers. The Lodge at Spruce Peak, Stowe, VT.

 Gordon Research Conference on Microbial Population Biology. Proctor Academy, New Hampshire.

 ASM Honorary Diversity Lecture: “Harnessing phage biodiversity to treat antibiotic-resistant bacterial infections.” Microbe: 119th General Meeting of the American Society for Microbiology. San Francisco, CA.

 “Fundamental research on antimicrobial resistance.” Capitol Hill Briefing, “From Basic Biology to One Health: How Research Funded by the National Science Foundation Addresses the Crucial Health Challenge of Antimicrobial Resistance” sponsored by American Society for Biochemistry and Molecular Biology, and the Federation of American Societies for Experimental Biology. Hosted by U.S. Representative Mark Pocan (WI) and U.S. Senator Tammy Baldwin (WI). U.S. Capitol Visitors Center, Washington D.C.

 “Using phages to select for evolution of reduced virulence in pathogenic bacteria.” Yale Science & Engineering Forum. Yale University.

 “Bacteriophage therapy for lung infections.” Continuing Medical Education (CME) Conference on Chronic Pulmonary Infections. Yale School of Medicine.

 Keynote Talk: 3rd Annual NYC Regional SEA-PHAGES Student Research Symposium. State University of New York, Old Westbury, NY.

 Workshop on Optimizing Phage Discovery and Product Development through Genomics and Functional Assays. 1st Bacteriophage Therapy Summit 2019. Boston, MA.

2018 Plenary Talk: “Using phages to combat pathogenic bacteria.” Nature Conference on Viral Infection and Immune Response. West Bund Art Center, Shanghai, China.

 Klaus Hofmann Memorial Lecture: Using viruses to select for reduced virulence of bacterial pathogens in human patients. University of Pittsburgh.

 Faculty Perspective: Virus Evolution. First-year Scholars at Yale Program

 Eagleson Lecture Award Presentation. 61st Annual Conference of the American Biological Safety Association International. Charleston Convention Center, Charleston, SC.

 Genetics Society of America Plenary Speaker. EPiC: Evolution in Philadelphia Conference. Academy of Natural Sciences, Philadelphia.

 Plenary Talk. Annual NSF BEACON Congress. Michigan State University, East Lansing, MI.

 Roger Milkman Endowed Lecture in Microbial Biodiversity. Marine Biological Laboratory. Woods Hole, MA.

 Edwin H. Lennette Memorial Lecture. 37th Annual Meeting of the American Society for Virology. University of Maryland, College Park.

 Keystone Symposium on Cells vs. Pathogens: Intrinsic Defenses and Counterdefenses. Hyatt Regency Monterey. Monterey, CA.

2017 Keynote Talk. LabRoots Microbiology & Immunology 2017 Virtual Conference.

 Plenary Talk. Microbe: 117th General Meeting of the American Society for Microbiology. New Orleans, LA.

 Keynote Talk. Connecticut Biosafety Alliance Meeting. Yale West Campus, Yale University, New Haven, CT.

 Keynote Talk: 1st Annual NYC Regional SEA-PHAGES Student Research Symposium. Rockland Community College, Suffern NY.

 Plenary Talk: 15th Anniversary Symposium of INRO (Intramural NIAID Research Opportunities), National Institute of Allergy & Infectious Diseases, NIH. Bethesda, MD.

2016 Webinar: Molecular evolution of viruses. Scientific Liaison Coalition – Society of Toxicology.

 “Experimental evolution of virus interactions with host innate immunity.” Cell Press Symposium on The Evolution of Host-Microbe Interactions. University of Chicago. Chicago, IL.

 Keystone Symposia on Molecular and Cellular Biology: Positive-Strand RNA Viruses. Hyatt Regency Austin. Austin, TX.

2015 Plenary Talk: “Environmental complexity and virus evolution.” 15th Annual Symposium in Virology. Nebraska Center for Virology, University of Nebraska-Lincoln.

 Plenary Talk: “Genetic trade-offs in dsRNA phage evolution to novel environments.” 12th International Symposium on Double-Stranded RNA Viruses. Goa Marriott Hotel, Goa, India.

 Gordon Research Conference on Microbial Population Biology. Proctor Academy, New Hampshire.

 Year of the Phage Meeting, San Diego State University, San Diego, CA.

2014 16th International Congress of Virology: “Cutting Edge: Population Genetics and Viral Evolution”. Montreal, Canada.

 Plenary session on Mechanisms of Microbial Evolution and its Consequences. 114th General Meeting of the American Society for Microbiology. Boston, MA.

 “Evolution of survival versus reproduction in RNA viruses.” Yale Training in Virology Symposium. Yale University School of Medicine.

 CNRS Jacques Monod Conference: "From emerging to pandemic viruses: Interplay between host ecology and viral evolution”. Roscoff, Brittany, France.

2013 “Bacteria-phage experimental evolution to examine host-parasite interactions.” Annual Meeting of the CT Valley Branch of the American Society for Microbiology.

 Faculty Perspective: Virus Evolution. Freshman Scholars at Yale Program.

 Specialized and generalized evolution of cancer-specific RNA viruses. Second International Biannual Evolution and Cancer Conference. Center for Evolution and Cancer. UC San Francisco.

 “RNA virus adaptation (or not) to environmental change.” VIIth Virus Evolution Workshop. Pennsylvania State University.

2012 “Maintaining the biological majority: biodiversity and extinction of viruses.” Yale Institute for Biospheric Studies. Yale University.

 “How do viruses avoid extinction?” Symposium on Frontiers in Experimental Evolution. 112th General Meeting of the American Society for Microbiology. San Francisco, CA.

 Plenary talk: “Robustness and evolvability in RNA viruses.” Workshop on Robustness in Biological Systems. Mathematical Biosciences Institute, Ohio State University.

 Plenary talk: Robustness and evolvability in RNA viruses. Mathematics of Microbes: Biological Details of the Evolving Cell. Imperial College, London.

2010 “Robustness and thermotolerance in RNA phage phi-6.” VIth Virus Evolution Workshop. Noble Foundation, Ardmore, OK.

 “Adaptive and ecological landscapes in RNA virus evolution.” The Graduate Research School in Genomic Ecology (GENECO). Lund University, Sweden.

 “Genomics of RNA virus adaptation.” Ninth Annual Genomics Symposium. New York University.

2009 CNRS Jacques Monod Conference on Understanding emergenceof infectious diseases: focus on new experimental and theoretical approaches to virusevolution. Roscoff, Brittany, France.

