

2016 Curriculum Vitae



NAME: Brian Paul Lazzaro
DEPARTMENT/UNIT: Entomology
TITLE: Professor
CAMPUS ADDRESS: 3134 Comstock Hall
PHONE: 607-255-3254
EMAIL: bplazzaro@cornell.edu
WEB PAGE: www.lazzaro.entomology.cornell.edu

EDUCATION

Ph.D., 2002 in Biology from the Pennsylvania State University.

B.S., 1995, in Genetics from the University of California, Davis.

EXPERIENCE

Professor, 2016 – present. Department of Entomology, Cornell University
Department of Ecology and Evolutionary Biology, Cornell University

Advance Placement (AP) Biology Exam Development Committee, 2015 – present. Outside
Consultant for Educational Testing Services, responsible for creation of AP Biology test.
Committee co-Chair, 2016 – present

Associate Professor, 2009 – 2015. Department of Entomology, Cornell University

Director of Graduate Studies, Field of Entomology, 2011 – 2014. Cornell University

Assistant Professor, 2003 – 2009. Department of Entomology, Cornell University.

Visiting Scientist, 2003. Department of Molecular Biology and Genetics, Cornell University, with
Dr. Andrew Clark.

Graduate Research Fellow, 1997 – 2002. Department of Biology, Pennsylvania State University
(thesis advisor: Dr. Andrew Clark).

Laboratory Manager and Research Assistant, 1994 – 1997. Department of Evolution and Ecology,
University of California, Davis, for Dr. Charles Langley.

PUBLICATIONS

Peer Reviewed Journal Articles (since 2006)

- 50) Sackton, T.B., B.P. Lazzaro, and A.G. Clark. Rapid expansion of immune-related gene families in the house fly, *Musca domestica*. *Molecular Biology and Genetics*, submitted.

- 49) Howick, V.M. and B.P. Lazzaro. The genetic architecture of defense as resistance to and tolerance of bacterial infection in *Drosophila melanogaster*. *Molecular Ecology*, submitted.
- 48) Schwenke, R.A. and B.P. Lazzaro. Juvenile hormone mediates resistance to infection in female *Drosophila melanogaster*. *Current Biology*, in review.
- 47) Duneau, D.F., P. Shahrestani, G.A. Ortiz, H.C. Kondolf, C. Chow, M.A. Fox, J.A. Vandenberg, and B.P. Lazzaro. The Toll pathway underlies sexual dimorphism in response to both Gram-negative and Gram-positive bacteria in *Drosophila*. *BMC Biology*, in review.
- 46) Crawford, J.E., M.M. Riehle, K. Markianos, E. Bischoff, W.M. Guelbeogo, A. Gneme, N. Sagnon, K.D. Vernick, R. Nielsen, and **B.P. Lazzaro**. (2016) Evolution of GOUNDRY, a cryptic subgroup of *Anopheles gambiae* s.l., and its impact on susceptibility to *Plasmodium* infection. *Molecular Ecology* 25:1494-1510.
- 45) Unckless, R.L., V.M. Howick and **B.P. Lazzaro**. (2016) Convergent balancing selection on an antibacterial peptide in *Drosophila*. *Current Biology* 26:257-262.
- 44) Crawford, J.E., M.M. Riehle, W.M. Guelbeogo, A. Gneme, N. Sagnon, K.D. Vernick, R. Nielsen, and **B.P. Lazzaro**. (2015) Reticulate speciation and barriers to introgression in the *Anopheles gambiae* species complex. *Genome Biology and Evolution* 7:3116-3131.
- 43) Webster, C.L., F.M. Waldron, S. Roberston, D. Crowson, G. Ferrari, J.F. Quintana, J.-M. Brouqui, E.H. Bayne, B. Longdon, A.H. Buck, **B.P. Lazzaro**, J. Akorli, P.R. Haddrill, and D.J. Obbard. (2015) The discovery, distribution and evolution of viruses associated with *Drosophila melanogaster*. *PLOS Biology* 13:e1002210.
- 42) Unckless, R.L., S.M. Rottschaefer and **B.P. Lazzaro**. (2015) The complex contributions of genetics and nutrition to immunity in *Drosophila melanogaster*. *PLoS Genetics* 11(3): e1005030.
- 41) Unckless, R.L., S.M. Rottschaefer and **B.P. Lazzaro**. (2015) A genome-wide association study for nutritional indices in *Drosophila*. *G3: Genes, Genomes, Genetics* 5(3):417-425.
- 40) Rottschaefer, S.M, J.E. Crawford, M.M. Riehle, W.M. Guelbeogo, A. Gneme, N. Sagnon, K.D. Vernick and **B.P. Lazzaro**. (2015) Population genetics of *Anopheles coluzzii* immune pathways and genes. *G3: Genes, Genomes, Genetics* 5:329-339.
- 39) Dobson, A.J., J.M Chaston, P.D. Newell, S.L. Ali, L. Donahue, D.R. Sannino, S. Westmiller, A. C.-N. Wong, A.G. Clark, **B.P. Lazzaro** and A.E. Douglas. (2015) Host genetic determinants of microbiota-dependent nutrition revealed by genome-wide analysis in *Drosophila melanogaster*. *Nature Communications* 6:6312.
- 38) Chambers, M.C. and **B.P. Lazzaro** (2014) Thorax injury reduces resistance to infection in *Drosophila melanogaster*. *Infection and Immunity* 82:4280-9.
- 37) Howick, V.M. and **B.P. Lazzaro** (2014) Genotype and diet shape resistance and tolerance across distinct phases of bacterial infection. *BMC Evolutionary Biology* 14:56.
- 36) Short, S.M. and **B.P. Lazzaro** (2013) Reproductive status alters transcriptomic response to infection in female *Drosophila melanogaster*. *G3: Genes, Genomes, Genetics* 3:827-840.
- 35) Crawford, J.E., S.M. Rottschaefer, B. Coulibaly, M. Sacko, O. Niaré, M.M. Riehle, S.F. Traore, K.D. Vernick and **B.P. Lazzaro** (2013) No evidence for positive selection at two potential targets for malaria transmission-blocking vaccines in *Anopheles gambiae* s.s. *Infection, Genetics, and Evolution* 16:87-92.
- 34) del Campo, M.L, 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.

