

SARAH M. SHORT

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Academic positions:

2018-present Assistant Professor, Department of Entomology, **The Ohio State University**, Columbus OH

Education and Training:

2012 – 2018 Postdoctoral Research Fellow, Molecular Microbiology and Immunology.
Johns Hopkins University, Baltimore MD
Advisor: George Dimopoulos

2012 Ph.D. in Genetics, **Cornell University**, Ithaca NY
Advisor: Brian P. Lazzaro

2005 B.S. in Biology, **Xavier University**, Cincinnati OH

Related experience:

2005 – 2006 Research Assistant, Department of Pathology, Cleveland Clinic Association, Cleveland OH

Publications (Peer Reviewed):

- Dada, N., Jupatanakul, N., Minard, G. **Short, S.M.**, Akorli, J. , Martinez Villegas, L. 2021. Considerations for mosquito microbiome research from the Mosquito Microbiome Consortium. *Microbiome* **9**, 36 <https://doi.org/10.1186/s40168-020-00987-7>
- Grigsby, A.*#; Kelly, B*; Sanscrainte, ND; Becnel, JJ; and **Short, SM**. 2020. Propagation of the microsporidian parasite *Edhazardia aedis* in *Aedes aegypti* mosquitoes. *Journal of Visualized Experiments*. (162), e61574, doi:10.3791/61574. *Co-first author, #Undergraduate mentee.
- Mancini, M.V.*; Damiani, C.*; **Short, S.M.***; Cappelli, A.; Ulissi, U.; Capone, A.; Serrao, A.; Rossi, P.; Amici, A.; Kalogris, C.; Dimopoulos, G.; Ricci, I.; Favia, G. 2020. Inhibition of *Asaia* in Adult Mosquitoes Causes Male-Specific Mortality and Diverse Transcriptome Changes. *Pathogens*, **9**, 380 *Co-first Author
- J. Carlson, **S. M. Short**, Y. Angleró-Rodríguez, and G. Dimopoulos. 2019. Larval exposure to bacteria modulates arbovirus infection and immune gene expression in adult *Aedes aegypti*. *Dev Comp Immunol*, **104**, 103540. doi:10.1016/j.dci.2019.103540