 American Academy of Microbiology Colloquium on Microbial Evolution: The Earth and its Oceans. GAIAS Institute, Galapagos Islands, Ecuador.

 Evolution: The Molecular Landscape. 74th Cold Spring Harbor Laboratory Symposium on Quantitative Biology, Cold Spring Harbor, NY.

2008. “The evolution of emerging disease viruses.” Annual Biomedical Research Conference for Minority Students. Orlando, FL.

 “The evolutionary ecology of viruses.” Yale Symposium on Evolution in Health and Disease. Yale University Medical School.

 Evolution of RNA viruses. Molecular Virology Research Conference. Yale Cancer Center.

2007 “Experimental evolution of RNA viruses.” XVIIIth Meeting of New England Molecular Evolutionary Biologists, CUNY Queens, Queens, NY.

 “Evolutionary ecology of RNA virus emergence.” CNRS Jacques Monod Conference on Evolutionary Genetics of Host-Parasite Relationships. Roscoff, Brittany, France.

 Gordon Research Conference on Microbial Population Biology. Proctor Academy, New Hampshire.

 Division R (Evolutionary and Genomic Microbiology) Lecture. Symposium on Adaptive Landscapes, 107th Annual Meeting of the American Society for Microbiology. Toronto.

 “Experimental evolution of RNA viruses.” Intramural NIAID Research Opportunities, 10th Anniversary Symposium. National Institutes of Health, Bethesda, MD.

2006 “Viral subversion by decoy hosts.” 6th Noble Foundation Workshop in Virus Evolution. Ardmore, OK.

 “Evolution of mutational robustness in an RNA virus.” 13th International Conference on HIV Dynamics and Evolution. Marine Biology Labs, Woods Hole, MA.

2005 “Experimental evolution of RNA viruses.” Workshop on Aspects of Self-organization in Evolution. Mathematical Biosciences Institute, The Ohio State University, Columbus, OH.

 Experimental evolution of RNA viruses. 4th Biennial Conference on Developmental Basis of Evolutionary Change. University of Chicago.

 **Experimental evolution to test new algorithms. Annual Meeting of the Cyberinfrastructure for Phylogenetic Research (CIPRes) project. San Diego, CA.**

2004 “Genetic exchange and population structure in RNA viruses.” DOE & NSF Workshop on Horizontal Gene Transfer in Microbial Communities. Warrenton, VA.

 “RNA virus evolution.” Intramural NIAID Research Opportunities. National Institutes of Health, Bethesda, MD.

2003 Edward Bouchet Sesquicentennial Seminar: “Evolution of sex in RNA viruses.” Department of Epidemiology and Public Health, Yale University.

2002 “Epistasis and the evolution of sex in RNA virus 6.” Second Noble Foundation Workshop in Virus Evolution. Ardmore, OK.

 “Solving the prisoner’s dilemma in RNA phage 6.” American Society of Microbiologists Annual Meeting. Salt Lake City, UT.

 “The seX-files: searching for the origins of viral sex.” Astrobiology Science Conference. NASA Ames Research Center. Moffett Field, CA.

 “Sex games in RNA viruses.” Gordon Conference on Molecular Evolution. Ventura, CA.

2001 “Solving the prisoner’s dilemma in RNA phage 6.” XIIth Meeting of New England Molecular Evolutionary Biologists, Smith College, Northampton, MA.

1999 “Sex, game theory, and evolution in RNA viruses.” Symposium on Adaptation by Transfer of Genetic Information. 2nd Meeting of the Gulbenkian Science Institute. Lisbon, Portugal.

1997 “Sex and the evolution of intrahost competition in RNA viruses.” Symposium on Genetics of Fitness Related Traits in Model Organisms. VIth Congress of the European Society for Evolutionary Biology. Arnhem, Netherlands.

1996 “Tradeoff between horizontal and vertical modes of transmission in bacterial plasmids.” Bacterial Genetics & Ecology Symposium V. Nafplion, Greece.

 “Misuse of evolutionary theory to account for human racial characteristics.” Symposium on Educating for the Future. Session on Pseudo-science, Biology, and the Education of African-American Students. Annual meeting of the American Association for the Advancement of Science. Baltimore, MD.

**PUBLISHED ABSTRACTS**

Gloria-Soria, A., S. Mendiola, V.J. Morley and **P.E. Turner.** April 2018. Evolutionary history constrains adaptation in vesicular stomatitis virus. *Virus Evolution* Vol. 4, Issue\_suppl\_1, vey010.047.

**Turner, P. E.** April 2002. The seX-files: searching for the origins of viral sex. Astrobiology Science Conference. NASA Ames Research Center. Moffett Field, CA.

**Turner, P. E.** 2004. Why is experimental evolution important for astrobiology? *International Journal of Astrobiology* S1:27.

**INVITED WORKSHOPS**

November 2018. Invited Participant. Working Group: Integrating Critical Phenomenon & Multi-Scale in Virus Evolution. Santa Fe Institute, Santa Fe, New Mexico.

July 2018. Invited Participant. Working Group: Aging and Adaptations in Infectious Diseases. Santa Fe Institute, Santa Fe, New Mexico.

September 2017. Panel Participant. NSF Day Workshop to teach researchers skills to better compete for NSF funding in science, engineering and education. University of St. Joseph, West Hartford, CT.

October 2016. Participant. Exploring the Microbiome/Immunome and Disease on the International Space Station. Center for the Advancement of Science in Space (CASIS) Cleveland, OH.

October-December 2016. ASAPbio Preprint Governance Task Force.

August 2014. Guest Lecturer, Santa Barbara Advanced School of Quantitative Biology, Summer Research Course on Microbial Strategies for Survival and Evolution. UC Santa Barbara.

July 2013. Invited Lecturer, Microbial Diversity Course. Marine Biological Laboratory, Woods Hole, MA.

July 2012. Invited Lecturer, Microbial Diversity Course. Marine Biological Laboratory, Woods Hole, MA.

July 2011. Invited Lecturer, Microbial Diversity Course. Marine Biological Laboratory, Woods Hole, MA.

February 2011. Invited Lecturer, Workshop on Molecular Evolution, Europe. Cesky Krumlov, Czech Republic.

August 2010. Invited Lecturer, Geneco Summer Meeting. Hovs Hallar, Sweden.

July 2010. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

July 2009. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

August 2009. American Academy of Microbiology’s Colloquium on Microbes in a Changing World: Translations from Darwin. GAIAS Research Institute, San Cristobal Island, Galapagos Islands, Ecuador.

