

Kyle J. Card, PhD

CONTACT INFORMATION	Cleveland Clinic Department of Translational Hematology and Oncology Research Lerner Research Institute 2111 E. 96th Street NE6 Cleveland, Ohio 44106 USA	Email: cardkyle1@gmail.com
EDUCATION & TRAINING	Postdoctoral Research Fellow ; 2020 - Advisor: Jacob Scott, M.D. DPhil Cleveland Clinic Lerner Research Institute, Cleveland, Ohio USA Ph.D. in Microbiology & Molecular Genetics and Ecology, Evolutionary Biology, & Behavior ; 2014 - 2020. Dissertation Title: The Effects of Genetic Background on the Evolution of Antibiotic Resistance and Its Fitness Costs Advisor: Richard Lenski, Ph.D. Michigan State University, East Lansing, Michigan USA B.S. in Microbiology <i>with honor</i> ; 2011 - 2013. Michigan State University, East Lansing, Michigan USA	
MANUSCRIPTS IN PREPARATION	Card, K.J. , J. Maltas, & J.G. Scott. The combined effects of population size, mutation rate, and genetic background on evolvability. Jordan, J.J., R.E. Lenski, & K.J. Card . Fitness costs of ampicillin-resistance mutations in long-term experimental populations of <i>E. coli</i> .	
JOURNAL PUBLICATIONS	Weaver, D.T., B.D. McElvany, V. Gopalakrishnan, K.J. Card , D. Crozier, A. Dhawan, M.N. Dinh, E. Dolson, N. Farrokhan, M. Hitomi, E. Ho, T. Jagdish, E.S. King, J.L. Cadnum, C.J. Donskey, N. Krishnan, G. Kuzmin, J. Li, J. Maltas, J. Mo, J. Pelesko, J.A. Scarborough, G. Sedor, E. Tian, G.C. An, S. Diehl, & J.G. Scott. 2021. UV decontamination of personal protective equipment with idle laboratory biosafety cabinets during the COVID-19 pandemic. <i>PLoS One</i> , 16(7), e0241734. Card, K.J. , J. Jordan, & R.E. Lenski. 2021. Idiosyncratic variation in the fitness costs of tetracycline-resistance mutations in <i>Escherichia coli</i> . <i>Evolution</i> , 75(5), 12301238. Gopalakrishnan, V., N.P. Krishnan, E. McClure, J. Pelesko, D. Guo, K.J. Card , D.F.K. Williamson, N. Webster, D. Nichol, S. Mandal, R.A. Bonomo, & J.G. Scott. 2020. A low-cost, open source, self-contained bacterial EVolutionary biorEactor (EVE). <i>bioRxiv</i> , doi: 10.1101/729434. Card, K.J. , M. Thomas, J.L. Graves Jr, J.E. Barrick, & R.E. Lenski. 2021. Genomic evolution of antibiotic resistance is contingent on genetic background following a long-term experiment with <i>Escherichia coli</i> . <i>PNAS</i> , 118(5), e2016886118. Card, K.J. , T. LaBar, J.B. Gomez, & R.E. Lenski. 2019. Historical contingency in the evolution of antibiotic resistance after decades of relaxed selection. <i>PLoS Biology</i> , 17(10), e3000397. Lenski, R.E., M.J. Wiser, Z.D. Blount, J.R. Nahum, J.J. Morris, L. Zaman, C.B. Turner, B.D. Wade, R. Maddamsetti, A.R. Burmeister, E.J. Baird, J. Bundy, N.A. Grant, K.J. Card , M. Rowles, K. Weatherspoon, S.E. Papoulis, R. Sullivan, C. Clark, J.S. Mulka, & N. Hajela. 2015. Sustained fitness	

gains and variability in fitness trajectories in the long-term evolution experiment with *Escherichia coli*. *Proceedings of the Royal Society London B*, 282(1821), 20152292.

Ji, Z., **K.J. Card**, & F.B. Dazzo. 2015. CMEIAS JFrad: A digital computing tool to discriminate the fractal geometry of landscape architectures and spatial patterns of individual cells in microbial biofilms. *Microbial Ecology*, 69(3), 710-720.

FELLOWSHIPS & AWARDS

Howard Hughes Medical Institute Hanna H. Gray Fellowship, 2021 -

National Institutes of Health Diversity Supplement Grant, 2020 - 2021.

Howard Hughes Medical Institute Gilliam Fellowship for Advanced Study, 2017 - 2020.

Ralph Evans Award, Department of Microbiology & Molecular Genetics, Michigan State University, 2020.

Russell B. DuVall Scholar Award, Department of Microbiology & Molecular Genetics, Michigan State University, 2019.

Rudolf Hugh Scholarship Award, Department of Microbiology & Molecular Genetics, Michigan State University, 2017

William S. Sayer Award, Department of Microbiology & Molecular Genetics, Michigan State University, 2013

GRANTS

NSF BEACON Center Internal Grant, BEACON's Legacy of Research and Diversity in the Long-Term Evolution Experiment. R. Lenski, N. Grant, **K. Card**, & J. Bundy. (Funded: 2019-2020, \$89,999)

NSF BEACON Center Internal Grant, Correlated Responses in Metabolism and Antibiotic Resistance in the LTEE. N. Grant, **K. Card**, R. Lenski, M. Thomas, & J. Graves. (Funded: 2018-2019, \$94,583)

NSF BEACON Center Internal Grant, An Empirical Test of the Evolution of Cooperation by the Hankshaw Effect. B. Connelly, **K. Card**, B. Kerr, R. Lenski, & L. Zaman. (Funded: 2016-2017, \$79,791)

CONTRIBUTED PRESENTATIONS

Talks

BEACON Congress. August, 2021.