- Megan E. Meuti and **Sarah M. Short**. 2019. Physiological and Environmental Factors Affecting the Composition of the Ejaculate in Mosquitoes and Other Insects. *Insects* 10:74. <https://doi.org/10.3390/insects10030074>.
- **S. M. Short**, S. van Tol, B. Smith, Y. Dong, G. Dimopoulos. 2018. The mosquito adulticidal *Chromobacterium* sp. Panama causes transgenerational impacts on fitness parameters and elicits xenobiotic gene responses. *Parasites and Vectors* 11:229.
- **S. M. Short**, S. van Tol, H.J. MacLeod, G. Dimopoulos. 2018. Hydrogen cyanide produced by the soil bacterium *Chromobacterium* sp. Panama contributes to mortality in *Anopheles gambiae* mosquito larvae. *Scientific Reports* 8:1: 8358.
- **S.M. Short**, E.F. Mongodin, H.J. MacLeod, O.A.C. Talyuli, G. Dimopoulos. 2017. Amino acid metabolic signaling influences *Aedes aegypti* midgut microbiome variability. *PLoS Negl Trop Dis* 11(7): e0005677. <https://doi.org/10.1371/journal.pntd.0005677>
- J. L. Ramirez*, **S. M. Short***, A. Bahia, R. Saraiva, Y. Dong, S. Kang, A. Tripathi, G. Mlambo and G. Dimopoulos. 2014. *Chromobacterium Csp_P* reduces malaria and dengue infection in vector mosquitoes and has entomopathogenic and *in vitro* anti-pathogen activities. *PLoS Pathogens* 10(10): e1004398. ***Co-first author**
- **S.M. Short** and B.P. Lazzaro. 2013. Reproductive status alters transcriptomic response to infection in female *Drosophila melanogaster*. *Genes/Genomes/Genetics* 3:827-840.
- M. L. del Campo, R. Halitschke, **S.M. Short**, B.P. Lazzaro and A. Kessler. 2013. Dietary plant phenolic mediates tolerance to bacterial infection in *Manduca sexta* caterpillars. *Entomologia Experimentalis et Applicata*, 146:321-331.
- **S.M. Short**, M.F. Wolfner and B.P. Lazzaro. 2012. Female *Drosophila melanogaster* suffer reduced defense against infection due to seminal fluid components. *J. Insect Physiol.*, 58:1192-1201.
- **S.M. Short** and B.P. Lazzaro. 2010. Female and male genetic contributions to post-mating immune defence in female *Drosophila melanogaster*. *Proceedings of the Royal Society B*, 277:3649-3657.
- **S.M. Short**, B.J. Yoder, S.M. Tarr, N.L. Prescott, S. Laniauskas, K. Coleman, E. Downs-Kelly, J. Pettay, T.K. Choueiri, J.P. Crowe, R.R. Tubbs, G.T. Budd, D.G. Hicks. 2007. The expression of the cytoskeletal focal adhesion protein paxillin in breast cancer correlates with HER2 over-expression and may help predict response to cytotoxic chemotherapy. *The Breast Journal*, 13(2):130-139.
- D.G. Hicks, B.J. Yoder, **S.M. Short**, S.M. Tarr, N. Prescott, J. P. Crowe, A. E. Dawson, G. T. Budd, S. Sizemore, M. Cicek, T. K. Choueiri, R. R. Tubbs, D. Gaile, N. Nowak, M. A. Accavitti-Loper, A. R. Frost, D. R. Welch, and G. Casey. 2006. Loss of Breast Cancer Metastasis Suppressor 1 Protein Expression Predicts Reduced Disease-Free Survival in Subsets of Breast Cancer Patients. *Clin Cancer Res*, 12: 6702-6708.
- D.G. Hicks, **S.M. Short**, N.L. Prescott, S.M. Tarr, K.A. Coleman, B.J. Yoder, J.P. Crowe, T.K. Choueiri, A.E. Dawson, J. Pettay, G.T. Budd, R.R. Tubbs, G. Casey, R.J. Weil. 2006. Breast cancers with brain metastases are more likely to be estrogen receptor negative, express the basal cytokeratin CK5/6 and overexpress HER2 or EGFR. *Am J Surg Pathol*, 30:1097-1104.

Book Chapters:

B. Blumberg, **S.M. Short**, G. Dimopoulos. Employing the mosquito microbiome for disease control. *Genetic Control of Malaria and Dengue*, ed. Z.N. Adelman, 2015.

Current Funding:

4/2021-4/2023 Protecting Public Health through Vector Control and Stormwater Treatment: Locating Vulnerabilities in Stormwater Infrastructure that Support Mosquito Reproduction
PI: Ryan Winston (Lead Investigator) and Sarah Short (Co-Investigator)
OSU CFAES Internal Grants Program
\$49,980

Completed Funding and Fellowships:

4/2019-4/2020 Bugs without bugs: using germ-free mosquitoes to investigate the interplay between nutrition, the microbiome, and dengue infection in *Aedes aegypti* mosquitoes.
PI: Sarah Short
Infectious Diseases Institute Interdisciplinary Research SEED Grant.
\$25,000

2014 – 2017 Analysis of molecular factors influencing variability of mosquito gut microbiota
P.I. Sarah Short
Ruth L. Kirschstein National Research Service Award
PI: Sarah Short
\$171,226

2008 – 2011 Ford Foundation Pre-doctoral Diversity Fellowship
Three-year fellowship covering full stipend and tuition.

2009, 2011, 2012 Cornell University Graduate School Conference Travel Grant

2006 – 2007 Cornell University Presidential Life Sciences Fellowship
One year fellowship covering full stipend and tuition

2006 Indiana Metabolomics and Cytomics Initiative Award (declined)

Honors and Awards:

2016 Johns Hopkins School of Public Health Student Assembly Postdoctoral Recognition Award

2015 Young Investigator Award, American Society of Tropical Medicine and Hygiene

2009 Royal Entomological Society National Science Meeting, First place poster presentation

2007 Rita and Joe Calvo Teaching Award

Teaching Experience:

Instructor 2020 ENTMLGY 5605 Vector Biology and Vector borne disease, The Ohio State University