August 2008. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

July 2007. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

July 2006. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

August 2005. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

May 2005. Cary Conference XI: Infectious Disease Ecology. Institute of Ecosystem Studies, Millbrook, NY.

September 2004. 2nd Annual National Academies Keck Futures Initiative Conference: Designing Nanostructures at the Interface between Biomedical and Physical Systems.

August 2004. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

June 2004. CIA Workshop on Microbial Forensics. Washington DC

June 2004. DOE & NSF Workshop on Horizontal Gene Transfer in Microbial Communities. Warrenton, VA.

February 2004. NASA Workshop on Fundamental Space Biology. Kennedy Space Center.

October 2003. NASA Astrobiology Institute: Virus Focus Group Workshop. Portland State University, Portland, OR.

August 2003. Invited Lecturer, Workshop on Molecular Evolution. Marine Biological Laboratory, Woods Hole, MA.

November 2002. Conference on Increasing the Number of Scientists of Color on Faculties of Colleges and Universities. Wesleyan University, Middletown, Connecticut.

August 2002. Evolution of Infectious Diseases. National Institutes of Health. Bethesda, Maryland.

June 2002. Workshop on Ecology of Infectious Diseases. National Science Foundation, Department of Health and Human Services, and Russian Academy of Sciences. Novosibirsk, Russia.

May 2002. Office of Special Emphasis Trainee Workshop. National Institute of Allergy and Infectious Diseases, National Institutes of Health. Washington, DC.

**PROFESSIONAL MEMBERSHIPS**

American Association for the Advancement of Science; American Genetics Association; American Society for Microbiology; American Society for Virology; Blacks in Higher Education; Genetics Society of America; International Society for the Study of Evolution; International Society for Viruses of Microorganisms; International Society for Evolution, Medicine and Public Health; Sigma Xi, Society for Molecular Biology and Evolution

**PEER REVIEW ACTIVITIES**

*Journals:* American Naturalist; Antonie von Leeuwenhoek Journal; BioEssays; Applied and Environmental Microbiology; BMC Evolutionary Biology; Evolution; Evolutionary Applications; FEMS Microbiology; Genetics; Genome Biology and Evolution; Infection, Genetics & Evolution; Journal of Bacteriology; Journal of Comparative Human Biology (HOMO); Journal of Theoretical Biology; Journal of Virology; Journal of Molecular Evolution; Microbial Ecology; Molecular Biology and Evolution; Nature; Nature Genetics; Nature Reviews Microbiology; Photochemistry and Photobiology; PLoS Biology; PLoS Computational Biology; PLoS Evolutionary Bioinformatics; PLoS Pathogens; Proceedings of the National Academy of Sciences USA; Proceedings of the Royal Society Interface; Proceedings of the Royal Society of London: Biological Sciences; Science; Virology; Virus Evolution; Viruses.

*Associate Editorships:* Evolution; Evolution, Medicine and Public Health; PHAGE: Therapy, Applications and Research; Proceedings of the National Academy of Sciences USA; Virus Evolution.

*Guest Associate Editorships:* PLoS Genetics; PLoS Pathogens

*Granting Agencies:* American Society for Microbiology, Defense Threat Reduction Agency, French National Research Agency (ANR), Gordon and Betty Moore Foundation, Portuguese Foundation for Science and Technology, National Aeronautics and Space Administration, National Institutes of Health, National Science Foundation, USA-Israel Binational Science Foundation; Wellcome Trust.

*Panel Participant:* American Society for Microbiology’s Robert D. Watkins Graduate Research Fellowship; National Institutes of Health (Genetic Variation and Evolution; Minority Predoctoral Fellowship; NRSA Postdoctoral Fellowship); National Science Foundation (Population Biology Cluster; Doctoral Dissertation Improvement Grant; IGERT Program); NSF National Evolutionary Synthesis Center

**PROFESSIONAL SERVICE**

Panelist, National Science Foundation Review Panel (2002, 2004, 2006, 2010)

Mentor, STARS (Science, Technology and Research Scholars) Program at Yale (2002-present)

Member, First-year Graduate Student Advisory Committee, EEB, Yale University (2002-03)

Member, Undergraduate Affairs Committee, EEB, Yale University (2002-03)

Coordinator, Yale Department of Ecology and Evolutionary Biology Seminar Series (2002-03, 2003-04, 2005-06)

Advisor, Ecology and Evolutionary Biology Majors, Class of 2004

Member, Committee on the Biological Confinement of Genetically Engineered Organisms, National Research Council (2002-04)

Advisor, Science Network of the New England Board of Higher Education (2003, 2004)

Acting Director, Center for Microbial Diversity, Yale Institute for Biospheric Studies (2002-2005)

Member, Science Organizing Committee, NASA Astrobiology Science Conference (2004)

Organizer, Workshop on Phage Biology, Yale Center for Microbial Diversity (Spring 2004)

Examiner, Qualifying Exam Committee, EEB, Yale University (2003-04)

Member, Scientific Advisory Board, NESCent: NSF National Evolutionary Synthesis Center (2005 – 2009)

Member, STARS (Science, Technology and Research Scholars) Program Advisory Committee, Yale University (2005-present)

Panelist, National Institutes of Health Review Panel (2005, 2006)

Member, Executive Committee for the YIBS Center for EcoEpidemiology (2006)

Diversity Coordinator, Department of Ecology and Evolution, Yale University; departmental representative in administrative discussions regarding recruitment, admissions and matriculation of diverse applicants to the graduate program (2005, 2006)

Member, Endowed Postdoctoral Fellowship Committee, Yale University (2006, 2007)

Member, Donnelley Postdoctoral Award Selection Committee, Yale University (2007, 2011)

Member, Search Committee, Department of Epidemiology and Public Health, Yale University (2007)

Member, Committee on Minority Education, American Society for Microbiology (2007-present)

Director of Graduate Studies, Department of Ecology and Evolution, Yale University (2007-08, 2009-10, 2014)

Associate Editor for *Evolution* (2009-2011)

Member, Yale STARS (Science, Technology and Research Scholars) Selection Committee (2009)

Member, Advisory Committee for Microbial Diversity Institute, Yale University (2009-present)

Member, Provost’s Standing Advisory and Appointments Committee for the School of Forestry and Environmental Studies (2009-2013)

Member, Graduate School Executive Committee, Yale University (2009-2010)

Member, University Advisory Council of the Yale-New Haven Teachers Institute (2009-2014)

Member, Steering Committee for Yale College (2010-2011)

Chair, Department of Ecology and Evolutionary Biology, Yale University (2010-2013; 2014-2017)