- 33) Crawford, J.E., E. Bischoff, T. Garnier, A. Gneme, K. Eiglmeier, I. Holm, M.M. Riehle, W.M. Guelbeogo, N. Sagnon, **B.P. Lazzaro** and K.D. Vernick (2012) Evidence for population-specific positive selection on immune genes of *Anopheles gambiae*. *G3: Genes, Genomes, Genetics* 2:1505-1519.
- 32) Galac, M.R. and **B.P. Lazzaro** (2012) Comparative genomics of bacteria in the genus *Providencia* isolated from wild *Drosophila melanogaster*. *BMC Genomics* 13:612.
- 31) Rottschaefer, S.M. and **B.P. Lazzaro** (2012) No effect of *Wolbachia* on resistance to intracellular infection by pathogenic bacteria in *Drosophila melanogaster*. *PLoS One* 7:e40500.
- 30) Short, S.M., M.F. Wolfner, and **B.P. Lazzaro** (2012) Female *Drosophila melanogaster* suffer reduced defense against infection due to seminal fluid components. *Journal of Insect Physiology* 58:1192-1201.
- 29) Crawford, J.E. and **B.P. Lazzaro** (2012) Assessing the accuracy and power of population genetic inference from low-pass next-generation sequencing data. *Frontiers in Evolutionary and Population Genetics* 3:66.
- 28) Rottschaefer, S.M., M.M. Riehle, B. Coulibaly, M. Sacko, O. Niaré, I. Morlais, S.F. Traoré, K.D. Vernick and **B.P. Lazzaro**. (2011) Exceptional diversity, maintenance of polymorphism, and recent directional selection on the *APLI* malaria resistance genes of *Anopheles gambiae*. *PLoS Biology* 9:e1000600.
- 27) Galac, M. and **B.P. Lazzaro**. (2011) Comparative pathology of bacteria in the genus *Providencia* to a natural host, *Drosophila melanogaster*. *Microbes and Infection* 13:673-683.
- 26) Fellous, S. and **B.P. Lazzaro**. (2011) Potential for evolutionary coupling and decoupling of larval and adult immune gene expression. *Molecular Ecology* 20:1558-1567.
- 25) Crawford, J.E., W.M. Guelbeogo, A. Sanou, A. Traore, K.D. Vernick, N. Sagnon and **B.P. Lazzaro**. (2010) De novo transcriptome sequencing in *Anopheles funestus* using Illumina RNA-seq technology. *PLoS One*, 15:e14202.
- 24) Short, S.M. and **B.P. Lazzaro**. (2010) Female and male genetic contributions to female post-mating susceptibility to infection in *Drosophila melanogaster*. *Proceedings of the Royal Society, B: Biological Sciences* 277:3649-3657.
- 23) Juneja, P. and **B.P. Lazzaro**. (2010) Haplotype structure and expression divergence at the *Drosophila* cellular immune gene *eater*. *Molecular Biology and Evolution* 27:2284-2299.
- 22) Crawford, J. and **B.P. Lazzaro** (2010) The demographic histories of the M and S molecular forms of *Anopheles gambiae s.s.* *Molecular Biology and Evolution* 27:1739-1744.
- 21) Fellous, S. and **B.P. Lazzaro** (2010) Larval food quality affects adult (but not larval) immune gene expression independent of effects on general condition. *Molecular Ecology* 19:1462-1468.
- 20) Sackton, T.B, **B.P. Lazzaro** and A.G. Clark (2010) Genotype and gene expression associations with immune function in *Drosophila*. *PLoS Genetics* 6:e1000797.
- 19) Juneja, P. and **B.P. Lazzaro** (2009) *Providencia sneebia* sp. nov. and *P. burhodogranariea* sp. nov., novel species isolated from wild *Drosophila melanogaster*. *International Journal of Systematic and Evolutionary Biology* 59:1108-11.
- 18) Hardstone, M.C., **B.P. Lazzaro** and J.G. Scott (2009) The effect of three environmental conditions on the fitness of cytochrome P450 monooxygenase-mediated permethrin resistance in *Culex pipiens quinquefasciatus*. *BMC Evolutionary Biology* 9:42.
- 17) Riehle, M.M., J. Xu, **B.P. Lazzaro**, S.M. Rottschaefer, B. Coulibaly, M. Sacko, O. Niaré, I. Morlais, S.F. Traore and K.D. Vernick. (2008) *Anopheles gambiae* APL1 is a family of