Evolution 2021 Conference. June, 2021.

Club Evolutionary Medicine Seminar Series, **Selected Talk**, Duke University. April, 2021.

Ecology and Evolutionary Biology (EEB) Department Lunch Seminar, **Invited Talk**, University of Michigan. October, 2019.

Microbial Population Biology, Gordon Research Seminar, **Selected Talk**. July, 2019.

Molecular Mechanisms in Evolution, Gordon Research Seminar, **Selected Talk**. June, 2019.

Ecology, Evolutionary Biology, and Behavior (EEBB) Colloquium Seminar, Michigan State Univer-

sity. January, 2019.

BEACON Congress, Michigan State University. August, 2018.

Midwest Ecology & Evolution Conference, Michigan State University. April, 2018.

BEACON NSF Site Visit, **Invited Talk**, Michigan State University. December, 2017.

Midwest Ecology & Evolution Conference, University of Illinois Urbana-Champaign. March, 2017.

Ecology, Evolutionary Biology, and Behavior (EEBB) Colloquium Seminar, Michigan State University. April, 2017.

Posters

Case Comprehensive Cancer Center Annual Scientific Retreat. July, 2021.

Microbial Population Biology, Gordon Research Conference. July, 2019.

Molecular Mechanisms in Evolution, Gordon Research Conference. June, 2019.

BEACON NSF Site Visit, Michigan State University. December, 2018.

Gilliam Annual Fellows Meeting, Howard Hughes Medical Institute. September, 2018.

Population, Evolution, and Quantitative Genetics Conference. May, 2018.

Gilliam Annual Fellows Meeting, Howard Hughes Medical Institute. September, 2017.

BEACON Congress, Michigan State University. August, 2015.

University Undergraduate Research and Arts Forum, Michigan State University. April, 2013.

TEACHING EXPERIENCE

Teaching Assistant, Fundamentals of Microbiology, Michigan State University, Spring 2016.

Teaching Assistant, Advanced Microbiology Laboratory, Michigan State University, Fall 2015.

MENTORSHIP

Undergraduates

Jalin Jordan (Chemistry; Michigan State University), February, 2019 -

Jasper Gomez (Biomedical Laboratory Diagnostics Program; Michigan State University), May, 2016 - July, 2019.

Tanush Jagdish (visiting from Kalamazoo College; Michigan State University), December, 2015.

Lucas Werner (Biochemistry & Molecular Biology; Michigan State University), March, 2015.

Jacob Wright (Zoology; Michigan State University), December, 2014.

Doctoral Students

Dena Crozier (Medical Student; Case Western Reserve University), August, 2021 -

Thomas LaBar (Microbiology & Molecular Genetics; Michigan State University), October, 2016 - August, 2017.

PROFESSIONAL DEVELOPMENT

Internship at the Michigan Department of Health & Human Services - Infectious Dis-

	ease Division , September, 2018 - January, 2019.
	Broadening Experiences in Scientific Training (BEST) Trainee , October, 2017 - July, 2020.
SERVICE	Experimental Evolution Session Chair and Moderator , Virtual Evolution 2021 Conference, June, 2021.
	Journal Peer Review , The American Naturalist; eLife; Ecology and Evolution; mSystems; Science Advances.
	Diversity, Equity, and Inclusion Task Force Member for the American Society for Microbiology, September, 2019 - October, 2020.
	Member of Select Group for MMG Graduate Curriculum Redesign , October, 2019 - July, 2020.
	Ad hoc Review , NSF BEACON Center Internal Grants, 2016 - 2019.
	BioMolecular Science Gateway Program Recruitment , 2015 - 2020.
	Department of Microbiology & Molecular Genetics Host for Seminar Speaker, Adam Lauring , October, 2018.
	Department of Microbiology & Molecular Genetics Host for Seminar Speaker, Michael Baym , February, 2018.
	Department of Microbiology & Molecular Genetics Escort for Faculty Candidate, Daria Van Tyne , February, 2018.
	Department of Microbiology & Molecular Genetics Escort and Student Coordinator for Faculty Candidate, Jeffrey Barrick , December, 2017.
	Department of Microbiology & Molecular Genetics Retreat Committee , October, 2016.
	Microbiology & Molecular Genetics Faculty Meeting Representative , August, 2015 - May, 2016.
	Poster Evaluator: Undergraduate Research & Arts Forum, Michigan State University, 2015, 2016, 2018; Mid-Michigan Symposium for Undergraduate Research Experiences, Michigan State University, 2016, 2018.
OUTREACH	Darwin Discovery Day Volunteer , taught the general public about experimental evolution and the long-term evolution experiment (LTEE), Michigan State University Museum, 2017 - 2019.
	Matter with Curiosity Blog , used to promote evolution and disability advocacy in STEM fields, 2014 -
	Microbiology Day Volunteer , taught the general public about bacterial chemotaxis and motility, Impression 5 Science Museum, 2015.
MEDIA APPEARANCES	ASM Spotlight , <i>Traversing STEM With Disabilities: Spotlight on Kyle Card</i> , December, 2021.
	MSU Today , <i>Overcoming Obstacles: Scientist Excels while Dealing with Syndromes</i> , December,

2019.

The Sci-Files Radio Interview about the evolution of antibiotic resistance and mentoring, July, 2019.

WKAR Radio Interview about disability advocacy and my story about how I became a research scientist, June, 2019.

SOCIETY
MEMBERSHIPS

Society for the Study of Evolution, 2020 -

American Society for Microbiology, 2015 -

American Association for the Advancement of Science, 2014 -