Member, Mellon Mays and Bouchet Undergraduate Fellowship Committee (2011-12, 2012-13)

Member, Advisory Committee for Environmental Studies Program, Yale University (2012-present)

Associate Editor for *Evolution, Medicine and Public Health* (2012-2016)

Member, Search Committee, Department of Epidemiology and Public Health, Yale University (2013-2014)

Member, University Budget Committee, Yale University (2013-2014)

Member, HHMI Undergraduate Program Steering Committee (2013-14)

Member, Executive Committee of the Yale-New Haven Teachers Institute (2014-present)

Member, Advisory Committee for Biological Sciences of the National Science Foundation (2014-2017)

Member, Committee on Gene Drive Research in Non-Human Organisms: Recommendations for Responsible Conduct, National Research Council (2015-18)

Associate Editor for *Virus Evolution* (2015-present)

Committee Chair, Dean of Science Advisory Committee, Yale University (2017)

Member, Committee for External Review of Interdepartmental Graduate Programs in the Life Sciences, University of Massachusetts, Amherst, MA (2017)

Member, University Science Strategy Committee (2017-18)

Panelist, Junior PI Retreat, Yale University (2017)

Interim Dean of Science (2017-2018)

Ad hoc Panelist, Rehabilitation Research and Development Service, Department of Veteran Affairs (2018)

Member, Advisory Board of Yale Cancer Center, Yale School of Medicine (2018-2019)

Member, Faculty Committee on Athletics, Yale University (2018-2020)

Member, Yale Biological Safety Committee (2018-2020)

Member, Committee for Review of Biology Department, Emory University, Atlanta, GA (2019)

**COURSES TAUGHT**

EEB175L. Virus Discovery and Evolution (lab course)

EEB225. Evolutionary Biology

EEB228. Ecology and Evolution of Infectious Diseases

EEB460/461. Studies in Evolutionary Medicine (yearlong seminar spanning summer research abroad)

EEB470. Tutorial in Ecology and Evolution

EEB500. Advanced Topics in Ecology and Evolutionary Biology

EEB545. Problems in Bioethics; Responsible Conduct of Research

EEB729. Microbial Ecology and Evolution

EEB730. Experimental Ecology and Evolution of Microbes

EMD 518. Principles of Infectious Diseases II (guest lecture participation)

MCDB642. Roles of Microorganisms in the Living World (guest lecture participation)

MBIO700b. Seminal Papers on the Foundations of Modern Microbiology (guest lecture participation)

GEN734. Molecular Biology of Animal Viruses (guest lecture participation)

MBIO686. Biology of Bacterial Pathogens Part I (guest lecture participation)

**UNDERGRADUATE ADVISING (\*underrepresented minority mentee)**

Rebecca Montville, B.S. 2003, Rutgers University (Summer 2002)

Josh Foer, B.S. 2004, Yale University (Spring 2003)

\*Chijioke Okeke, B.S. 2005, Yale University (Summer and Fall 2002, 2003-04, 2004-05)

David Gutman, B.S. 2005, Yale University (Summer 2004, 2004-05)

Helen McCreery, B.S. 2006, MIT (Summer 2005)

Yul Yang, B.S. 2007, Yale University (Spring 2004, 2004-05, 2005-06; senior thesis advisor)

\*Victor Ramos, B.S. 2007, Yale University (2005-06; senior thesis advisor)

James Pease, B.S. 2007, Yale University (2005-06; senior thesis advisor)

\*Tambudzai Shamu, B.S. 2008, Viterbo University (STARS program, Summer 2005)

Jennifer McConnell, B.S. 2008, Rutgers University (SURF program, Summer 2006, Summer 2007)

Jessie Leifer, B.S. 2008, Yale University (senior essay advisor)

Neil Pirakh, B.S. 2008, Yale University (senior essay advisor)

Sun Jin Lee, B.S. 2009, Yale University (2005-2007)

\*Joshua Colon, B.S. 2010, Yale University (2007-2008)

Mark O’Connor, B.S. 2009, Yale University (2007-2009; senior thesis advisor)

\*Thomas Overton, B.S. 2009, Yale University (2007-2009; senior thesis advisor)

Anna Wojcik, B.S. 2009, Yale University (senior essay advisor)

\*Ambika Bhushan, B.S. 2010, Yale University (2006-2010; senior thesis advisor)

Lisa Simon, B.S. 2010, Yale University (tutorial project advisor; senior thesis advisor)

\*Sonia Singhal, B.S. 2010, Yale University (2006-2010; senior thesis advisor)

Melissa Chiasson, Class of 2011, Yale University (2008-2010; senior thesis advisor)

\*Danielle Jones, Class of 2011, Xavier University (BIOStep program, Summer 2009)

Angela Lee, Class of 2011, Yale University (2010-11)

Jeremy Leonard, Class of 2011; Yale University (2010-11; senior thesis advisor)

Joanne Choi, Class of 2011; Yale University (2010-11)

Farnaz Gulamhussein, Class of 2012 (senior essay advisor)

Alexander Hirsch, Class of 2012, Yale University (Summer 2009)

Chris Baker, Class of 2012, Brown University (Summer 2011)

\*Chidi Akusobi, Class of 2012, Yale University (2009-2012; senior thesis advisor)

Samantha Attwood, Class of 2012, Yale University (2011-2012; senior thesis advisor)

Andrew Everett, Class of 2012, Yale University (2011-2012; senior thesis advisor)

\*Oluwadamilola Oni-Orisan, Class of 2013, Yale University (senior essay advisor)

Ronit Abramson, Class of 2013, Yale University (2010-2013; senior thesis advisor)

Kristen Brao, Class of 2013, Yale University (2011-2013; senior thesis advisor)

\*Kelly Diaz, Class of 2013, Yale University (2010-2013; senior thesis advisor)

Derek Park, Class of 2013, Yale University (2012-2013; senior thesis advisor)

\*Cecilia Sanchez, Class of 2013, Yale University (2013)

Elisa Visher, Class of 2014, Yale University (2012-2014; senior thesis advisor)

Claire Donnelley, Class of 2014, Yale University (2013-2014; senior thesis advisor)

\*Chris Tokita, Class of 2014, Yale University (2013-2014; senior thesis advisor)

\*Salma Dali, Class of 2014, Yale University (2013-2014; senior thesis advisor)

\*Isis Sikainga, Class of 2014, Yale University (2012-2013)

Matthew Ribeiro, Class of 2015, Yale University (2011-2012, 2014-2015; senior thesis advisor)

Ashley Schwarzer, Class of 2015, Yale University (2013-2015; senior thesis advisor)