- variable LRR proteins required for Rel1-mediated protection from the malaria parasite, *Plasmodium berghei*. *PLoS One* 3:e3672.
- 16) McKean, K.A., C.P. Yourth, **B.P. Lazzaro** and A.G. Clark (2008) The evolutionary costs of immunological maintenance and deployment. *BMC Evolutionary Biology* 8:76.
 - 15) **Lazzaro, B.P.**, H.A. Flores, J.G. Lorigan and C.P. Yourth (2008) Genotype by environment interactions and adaptation to local temperature affect immunity and fecundity in *Drosophila melanogaster*. *PLoS Pathogens* 4:e1000025.
 - 14) Sackton, T.B., **B.P. Lazzaro**, T.A. Schlenke, J.D. Evans, D. Hultmark and A.G. Clark (2007) Dynamic evolution of the *Drosophila* innate immune system. *Nature Genetics* 39:1461-1468.
 - 13) *Drosophila* 12 Genomes Consortium (2007) Evolution of genes and genomes on the *Drosophila* phylogeny. *Nature* 450:203-218.
 - 12) **Lazzaro, B.P.**, T.B. Sackton and A.G. Clark (2006) Genetic variation in *Drosophila melanogaster* resistance to infection: a comparison across bacteria. *Genetics* 174:1539-1554.
 - 11) The Honey Bee Genome Sequencing Consortium (2006) Insights into social insects from the genome of the honey bee *Apis mellifera*. *Nature* 443:931-949.
 - 10) Rinkevich, F.D., L. Zhang, R.L. Hamm, S.G. Brady, **B.P. Lazzaro** and J.G. Scott (2006) Frequencies of the pyrethroid resistance alleles of *Vssc1* and *CYP6D1* in house flies from the eastern United States. *Insect Molecular Biology* 15:157-167.

Peer Reviewed Book Chapters, Review Articles and Perspectives

- 14) Unckless, R.L. and **B.P. Lazzaro**. (2016) The potential for adaptive maintenance of diversity in insect antimicrobial peptides. *Phil Trans Royal Soc B*, 371:20150291.
- 13) Schwenke, R.A., **B.P. Lazzaro**, and M.F. Wolfner. (2016) The basis for immunity-reproduction tradeoffs in insects. *Annual Review of Entomology* 61:239-256.
- 12) Khalil, S., E. Jacobson, M.C. Chambers and **B.P. Lazzaro**. (2015) Systemic bacterial infection and immune defense phenotypes in *Drosophila melanogaster*. *Journal of Visualized Experiments* 99:e52613.
- 11) **Lazzaro, B.P.** (2015) Adenosine signaling and the energetic costs of induced immunity. *PLOS Biology* 134:e1002136.
- 10) **Lazzaro, B.P.** and D.S. Schneider (2014) The Genetics of Immunity. *Genetics* 197:467-470; *G3: Genes, Genomes, Genetics* 4:943-945.
- 9) **Lazzaro, B.P.** and A.G. Clark (2012) “Rapid evolution of innate immune response genes.” In Rapidly Evolving Genes and Genetic Systems, R.S. Singh, J. Xu and R.J. Kulathinal, eds. Oxford University Press, Oxford, UK.
- 8) McKean, K.A. and **B.P. Lazzaro** (2011) “The costs of immunity and the evolution of immunological defense mechanisms.” In Molecular Mechanisms of Life History Evolution, A. Heyland and T. Flatt, eds. Oxford University Press, Oxford, UK.
- 7) **Lazzaro, B.P.** and J. Rolff. (2011) Danger, microbes and homeostasis. *Science* 332:43.
- 6) Juneja, P. and **B.P. Lazzaro** (2009) “Population genetics of insect immune responses.” In Insect Infection and Immunity, J. Rolff and S. Reynolds eds., Oxford University Press, Oxford, UK.
- 5) **Lazzaro, B.P.** and T.J. Little (2009) Immunity in a variable world. *Philosophical Transactions of the Royal Society, B: Biological Sciences* 364:15-26.
- 4) Schlenke, T.A. and **B.P. Lazzaro**. (2008) Fruit flies love a (rotten) banana. Proceedings at the 49th annual Genetics Society of America *Drosophila* Research Conference. *Fly*, 2:159-164.