		ENTMLGY 7890 Special Topics in Entomology, The Ohio State University
		ENTMLGY 8999 Research in Entomology, The Ohio State University
		ENTMLGY 4999 Research with Distinction, The Ohio State University
	2019	ENTMLGY 5605 Vector Biology and Vector borne disease, The Ohio State University
		ENTMLGY 8999 Research in Entomology, The Ohio State University
Co-instructor	2015	Vector Biology and Vector-Borne Diseases, Johns Hopkins Bloomberg School of Public Health
	2014	Medical Entomology, University of Puerto Rico, Medical Sciences Campus
Contributor	2020	Pesticide Science ENTMLGY 5800 (Topic:Pesticides in Public Health Programs) The Infectious Diseases Student Community of Practice & Engagement. (Topic: Tick borne disease) General Entomology ENTMLGY 4000 (Topic: Arthropod Vectors of Infectious Disease) Immunology and Infectious Disease BIOMSCI 4810H (Topic: Arthropod Vectors of Infectious Disease) Insect Biology ENTMLGY 1101 (Topic: Introduction to Vector Borne Disease) Molecular Epidemiology of Infectious Disease VPM 8700 (Topic: Evolutionary Genetics of Arboviruses)
	2019	Immunology and Infectious Disease BIOMSCI 4810H (Topic: Arthropod Vectors of Infectious Disease) Grant Writing ENTMLGY 7930 (Topic: Grant writing for major funding agencies, Panel discussion) Molecular Epidemiology of Infectious Disease VPM 8700 (Topic: Evolutionary Genetics of Arboviruses) Insect Biology ENTMLGY 1101 (Topic: Introduction to Vector Borne Disease) Veterinary Entomology ENTMLGY 4607 (Topic: Lyme Disease)
	2018	Insect Ecology and Evolutionary Processes, ENTMLGY 6410, (Topic: Ecology of Disease Vectoring Insects)
	2016	Vector Biology and Vector-Borne Diseases, Johns Hopkins Bloomberg School of Public Health (Topic: Arthropod-borne viruses)
	2014	The Summer Institute in Tropical Medicine and Public Health, Johns Hopkins (Topics: Introduction to insects vectors, basic theory of vector biology, vector ecology and control)
	2013	Molecular Entomology, Johns Hopkins (Topic: Microbiota of insect vectors)
	2011	Guest lecturer for Sex, Genes and Evolution, Cornell University (Topic: Sexual selection and immunity)
Teaching Assistant	2008	Genetics, Cornell University
	2007	Human Genetics and Society, Cornell University

Invited presentations:

- 2020 Short, S.M., H.J. MacLeod, C. DeZse, G. Dimopoulos. Entomological Society of America. Mosquito-Microbe Interactions Symposium. Lecture conducted virtually, United States.
Short, S.M. IDI Ecology, Epidemiology, and Population Health Seminar. Lecture conducted from Columbus, United States.

- 2019 IDI Virus-Host Seminar. Ohio State University, Columbus, OH.
Howard University Ecology and Evolutionary Biology Symposium. Washington, D.C.
- 2018 Ohio Mosquito and Vector Control Association, Columbus OH
The Vector Encounter, Johns Hopkins Malaria Research Institute, Baltimore, MD
- 2017 The Ohio State University, Department of Entomology, Columbus, OH
Virginia Tech, Department of Biochemistry, Blacksburg, VA
- 2016 Oberlin College, Department of Biology, Oberlin, OH
International Congress of Entomology, Orlando, FL
University of Georgia, Department of Entomology, Athens, GA
Emory University, Population Biology, Ecology and Evolution Graduate Program, Atlanta, GA
- 2015 National Evolutionary Synthesis Center Catalysis meeting: Ecological Immunology Applied to Vector Biology and Vector-Borne Diseases, Durham, NC
Johns Hopkins Bloomberg School of Public Health, Malaria Interest Group, Baltimore, MD
- 2013 NIAID-sponsored workshop: Effect of Vector innate Immunity and Human-Derived Immune Molecules on the Transmission of Vector-Borne Pathogens, Washington DC
- 2012 Yale School of Public Health, Department of Epidemiology of Microbial Diseases, New Haven, CT