\*Lynette Perez, Class of 2015, Yale University (2014-2015; senior thesis advisor)

Ruth Assefa, Class of 2015, Yale University (2014-2015; senior tutorial)

Connor Buechler, Class of 2016, Yale University (2013-2014)

\*Richard Eboka, Class of 2016, Yale University (2013-2014)

\*Lauren Dawson, Class of 2016, Yale University (summer 2014)

\*Sandra Mendiola, Class of 2016, Yale University (2014-2016; senior thesis advisor)

Megan Murphy, Class of 2016, Yale University (2015-2016; senior thesis advisor)

Taylor McHugh, Class of 2016, Yale University (2015-2016; senior thesis advisor)

\*William Roberts, Class of 2016, Yale University (2015-2016; senior tutorial)

Stephanie Mao, Class of 2017, Yale University (2013-2017; senior thesis advisor)

Elizabeth Karron, Class of 2018, Yale University (2015-2016)

Justin Abbasi, Class of 2018, Yale University (2015-2016)

Emily Granger, Class of 2018, Yale University (summer 2016; 2017-2018; senior thesis advisor)

Alice Maestri, Class of 2017, University of Turin, Italy (2016-2017)

Rachel Done, Class of 2019, Yale University (2016-2018; senior thesis advisor)

Kevin Chen, Class of 2017, Yale University (2017; senior thesis advisor)

\*Krisstel Gomez, Class of 2018, Yale University (2016-2018; senior thesis advisor)

Wai Tin Lam, Class of 2020, Chinese University of Hong Kong (summer 2017)

Rose Bender, Class of 2019, Yale University (summer 2017)

\*Hisham Alrubaye, Class of 2018, CUNY Queens (summer 2017)

\*Earl Chism, Class of 2018, Yale University (2018; senior thesis advisor)

Mary Ann Santucci, Class of 2018, Yale University (2018; senior thesis advisor)

Maya Levin, Class of 2020, Yale University (2018; senior thesis advisor)

Roxanna Barahman, Class of 2020, Yale University (2018-2019; senior thesis advisor)

Abigail Fortier, Class of 2021, Yale University (2018-2019)

Adam Lessing, Class of 2019, Yale University (2018-2019; senior thesis advisor)

\*Mia Arias Tsang, Class of 2021, Yale University (2018)

Amanda Weng, Class of 2019, Yale University (2018-2019; senior thesis advisor)

Cristina Teems, Class of 2019, Yale University (2018-2019; senior thesis advisor)

\*Carli Roush, Class of 2022, Yale University (STARS program, summer 2019)

\*Maya Wilcox, Class of 2022, Yale University (summer 2019)

Leah Genth, Class of 2022, Yale University (summer 2019)

\*Teresa Carter, Class of 2021, ‘Warrior Scholars’ Research Experience for Veteran Undergraduates

(REVU) Program, Middle Tennessee State University (summer 2019)

**GRADUATE ADVISING (\*underrepresented minority mentee)**

Siobain Duffy (Ph.D. 2006, Yale University); currently Associate Professor in the Department of Ecology, Evolution and Natural Resources, Rutgers University

David Kysela (Ph.D. 2008, Yale University); currently Postdoctoral Fellow at Indiana University

\*Nadya Morales (Ph.D. 2008, Yale University Microbiology Program); currently Scientist at BASF Corporation, Danbury, CT

Jeremy Draghi (Ph.D. 2008, Yale University); currently Assistant Professor, Virginia Polytechnic Institute and State University

\*Aashish Jethra (Yale PREP Predoctoral Fellow, 2006-07, Biological and Biomedical Sciences Program)

\*Regina Wilpiszeski (M.S. 2009, Yale Ecology & Evolutionary Biology program); currently Ph.D. student at Pennsylvania State University

\*Chike Brandon Ogbunugafor (Ph.D. 2009, Yale University), currently Assistant Professor at

 Brown University

Jose Usme Ciro (visiting PhD student, 2010, University of Antioquia, Colombia)

Jason Shapiro (Ph.D. 2014, Yale University), currently Postdoctoral Researcher at Loyola University

 Chicago

Daniel Goldhill (Ph.D. 2014, Yale University), currently Healthcare Scientist at Public Health England

 and Imperial College

Valerie Morley (Ph.D. 2017, Yale University), currently Postdoctoral Researcher at Pennsylvania State

 University

\*Stacy Arnold (M.S. 2017, Yale Ecology & Evolutionary Biology program)

Kevin Brown (Yale Ecology & Evolutionary Biology program)

Kaitlyn Kortright (Yale Microbiology program)

Michael Blazanin (Yale Ecology & Evolutionary Biology program)

Andrew Peric (Yale Microbiology program)

**THESIS COMMITTEES**

Benjamin Kirkup (Ph.D. 2003; Major Advisor: Margaret Riley, Ecology & Evolution, Yale University)

Julia Hartling (Ph.D. 2004, Yale University; Major Advisor: Junhyong Kim, University of Pennsylvania)

Caroline Obert (Ph.D. 2004; Major Advisor: Margaret Riley, Ecology & Evolution, Yale University)

Michael Quance (Ph.D. 2006; Major Advisor: Michael Travisano, University of Houston)

Saverio Vicario (Ph.D. 2007; Major Advisor: Jeffrey Powell, Ecology & Evolution, Yale University)

Nathan Havill (Ph.D. 2007; Major Advisor: Stephen Stearns, Ecology & Evolution, Yale University)

Ana Signorovitch (Ph.D. 2007; Major Advisor: Leo Buss, Ecology & Evolution, Yale University)

Rachel Novick (Ph.D. 2008; Major Advisor: Michael Donoghue, Ecology & Evolution, Yale University)

Jeffrey Caplan (Ph.D. 2008; Major Advisor: Dinesh Kumar, Molecular, Cellular & Developmental Biology, Yale University)

Anne Gatewood (Ph.D. 2008; Thesis Committee; Major Advisor: Durland Fish, Epidemiology and Public Health; Yale University Medical School)

Scott Glaberman (Ph.D. 2008; Major Advisor: Jeffrey Powell, Ecology & Evolution, Yale University)

Julia Brown (Ph.D. 2012; Major Advisor: Jeffrey Powell, Ecology & Evolution, Yale University)

Deena Emera (Ph.D. 2012; Major Advisor: Gunter Wagner, Ecology & Evolution, Yale University)

Kim Tsao (Ph.D. 2012; Major Advisor: Durland Fish, Epidemiology and Public Health; Yale University Medical School)