- 3) **Lazzaro, B.P.** (2008) Natural selection on the *Drosophila* innate immune system. *Current Opinion in Microbiology* 11:284-289.
- 2) **Lazzaro, B.P.** and M.R. Galac (2006) Dispatch. Disease Pathology: Wasting energy fighting infection. *Current Biology* 16:R964-R965.

GRANT SUPPORT

Current Support

Project Title: The Roles of Host Immune System and Bacterial Genetics in Persistent Infection
 Investigator(s): B.P. Lazzaro and J.D. Helmann
 Objectives: The goal of this work is to initiate foundational research exploring the genetic basis for the capability of the bacterium *Bacillus subtilis* to establish both acutely lethal and chronically persistent infection in the *Drosophila melanogaster* host.
 Sponsor: Cornell University Provost's Office
 Funding: \$250,000 (2years, 6/1/16– 6/30/18)

Project Title: Functional and Comparative Genomics of *Drosophila* Immunity
 Investigator(s): Clark, A.G. (contact P.I.) and B.P. Lazzaro (P.I.)
 Objectives: To define the regulatory network governing expression of the *Drosophila* immune response. To elucidate the role of microRNAs in innate immune regulation. To determine the life history consequences of misregulation of immunity.
 Sponsor: National Institutes of Health / NIAID (R01 AI064950)
 Funding: \$1,942,922 (\$1,250,000 direct; 5 years, 5/1/12 – 4/30/17)

Project Title: Genetic Network Linking Immunity to Energetic Stress and Metabolism
 Investigator(s): B.P. Lazzaro
 Objectives: To determine the genetic basis for impact of nutritional environment on immune defense. To establish mechanisms of genotype-by-environment interactions in immune performance, with relevance for evolution of defense traits and clinical practice.
 Sponsor: National Institutes of Health / NIAID (R01 AI083932)
 Funding: \$1,869,800 (\$1,250,000 direct; 5 years, 7/1/11– 6/30/16)

Completed Support (last 5 years)

Project Title: The Genomic Basis for Adaptation to a Fungal Pathogen
 Investigator(s): Lazzaro, B.P. and P. Shahrestani
 Objectives: Postdoctoral training fellowship awarded to P. Shahrestani to support an 'evolve-and-resequence' approach for determining the genomic basis for resistance to *Beauveria bassiana* in *Drosophila melanogaster*.
 Sponsor: National Institutes of Health (F32 GM109700)
 Funding: \$108,376 (\$108,376 direct; 2 years, 2/1/14– 8/15/15)

Project Title: Effects of Rapid Consumer Evolution on Community Dynamics: Predictions and Tests in a (nearly) Natural Food Web
 Investigator(s): Hairston, N. (P.I.), S. Ellner, B.P. Lazzaro, G. Hooker

Objectives: To characterize the evolution of *Daphnia* populations over ecological time in response to varying environmental levels of carbon and phosphorus.

Sponsor: National Science Foundation (DEB-1256719)

Funding: \$200,000 (\$124,691 direct; 2 years, 4/1/13– 3/31/15)

Project Title: The Protein Nutrition of the Symbiotic System Between *Drosophila* and Its Gut Microbes

Investigator(s): Douglas, A.E. (P.I.), A.G. Clark and B.P. Lazzaro

Objectives: To determine the impacts of altering the symbiosis between *Drosophila melanogaster* and its gut microbial symbionts on host protein metabolism and nutrition. To identify the gene regulatory networks that regulate host protein metabolism as a function of interaction with microbial symbionts.