Research presentations (*Presenting author):

- 2020 J. Radl*, D. Wetmore, A. Tirpak, R. Winston, **S.M. Short**. Entomology Society of America, National Meeting, Virtual. Poster presentation.
- 2019 H.J. MacLeod, G. Dimopoulos, **S.M. Short***. Oral presentation: Entomology Society of America, National Meeting, St. Louis, MO
H.J. MacLeod, G. Dimopoulos, **S.M. Short***. Oral presentation: Entomological Society of America, North-Central Branch Meeting, Cincinnati, OH
- 2018 **S.M. Short***, H.J. MacLeod, G. Dimopoulos. American Society of Tropical Medicine and Hygiene, New Orleans, LA. Poster presentation.
S.M. Short*. OARDC Mosquito Research Conference, Wooster, OH. Oral presentation.
- 2017 **S.M. Short***, S. van Tol, H.J. MacLeod, Emmanuel Mongodin, G. Dimopoulos. American Society of Tropical Medicine and Hygiene, Baltimore MD. Poster presentation.
- 2015 **S.M. Short***, Octavio C. Talyuli, and G. Dimopoulos. American Society of Tropical Medicine and Hygiene, Philadelphia PA. Oral presentation.
Keystone Symposia Conference, The Arthropod Vector: The Controller of Transmission in Taos, NM. Oral presentation.
S.M. Short* and G. Dimopoulos. The Future of Malaria Research: A Young Scientists' Meeting, Rockville, MD. Poster presentation.
- 2014 **S.M. Short*** and G. Dimopoulos. Keystone Symposia Conference, Mechanisms and Consequences of Invertebrate-Microbe Interactions in Tahoe City, CA. Poster presentation.
S.M. Short* and G. Dimopoulos. Baltimore-Washington Johns Hopkins Malaria Research Institute Symposium: Microbe-based malaria control, Rockville, MD. Poster presentation.
- 2013 **S.M. Short*** and G. Dimopoulos. 62nd Annual meeting of the American Society of Tropical Medicine and Hygiene in Washington D.C. Poster presentation.
- 2012 **S.M. Short***, M.F. Wolfner and B.P. Lazzaro. 53rd annual Drosophila Research Conference, Chicago, IL. Poster presentation.

- 2011 **S.M. Short***, M.F. Wolfner and B.P. Lazzaro. 52nd annual Drosophila Research Conference, San Diego, CA. Oral presentation.
- 2010 **S.M. Short*** and B.P. Lazzaro. 8th annual Ecology and Evolution of Infectious Disease meeting. Ithaca, NY. Poster presentation.
S.M. Short* and B.P. Lazzaro. 35th Annual Ecology and Evolutionary Biology Graduate Student Symposium, Ithaca, NY. Oral presentation.
S.M. Short* and B.P. Lazzaro. 51st annual Drosophila Research Conference, Washington, D.C. Poster presentation.
S.M. Short*, M.F. Wolfner and B.P. Lazzaro. Royal Entomological Society National Science Meeting at Sheffield University. Poster presentation. First place student poster award.
- 2009 **S.M. Short*** and B.P. Lazzaro. Conference of Ford Fellows, Irvine, CA. Oral presentation.
- 2008 **S.M. Short*** and B.P. Lazzaro. 49th annual Drosophila Research Conference, San Diego, CA. Poster presentation.

Outreach, Extension, and Broader Impacts:

- 2020 Lecture: Lyme and West Nile: Arthropod-borne disease in Ohio. Lake County Master Gardener's Workshop.
- 2020 News article: Tick Smart: Prevention is Key, The Daily Record Wooster, OH.
- 2020 Organizer and participant: Tiny Troublemakers. A Bug's World, OARDC
- 2020 Organizer and Participant: Tick Tock, Tick Talk. COSI Virtual Science Festival
- 2020 Lecture: Ticks and Lyme disease. Ecology on Tap: Disease and Vector Biology
- 2019 Organizer and Participant: Tick Tock, Tick Talk. COSI Science Festival
- 2019 Organizer and participant: Tiny Troublemakers. A Bug's World, OARDC
- 2019 Lecture, Lyme and West Nile: Understanding the Disease Vectors; Protecting Yourself in the Outdoors. Insect University, OSU Entomology Department
- 2018-pres Organizer for Ohio State tick borne disease education initiative and developer for the BITE site, an online resource for Ohioans about vector borne disease (u.osu.edu/bite).
- 2018 Lecture on Vector Borne Disease at the Association of Ohio Health Commissioners
- 2016 Instructor, Baltimore Underground Science Space, Baltimore MD
 Baltimore Underground Science Space gives the general public the opportunity to learn about science and conduct scientific research.
 Participant, Project Bridge, Baltimore MD.
 Presented science demonstrations to the general public at the local farmer's market.
- 2014 Organizer, *Speak out for Science!*, Washington D.C.
 Met with congressional representatives to appeal for increased government funding for research.
- 2009-2012 Conference co-chair, Expanding Your Horizons, Cornell University.
 Expanding Your Horizons is a one-day conference aimed at encouraging 7th-9th grade girls to pursue interests in science, math and engineering-related areas of study.
 2007-2009: Diversity Chair

- 2011 Organizer and Instructor, College Enhancement Program, MacCormick Secure Center, Brooktondale NY.
I helped develop an educational program for juvenile offenders focused on science and logical reasoning in everyday life.
- 2007-2011 Participant and exhibit organizer, Insectapalooza, Cornell University.
Insectapalooza is an insect-themed event where members of the community can learn about diverse areas of entomology.

Professional Service:

- 2020 Grant Reviewer. Ad hoc grant review panel participant for Infectious Disease Institute Interdisciplinary Research SEED grant.
- 2020 Grant Reviewer. Ad hoc grant reviewer for CFAES Internal Grants Program.
- 2019 - Present. Lead Organizer. Ohio Regional Tick Symposium Planning Committee. Description of Effort: Leading the planning of the inaugural Ohio Regional Tick Symposium to take place in October, 2021.
- 2019 Moderator, North-Central Branch M.S. Student Ten-minute Paper Competition, Entomological Society of America.
- 2019 Grant Reviewer. Ad hoc grant reviewer for Welcome Trust.
- 2018-pres Member, CFAES Teaching and Learning Symposium Planning Committee
- 2018 Grant Reviewer. Ad hoc grant review panel participant for Infectious Disease Institute Interdisciplinary Research SEED grant.
- 2015-2018 Organizer, Johns Hopkins School of Public Health Postdoctoral Committee.
- 2015 Organizer, Postdoctoral Summer Forum, Johns Hopkins Department of Molecular Microbiology and Immunology.
- 2015-present Organizer, Molecular Microbiology and Immunology Postdoctoral Fellow's Group.
- 2013-2016 Johns Hopkins Postdoctoral Association Policy and Advocacy Committee.
- 2012-present *Ad hoc* peer reviewer: FEMS Microbial Ecology (2020), Frontiers in Microbiology (2020), Ecosphere (2020), Scientific Reports (2020), Parasites and Vectors (2019) PLoS Pathogens (2018, 2019), Insect Biochemistry and Molecular Biology (2018, 2020), Genetics (2016), Journal of Medical Entomology (2016), PLoS One (6x 2012-2016), Evolutionary Ecology Research (2010), FEBS Letters (2010).

Pedagogical Training:

- 2014 Service Learning: Implementing Service-Learning in the Stem Disciplines conducted by the Center for the Integration of Research, Teaching and Learning.
- 2013-2014 Johns Hopkins Preparing Future Faculty Teaching Academy Fellow
- 2014 *Institute for Excellence in Education Summer Teaching Camp*, Johns Hopkins School of Medicine.
- 2013 *Eyes on Teaching Workshop* conducted by the Johns Hopkins Center for Educational Resources.

Professional Training:

- 2015 Prokaryotic Comparative Genomics Workshop, Institute for Genome Sciences University of Maryland School of Medicine.

2014 Research Leadership Course, Johns Hopkins Medical Institutions Professional Development Office.

Professional society memberships:

2018-present The Entomological Society of America

2013-present The American Society for Tropical Medicine and Hygiene.

2015-2018 National Postdoctoral Association

2008-2013,
2015 Genetics Society of America