Steven Brady (Ph.D. 2012; Major Advisor: David Skelly, Yale School of Forestry and Environmental Science)

Alexander Ciota (Ph.D. 2012; Major Advisor: Laura Kramer, Biological Sciences, University at Albany, State University of New York)

Honour McCann (Ph.D. 2013; Major Advisor: David Guttman, Cell and Systems Biology, University of Toronto)

Andrea Hodgins-Davis (Ph.D. 2014; Major Advisor: Jeffrey Townsend, Ecology & Evolution, Yale University)

Kathryn Richards-Hrdlicka (Ph.D. 2014; Major Advisor: Jeffrey Powell, Yale School of Forestry and Environmental Studies)

Nicholas Frankel (Ph.D. 2015; Major Advisor: Thierry Emonet, Molecular, Cellular & Developmental Biology, Yale University)

Waldan Kwong (Ph.D. 2015; Major Advisor: Nancy Moran, Ecology & Evolution, Yale University)

Andrew Moeller (Ph.D. 2015; Major Advisor: Howard Ochman, Ecology & Evolution, Yale University)

Sara Stark (Ph.D. 2015; Major Advisor: Ing-Nang Wang, Biological Sciences, University at Albany, State University of New York)

Daniel Wieczynski (Ph.D. 2016; Major Advisor: David Vasseur, Ecology & Evolution, Yale University)

Natalie Ma (Ph.D. 2016; Major Advisor: Farren Isaacs, Molecular, Cellular & Developmental Biology, Yale University)

Ben Evans (Ph.D. 2016; Major Advisor: Jeffrey Powell, Ecology & Evolution, Yale University)

Chris Dutton (Thesis Committee; Major Advisor: David Post, Ecology & Evolution, Yale University)

Erica Holdridge (Thesis Committee; Major Advisor: David Vasseur, Ecology & Evolution, Yale University)

Sarah Spaulding (Thesis Committee; Major Advisor: Susanna Remold, Biology, University of Louisville)

Jean Vila (Thesis Committee; Major Advisor: Alvaro Sanchez, Ecology & Evolution, Yale University)

Carrie Lynn (Thesis Committee; Major Advisor: Barbara Kazmierczak, Microbial Pathogenesis; Yale Medical School)

Chang-Yu Chang (Thesis Committee; Major Advisor: Alvaro Sanchez, Ecology & Evolution, Yale University)

Federica Sartori (Thesis Committee; Major Advisor: Edo Kussell, Biology, New York University)

Mary Petrone (Thesis Committee; Major Advisor: Nathan Grubaugh, Epidemiology and Public Health; Yale University Medical School)

**POSTDOCTORAL ADVISING (\*underrepresented minority mentee)**

Remy Froissart, Postdoctoral Associate (2002-03); currently Scientist at CNRS-IRD Montpellier

John Wertz, National Science Foundation Postdoctoral Fellow (2004); currently Director of the Coli Genetic Resource Center, Yale University

Susanna Remold, Gaylord Donnelly Environmental Postdoctoral Fellow (2002-04), Ana Fuller Postdoctoral Fellow (2004-05); currently Professor and Chair of Biology at University of Massachusetts, Lowell

Kara O’Keefe, Yale University Postdoctoral Fellow (2003-04), National Science Foundation Microbial Biology Postdoctoral Fellow (2004-06); currently Epidemiologist at San Francisco Department of Public Health

\*John Dennehy, National Science Foundation Minority Postdoctoral Fellow (2003-06); currently Associate Professor at Queens College, City University of New York

Barry Alto, Gaylord Donnelly Environmental Postdoctoral Fellow (2006-08); currently Associate Professor, Florida Medical Entomology Laboratory, University of Florida, Vero Beach, FL

Robert C. McBride, Postdoctoral Associate (2006-09); currently CEO of Felix Biotechnology, New Haven, CT

\*Nadya Morales, Postdoctoral Associate (2009-2010); currently Scientist, BASF Corporation, Danbury, CT

\*Brandon Ogbunugafor, UNCF-Merck Postdoctoral Fellow (2010-11); currently Assistant Professor of Ecology and Evolutionary Biology, Brown University

Bethany Wasik, Yale University Postdoctoral Fellow (2011) currently Acquisitions Assistant, Cornell University Press

Kendra Pesko, Yale University Postdoctoral Fellow (2012-13); currently Microbiologist, Biomedical Research Institute of New Mexico

\*Samuel Diaz-Muñoz, NSF Postdoctoral Fellow (2011-2014); co-advised by Lin Chao (UC San Diego) currently Assistant Professor of Microbiology & Molecular Genetics, University California, Davis

Elena Peredo, Visiting Scientist, Marine Biological Laboratory, Woods Hole, MA (2013); co-advised by Sheri Simmons (MBL); currently Postdoctoral Scientist, Marine Biological Laboratory (Zoe Cardon lab)

Brian Wasik, Yale University Postdoctoral Fellow (2011-2014); currently Postdoctoral Scientist, Cornell University (Colin Parrish lab)

Mark Sistrom, Yale University Postdoctoral Fellow (2013-2015); currently Assistant Professor, University of California, Merced

\*Andrea Gloria-Soria, Yale University Research Scientist (2013-2017); currently Assistant Agricultural Scientist, Connecticut Agricultural Experiment Station, New Haven, CT.

Kenichi Okamoto, Yale University Postdoctoral Fellow (2015-2017); currently Assistant Professor, University of St. Thomas, Minneapolis, MN

Lisa Bono, Yale University Postdoctoral Fellow (2015-2018); currently Postdoctoral Scientist, Rutgers University (Siobain Duffy lab)

Benjamin K. Chan, Yale University Research Scientist (2013-present)

Alita Burmeister, Yale University Postdoctoral Fellow (2017-present)

**HIGH SCHOOL STUDENT ADVISING**

 Sam Mogil, Class of 2008, Briarcliff Manor High School, Briarcliff Manor, NY (2005-07)

 Matthew Ribeiro, Class of 2013, St. Joseph High School, Trumbull, CT (2010)

 Nicole Mason, Class of 2015, Guilford High School, Guilford, CT (2013)

 Akshay Mody, Class of 2019, The Peddie School, Hightstown, NJ (2017)

 Dylan Sloan, class of 2019, Hopkins School, New Haven, CT (2017)

**ADVISEE AWARDS**

2019 Belknap Prize awarded to Adam Lessing for outstanding senior thesis by a baccalaureate in Ecology and Evolutionary Biology, Yale University

2019 Yale Science & Engineering Association Fellowship; Roxy Barahman

2018 R.A. Fisher Prize from International Society for the Study of Evolution for most outstanding PhD thesis paper published in the journal *Evolution*; Valerie Morley.