Sponsor: National Institutes of Health / NIAID (R01 GM095372)

Funding: \$1,617,247 (\$1,081,522 direct; 4 years, 1/01/11 – 12/31/14, unfunded extension to 12/31/15)

Project Title: Genomics of Mosquito Resistance to Plasmodium

Investigator(s): Lazzaro, B.P.

Objectives: To characterize quantitative genetic basis for natural resistance of wild *Anopheles gambiae* to *Plasmodium falciparum* in the field.

Sponsor: Subcontract issued by Institut Pasteur from National Institutes of Health / NIAID R01 AI042361 (PI: K.D. Vernick)

Funding: \$192,115 (\$125,000 direct; 5 years, 8/1/09 – 2/28/13)

Project Title: Genetic Network Linking Immunity to Energetic Stress, Metabolism and Reproduction

Investigator(s): Lazzaro, B.P.

Objectives: To determine the degree of pleiotropy among immune, metabolic and reproductive systems. To determine the importance of genotype-by-environment interactions in shaping immune-related, metabolic and reproductive phenotypes. To use whole genome association mapping to identify genetic variation contributing to phenotypic variation in these traits. To infer how natural selection may act on these partially correlated, and sometimes conflicting, traits.

Sponsor: National Institutes of Health / NIAID (R01 AI083932)

Funding: \$736,240 (\$494,022 direct; 2 years, 8/1/09 – 6/30/11)

Project Title: Evolutionary Genomics of Anti-Malaria Genes in Mosquito

Investigator(s): Lazzaro, B.P. (P.I.) and K.D. Vernick

Objectives: To characterize molecular evolutionary patterns in mosquito antimalarial defense genes and map genes that contribute to variation among wild *Anopheles gambiae* in suppression of malaria development.

Sponsor: National Institutes of Health / NIAID (R01 AI062995)

Funding: \$1,893,279 (\$1,311,875 direct; 5 years, 8/1/06 – 7/31/11, unfunded extension to 7/31/12)

HONORS and AWARDS

College of Agriculture and Life Sciences Early Career Achievement Award, Cornell University, 2012
 Provost's Award for Distinguished Scholarship, Cornell University, 2009
 Homer F. Braddock Award for Continuing Graduate Student, Pennsylvania State University, 2000
 National Science Foundation Doctoral Dissertation Improvement Grant, 2000
 Invitation to speak in the Walter Fitch Graduate Student Presentation Competition at the annual meeting of the Society for Molecular Biology and Evolution, 2000
 J. Ben and Helen D. Hill Award, Pennsylvania State University, 1998, 1999
 Homer F. Braddock Award for Incoming Graduate Student, Pennsylvania State University, 1997
 National Science Foundation Graduate Research Fellowship, 1997
 Howard Hughes Medical Institute Graduate Research Fellowship (Honorable Mention), 1997
 Departmental Citation for Outstanding Research and Academics, Genetics, University of California, Davis, 1995
 Regents Scholar, University of California, Davis, 1992-1995
 Fulmor Scholar, University of California, Davis, 1992-1995

TEACHING EXPERIENCE

Cornell University:

Introduction to Evolution and Diversity (BioEE 1780, 4 or 5 credits), Co-instructor with two to four others. Spring 2009, Fall 2009, Fall 2011, Fall 2012, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2016.

Ecological Genetics (Entom 4700 / BioEE 4800, 4 credits), Instructor. Spring 2005, 2007, 2008, 2009, 2011, 2013, 2017.

Tropical Field Ecology and Behavior (BioEE 2650, 4 credits), Assistant instructor for field course in experimental ecology. Course is based in central Kenya and is led by Prof. Irby Lovette. January intersession 2011, 2012, 2013, 2014.

Skills in Proposal Writing (BioMG 7800, 1 credit), with Prof. Jeff Roberts. Fall 2013.

Population Genetics (BioMG 4810, 4 credits), Co-instructor with Prof. Charles Aquadro. Fall 2005, 2006.

Seminar in the Ecology and Evolution of Infectious Disease (Entom 6900, 1 credit), Faculty coordinator. Fall 2008, 2009, 2011, 2016.

Current Topics in Entomology (Entom 7670, 1 credit), Faculty coordinator. Fall 2006, Spring 2007.

Problems in Genetics, Genomics and Development (BioMG 7810, 1 credit), Team-taught graduate course by Genetics, Genomics and Development faculty, responsible for single paper discussion. Fall 2008, 2012, 2015.

Advanced Immunology (VetMI 7050, 3 credits), Team-taught course coordinated by Vet School faculty, responsible for single lecture. Spring 2006, 2008, 2010, 2012.

Guest Lecture in Comparative Immunology: Innate Immunity in Action (Entom 4500, Dr. Nicolas Buchon). Spring 2014.