2018 Yale College First Year Fellowship; Abigail Fortier

2018 Yale College Dean’s Fellowship; Rachel Done

2017 Best graduate student poster, American Society for Microbiology 52nd Annual Regional I Meeting: *The Challenging Microbial Landscape*, University of Connecticut; Michael Blazanin

2017 John Spangler Nicholas Prize to Valerie Morley for excellence of the doctoral thesis in the Department of Ecology and Evolutionary Biology, Yale University

2016 Yale Science Scholar Program Fellowship; Stephanie Mao

2016 Mellon Mays Undergraduate Fellowship; Sandra Mendiola

2015 John Spangler Nicholas Prize to Daniel Goldhill for excellence of the doctoral thesis in the Department of Ecology and Evolutionary Biology, Yale University

2014 Best oral presentation, Annual EEB Graduate Student Symposium, Yale University; Valerie Morley

2014 Runner-up for best student oral presentation, 21st Century Naturalists: Integrating Pattern and Process to Understand Biodiversity, Conference of the American Society of Naturalists, Asilomar Conference Center, Pacific Grove, CA; Jason Shapiro

2013 Marshall Scholarship awarded to Derek Park to pursue a PhD at Oxford University

2013 Belknap Prize awarded to Derek Park for outstanding senior thesis by a baccalaureate in Ecology and Evolutionary Biology, Yale University

2013 Best oral presentation, Annual EEB Graduate Student Symposium, Yale University; Jason Shapiro

2012 Belknap Prize awarded to Chidi Akusobi for outstanding senior thesis by a baccalaureate in Ecology and Evolutionary Biology, Yale University

2012 Beckman Scholars Award; Derek Park

2012 Fulbright Fellowship, to support Master’s degree studies in Biology at Oxford University (declined); Chidi Akusobi

2012 Gates-Cambridge Award, to support Master’s degree studies in Biochemistry at Cambridge University; Chidi Akusobi

2011 Best graduate student poster, Gordon Research Conference on Microbial Population Biology; Daniel Goldhill

2011 Best undergraduate poster in field of microbiology, Annual Biomedical Research Conference for Minority Students; Chidi Akusobi

2011 Mellon Grant Award, Yale College Dean's Research Fellowship, and Benjamin Silliman Fellowship; Samantha Attwood

2011 NSF Dissertation Improvement Grant; Daniel Goldhill

2010 Belknap Prize awarded to Sonia Singhal for outstanding senior thesis by a baccalaureate in Ecology and Evolutionary Biology, Yale University

2010 Boell Prize awarded to Lisa Simon for outstanding senior thesis by a baccalaureate in Ecology and Evolutionary Biology, Yale University

2010 NSF Graduate Research Fellowship; Sonia Singhal

2010 UNCF-Merck Postdoctoral Fellowship; Brandon Ogbunugafor

2010 Edward A. Bouchet Undergraduate Fellowship; Chidi Akusobi

2010 American Society of Microbiologists’ Undergraduate Research Fellowship; Chidi Akusobi

2009 John Spangler Nicholas Prize to Jeremy Draghi for excellence of the doctoral thesis in the Department of Ecology and Evolutionary Biology, Yale University

2008 Induction into Bouchet Graduate Honor Society; Brandon Ogbunugafor

2008-2009 UNCF-Merck Graduate Fellowship; Brandon Ogbunugafor

2007 John Spangler Nicholas Prize to Siobain Duffy for excellence of the doctoral thesis in the Department of Ecology and Evolutionary Biology, Yale University

2006 American Society of Microbiologists’ Raymond W. Sarber Award for research excellence; Siobain Duffy

2006-2008 Gaylord Donnelly Environmental Fellowship; Barry Alto

2006-2007 Yale Science, Technology, and Research Scholar II; Yul Yang

2006-2007 National Science Foundation Doctoral Dissertation Improvement Grant; David Kysela

2006-2007 American Society of Microbiologists’ Undergraduate Research Fellowship; Yul Yang

2006 Light Fellowship, for summer study at Yonsei University, South Korea; Yul Yang

2005 Student Attendee, World Summit on Evolution, Galapagos Islands, Ecuador; Siobain Duffy

2005-2008 NASA Graduate Student Research Program Fellowship; Jeremy Draghi

2005 Yale Science & Engineering Association Undergraduate Research Grant; Yul Yang

2005 Sigma Xi Grants-In-Aid of Research; Yul Yang

2004-2006 National Science Foundation Doctoral Dissertation Improvement Grant; Siobain Duffy

2004-2006 National Science Foundation Microbial Biology Postdoctoral Fellowship; Kara O’Keefe

2003-2006 National Science Foundation Minority Postdoctoral Fellowship; John Dennehy

2003 Yale Endowed Postdoctoral Fellowship – Bridge Award; Remy Froissart

2002-2004 Gaylord Donnelly Environmental Fellowship; Susanna K. Remold

2001-2006 Howard Hughes Medical Institute Predoctoral Fellowship; Siobain Duffy

**GRADUATE ROTATION STUDENTS**

Matthew Nicotra, Ecology and Evolutionary Biology (Fall 2001)

David Kysela, Ecology and Evolutionary Biology (Fall 2001)

Siobain Duffy, Ecology and Evolutionary Biology (Spring 2002)

Jeremy Draghi, Biological and Biomedical Sciences – Bioinformatics Program (Fall 2002)

Nadya Morales, Biological and Biomedical Sciences Program (Spring 2003)

Brandon Ogbunugafor, Medical Doctorate Program (Summer 2004)

Irvin Pan, Biological and Biomedical Sciences Program (Spring 2003)

Anne Gatewood, Epidemiology and Public Health (Fall 2003)

Cynthia Chang, Ecology and Evolutionary Biology (Spring 2006)

Natasha Kelly, Ecology and Evolutionary Biology (Spring 2006)

Regina Wilpiszeski, Ecology and Evolutionary Biology (Fall 2007)

Jason Shapiro, Ecology and Evolutionary Biology (Spring 2009)

Daniel Goldhill, Ecology and Evolutionary Biology (Spring 2010)

Daniel Wieczynski, Ecology and Evolutionary Biology (Spring 2011)

Michael Parker, Immunology (Spring 2013)

Dylan Duchen, Epidemiology & Public Health (2013-14)

Monique Merchant, Microbiology (Fall 2013)

Stacy Arnold, Ecology and Evolutionary Biology (Spring 2014)