Guest Lecture in Innate Immunity in Plants, Flies and Humans (BioG 1250, Dr. Greg Martin). Fall 2008, 2009.

Guest Lecture in Invertebrate Pathology (Entom 4630, Dr. Ann Hajek). Spring 2006, Fall 2008.

Other Institutions:

Short Graduate Course in Evolutionary Ecology of Infection, co-instructor with Dr. Sylvain Gandon.
Instituto Gulbenkian de Ciência, Oeiras, Portugal. April 9-14, 2012.

PROFESSIONAL SERVICE**Editorial and Review Service**

Associate Editor, *Genetics* (2012 – present)

Associate Editor, *Ecological Parasitology and Immunology* (2011 – present)

Associate Editor, *Frontiers in Evolutionary and Population Genetics* (2011 – present)

Editorial Advisory Board, *Invertebrate Immunity* (2012 – present)

Editorial Advisory Board, *Ecological Genomics* (2012 – present)

Editorial Advisory Board, *Developmental and Comparative Immunology* (2008 – 2012)

Special Issue Editor, *Insects* (2011-2012). Special issue on “Insect Immunity.”

Guest Associate Editor, *PLoS Genetics* (2010, 2014)

Guest Associate Editor, *PLoS Pathogens* (2015)

Ad hoc peer reviewer for primary journals *American Naturalist* (2012), *Behavior Genetics* (2015), *Biocontrol* (2006), *Bioinformatics* (2004), *Biology Letters* (2008), *BMC Evolutionary Biology* (4x, 2009 – 2015), *BMC Genomics* (5x, 2007 – 2014), *Current Biology* (3x, 2005 – 2014), *Developmental and Comparative Immunology* (11x, 2006 – 2013), *DNA and Cell Biology* (2009), *Ecology* (2012), *Evolution* (7x, 2009 – 2015), *Evolutionary Ecology Research* (2007), *Experimental Gerontology* (2011), *FEMS Microbiology Letters* (2003), *Frontiers in Zoology* (2012), *Frontiers in Evolutionary and Population Genetics* (2013), *Functional Ecology* (3x, 2011 – 2014), *Gene* (2015), *Genetics* (11x, 1998 – 2016), *Genome* (2004), *Genome Biology and Evolution* (2013), *Heredity* (2012), *Insect Molecular Biology* (2010, 2013), *Insect Biochemistry and Molecular Biology* (2007), *International Journal of Evolutionary Biology* (2012), *Journal of Applied Microbiology* (2005), *Journal of Biological Chemistry* (2003, 2008), *Journal of General and Applied Microbiology* (2012), *Journal of Evolutionary Biology* (2011, 2015), *Journal of Heredity* (2002), *Journal of Innate Immunity* (2014), *Journal of Medical and Veterinary Entomology* (2008, 2012), *Journal of Molecular Evolution* (3x, 2004), *Molecular Biology and Evolution* (7x, 2003 – 2013), *Molecular Ecology* (4x, 2006 – 2008), *Nature Communications* (2014), *Nature Genetics* (2006), *Parasitology* (2012), *Parasite Immunology* (2013), *Philosophical Transactions of the Royal Society B* (2015), *Physiological and Biochemical Zoology* (2008), *Physiological Entomology* (2016), *PLoS Biology* (7x, 2006 – 2014), *PLoS Genetics* (15x, 2007 – 2015), *PLoS One* (5x, 2011-2015), *PLoS Pathogens* (14x, 2007 – 2016), *Proc. Natl. Acad. Sci. USA* (6x, 2006 – 2015), *Proceedings of the Royal Society B Biological Sciences* (4x, 2012 – 2015), *Science* (4x, 2007 – 2013), *Trends in Genetics* (3x, 2004 – 2009)

National Institutes of Health review panelist (2011, 2012, 2014, 2015)

National Science Foundation review panelist (2009)

Ad hoc reviewer for California Department of Food and Agriculture (2006), European Research Council (2011), Leverhulme Trust (2009), British Biotechnology and Biological Sciences Research Council (3x, 2011 – 2012), British National Environment Research Council (4x, 2004 – 2012), Czech Science Foundation (2016), National Institutes of Health ARRA Challenge Grants (2009), National Science Foundation (12x, 2005 – 2015), Portuguese Foundation for Science and Technology (2011), Swiss Federal Institute of Technology - ETH Zurich (2015), United

Kingdom Medical Research Council (2014), United States Department of Agriculture (2005, 2006), Wellcome Trust (4x, 2007 – 2013)

External Ph.D. Committee Member, University of Nebraska (Justin Buchanan, major advisor: Kristi Montooth; 2014 – present)

Ph.D. Defense Opponent, Stockholm University (Zhi Wang, major advisor: Ulrich Theopold; 2012)

Outside Examiner, Ph.D. Defense, SUNY Binghamton (Rui Zhang, major advisor: Anthony Fiumera; 2012)

External Evaluator of Tenure and Promotion Packages for Columbia University, New Mexico State University, Texas A&M University, University of Alabama at Birmingham, University of Edinburgh (2012-2016)

Conference and Symposium Organization

Organizer of 14th annual Ecology and Evolution of Infectious Disease Conference. Ithaca, NY, June 3-5, 2015.