Kevin Brown, Ecology and Evolutionary Biology (Fall 2014)

Evlyn Pless, Ecology and Evolutionary Biology (Fall 2015)

Kaitlyn Kortright, Microbiology (Fall 2015)

Erica Holdridge, Ecology and Evolutionary Biology (Spring 2016)

Jean Vila, Ecology and Evolutionary Biology (Spring 2017)

Michael Blazanin, Ecology and Evolutionary Biology (Spring 2018)

Kelly Symmes, Microbiology (Spring 2019)

Andrew Peric, Microbiology (Summer 2019)

**PUBLIC SERVICE**

 Member, Advisory Board for Yale University’s Edith B. Jackson Daycare Facility (2003-present)

 Science Fair Judge, Wexler-Grant Community School, New Haven, CT (2004, 2006)

**RESEARCH SUPPORT**

**Pending Support:**

Title: Hunting for a Viral Shunt in the Desert: A Potential Driver of Arid Soil Carbon Cycling

Supporting Agency: Department of Energy

Total Award Period Covered: 8/23/2019 - 8/22/2022

Role: Co-PI

Title: Developing phages as evolution-proof therapies against MDR *Staphylococcus aureus*

Supporting Agency: Department of the Army

Total Award Period Covered: 12/1/2019-11/30/2022

Role: PI

Title: Scientific Training in East Africa: Phages as Antibacterial Tools to Combat Antibiotic Resistance

Source: Conservation, Food and Health Foundation

Period: 7/1/18 – 6/30/20

Role: Co-PI

**Current Support:**

Title: Using phages to target virulence of MDR P. aeruginosa lung infections

Supporting Agency: Cystic Fibrosis Foundation (CFF)

Award Number: TURNER19P0

Total Award Period Covered: 3/1/2019 - 2/29/2020

Role: PI

Title: Understanding the genetic, evolutionary, and ecological interactions between drug resistance and phage resistance

Supporting Agency: National Institute of Allergy and Infectious Diseases/NIH/DHHS

Award Number: 1R21AI144345-01

Total Award Period Covered: 1/16/2019 – 12/31/20

Role: PI

Title: Using phage selection to force drug sensitivity in MDR P. aeruginosa

Supporting Agency: Cystic Fibrosis Foundation (CFF)

Award Number: TURNER1710

Total Award Period Covered: 11/1/2017 – 10/31/19

Role: PI

Title: HHMI Undergraduate Science Education

Supporting Agency: Hughes (Howard) Medical Institute

Award Number: C158679/52008128

Total Award Period Covered: 9/1/2014 - 8/31/2020

Role: PI

Title: BEACON's Faculty Affiliate Initiative

Supporting Agency: Michigan State University/NSF

Award Number: RC062075YU

Total Award Period Covered: 9/1/2013 - 1/31/2020

Role: Co-PI

Title: Virulence-targeting phages as therapies/vaccines to combat bacterial diseases in the developing world

Supporting Agency: Project High Hopes

Total Award Period Covered: 7/1/2019 - 6/30/2021

Role: PI

Title: Paci-PHI: Evolution-proof therapy against MDR bacterial pathogens.

Source: Blavatnik Fund for Innovation at Yale

Period: 7/1/18 – 6/30/19

Role: PI

Title: NIH Pre-clinical Services: Testing safety/efficacy of phage-antibiotic adjuvants in murine models of MDR *Pseudomonas aeruginosa* infections

Source: National Institutes of Health

Period: 1/1/17 – 12/31/19

Role: PI

**Completed Support:**

2011-2017 National Institutes of Health Research Grant

 National Institute of Allergy and Infectious Diseases

2013-2016 NIH Minority Postdoctoral Fellowship Supplement (to Andrea Gloria-Soria)

 National Institute of Allergy and Infectious Diseases

2011-2015 National Science Foundation Research Grant

 Division of Environmental Biology (DEB-10-21243)

2011 Research Experiences for Undergraduates Supplement Award, National Science

 Foundation, Division of Environmental Biology

2011 Visiting Faculty Fellowship, The Marine Biological Laboratory, Woods Hole, MA

2008-2010 Project High Hopes Foundation Research Grant

2006-2007 Dissertation Research: Life history coevolution between an aging bacterium and its

 bacteriophage. National Science Foundation (supported PhD student David Kysela)

2006-2007 Dissertation Research: Evolution of Generalism and Specialism in the RNA Phage

 Phi6, National Science Foundation (supported PhD student Siobain Duffy)

2005-2009 National Science Foundation Research Grant

 Division of Environmental Biology (DEB-04-52163)

2005-2008 NASA Graduate Student Research Program Fellowship (supported PhD student

 Jeremy Draghi)

2004-2009 Research Experiences for Undergraduates Supplement Award, National Science

 Foundation, Division of Biological Infrastructure

2004-2005 Career Enhancement Fellowship for Junior Faculty, Woodrow Wilson National

 Fellowship Foundation

2004-2006 Microbial Biology Postdoctoral Fellowship, National Science Foundation

 (supported Postdoc Kara O’Keefe)

2003-2009 National Science Foundation ITR Collaborative Research Grant

 Division of Biological Infrastructure

2003-2006 Minority Postdoctoral Fellowship, National Science Foundation

 (supported Postdoc John Dennehy)

2002-2003 Research Experiences for Undergraduates Supplement Award, National Science

 Foundation, Division of Environmental Biology (DEB 02-26748)

2002-2005 National Science Foundation Research Grant

 Division of Environmental Biology (DEB-01-29089)

2002-2003 National Science Foundation Starter Grant

 Division of Environmental Biology (DEB-02-01860)

2002-2004 Gaylord Donnelly Environmental Fellowship (supported Postdoc Susanna Remold)

**REFERENCES**

Dr. Lin Chao Dr. Richard Lenski

Division of Biological Sciences Dept of Microbiology & Molecular Genetics

University of California, San Diego Michigan State University

La Jolla, CA 92093-0116 East Lansing, MI 48824-1325

Tel.: 858-822-2740 Tel.: 517-355-3278

Fax: 858-534-7108 Fax: 517-353-3955

# LChao@biomail.ucsd.edu lenski@msu.edu

Dr. Santiago Elena

Instituto de Biología Molecular y Celular de Plantas (CSIC-UPV)

Campus UPV, CPI 8E lab 2.04

CL. Ingeniero Fausto Elio s/n

46022 València

SPAIN

Tel: +34 963 877 895

Fax: **+**34 963 877 859

sfelena@ibmcp.upv.es