Co-organizer of NESCent/TriCEM Catalysis Meeting “Ecological Immunology Applied to Vector Biology and Vector-Borne Disease”. Durham, NC, Aug 18-20, 2015. Co-organized with L.C. Bartholomay (University of Wisconsin, Madison).

Co-organizer of a symposium on “Principals in Population Genetics: A coalescence of community to celebrate Andy Clark”. Ithaca, NY, July 10-12, 2014. Co-organized with N.D. Singh (North Carolina State University).

Co-organizer of bilateral symposia with Stockholm University on “Insect Science”. Stockholm, Sweden, Nov 9-14, 2011. Ithaca, NY, Oct 13-15, 2013. Co-organized with M.F. Wolfner (Cornell University) and Y. Engström (Stockholm University).

Co-organizer of a symposium on “Host Population Genetics: Natural Selection and Immunity” at the annual meeting of the Society for Molecular Biology and Evolution. Lyon, France, Jul 4-8, 2010. Co-organized with L. Quintana-Murci (Institut Pasteur).

Co-organizer of Cornell Center for Comparative and Population Genomics research symposium. Hosted at Cornell University, June 21, 2010.

Organizing committee for 8th annual Ecology and Evolution of Infections and Disease conference. Hosted at Cornell University, NY, June 3-5, 2010.

Co-organizer of “Diptera Day” research symposium. Hosted at Cornell University, Mar 24, 2010. Co-organized with A.E. Douglas (Cornell University).

Co-organizer of Workshop on “Immunity, Hematopoiesis, and Pathogenesis” at the 49th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA, Apr 2-6, 2008. Co-organized with L. Wu (University of Maryland).

Co-organizer of Workshop on “Immunity, Hematopoiesis, and Pathogenesis” at the 48th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Philadelphia, PA, Mar 7-11, 2007. Co-organized with T. Schlenke (Emory University).

Organizing committee for Eastern Great Lakes Molecular Evolution Meeting. Hosted at Cornell University, Apr 24, 2004.

Cornell University Service:

CALS Strategic Planning Task Force, Cornell University (2016)

Cornell Life Sciences Genomic Core Facility faculty advisory committee (2011 – present)

Life Sciences Planning Task Force, Cornell University (2009)

Executive Committee, Cornell Center for Comparative and Population Genomics (2008 – present)

Cornell Center for Comparative and Population Genomics seminar series coordinator (2008 – 2009)

Curriculum Committee, College of Agriculture and Life Sciences (2007 – 2008)
DNA Sequencing and Genotyping Core Facility Review Team (2007)

Service Related to Graduate Education

Director of Graduate Studies, Field of Entomology (2011 – 2014)
Presidential Life Sciences Graduate Fellowship selection committee (2010, 2011)
Finance Committee, Graduate Field of Genetics, Genomics and Development (2006 – 2010)
Faculty Advisor to “Jugatae” Entomology Graduate Student Association (2006 – 2010)
Admissions, Graduate Field of Entomology (2003 – 2005)

Faculty Search and Promotion Committees

Faculty Search Committee Member, Assistant Professor of Insect Immunology, Department of Entomology (2011/2012)
Faculty Search Committee Member, Assistant Professor of Evolution of Development, Department of Ecology and Evolutionary Biology (2011/2012)
Faculty Search Committee Member, Assistant Professor of Population Genetics/Genomics, Department of Biological Statistics and Computational Biology (2007/8)
Faculty Search Committee Member, Sarkaria Endowed Professor of Insect Physiology, Department of Entomology (2006/7)
Member, *ad hoc* committee to review Promotion and Tenure, College of Veterinary Medicine (2012)
Member, *ad hoc* committee to review Promotion and Tenure, CALS (2011)
Member, *ad hoc* committee to review Promotion and Tenure, College of Arts and Science (2010)
Mentoring Committee for Asst. Prof. Charles Danko, Biomedical Sciences (2015 – present)
Mentoring Committee Chair for Asst. Prof. Nicolas Buchon, Entomology (2012 – present)

Department Service

Executive Committee, Department of Entomology (2016 – present)
Department Space Committee (2014 – 2015)
Entomology Strategic Planning Committee (2013 – 2014)
Faculty Coordinator of Entomology Department seminar series (2006 – 2010)
Library Committee, Department of Entomology (2003 – 2007, 2010)
Computer Support Committee, Department of Entomology (2003 – 2007)
Griswold & Rogoff Funds Allocation Committee, Department of Entomology (2003 – 2007)

Undergraduate Advising

Entomology: Keith Bayless (2003-2007), Nicholas Ledesma (2004-2008), Alexander Heleba (2008), Erin McCourt (2008-2012), Madeline Ostwald (2012-2013), Abigail Heleba (2014-2015), Brandon Everhart (2015-2017)
Biology: Ivan Falsztyn (2016-present), Jean Jimenez (2016-present), Caroline Kelly (2016-present), Dylan Lee (2016-present), Mitchell Plessner (2016-present), Grace Welle (2016-present), Lydia Zamidar (2016-present)

Graduate Thesis Committees

In Progress

Sofie Delbare (Ph.D., Genetics, Genomics and Development; Major Advisors: Mariana Wolfner and Andrew Clark)
Karin Van der Burg (Ph.D., Ecology and Evolutionary Biology; Major Advisor: Robert Reed)
Leticia Smith (Ph.D., Entomology; Major Advisor: Jeff Scott)
Philip Houtz (Ph.D., Entomology; Major Advisor: Nicolas Buchon)

Simone White (Ph.D., Genetics, Genomics and Development; Major Advisors: Mariana Wolfner and Andrew Clark)

Milton Drott (Ph.D., Plant Pathology and Plant-Microbe Biology; Major Advisor: Michael Milgroom)

Allison Tracy (Ph.D., Ecology and Evolutionary Biology; Major Advisor: Drew Harvell)

Ezra Lencer (Ph.D., Ecology and Evolutionary Biology; Major Advisor: Amy McCune)

Jennifer Apper (Ph.D., Genetics, Genomics and Development; Major Advisor: Mariana Wolfner)

Ben Hamilton (Ph.D., Ecology and Evolutionary Biology; Major Advisor: Rick Harrison)

Completed since 2006

Zachary Cohen (M.S., Entomology 2015; Major Advisor: Ping Wang)

Jae Young Choi (Ph.D., Genetics, Genomics and Development. 2015; Major Advisor: Chip Aquadro)

Angela Early (Ph.D., Ecology and Evolutionary Biology, 2014; Major Advisor: Andrew Clark)

Laura Eirman (Ph.D., Natural Resources, 2014; Major Advisor: Mathew Hare)

Lucy Kafui Kavi (M.S., Entomology, 2014; Major Advisor: Jeff Scott)

Morgan Mouchka (Ph.D., Ecology and Evolutionary Biology, 2013; Major Advisor: Drew Harvell)

Adam Wong (Ph.D., Entomology, 2013; Major Advisor: Angela Douglas)

Findley Ransler Finseth (Ph.D., Ecol. and Evol. Biol., 2013; Major Advisor: Rick Harrison)

Erica Larson (Ph.D., Ecology and Evolutionary Biology, 2012; Major Advisor: Rick Harrison)

Eric van Fleet (M.S., Entomology, 2011; Major Advisor: Angela Douglas)

Jessica Litman (Ph.D., Entomology, 2011; Major Advisor: Bryan Danforth)

George Lin (Ph.D., Entomology, 2010; Major Advisor: Jeff Scott)

Kirk Lohmueller (Ph.D., Genetics and Development, 2009; Major Advisor: Andrew Clark)

Melissa Hardstone (Ph.D., Entomology, 2009; Major Advisor: Jeff Scott)

Erin Hill (Ph.D., Genetics and Development, 2009; Major Advisor: Andrew Clark)

Gerry Lorigan (M.S., Genetics and Development, 2009; Major Advisor: Jason Mezey)

INVITED RESEARCH PRESENTATIONS (since 2006)

2017

Department of Biology, University of Nebraska. Lincoln, NE. March 30.

2016

Department of Biology, Drexel University. Philadelphia, PA. October 18.

Department of Entomology, University of Arizona. Tucson, AZ. April 11.

2015

Symposium on “Molecular Population Genetics and Evolution: Genes, Genomes, and Models” Conference. Asilomar, CA. May 21-24. Plenary speaker.

Symposium on host defense and pathogen-mediated selection at the annual meeting of the European Society for Evolutionary Biology. Lausanne, Switzerland. August 10-14. Symposium speaker.

Department of Microbiology and Immunology, University of Rochester Medical Center. Rochester, NY. April 20.

2014

Jacques Monod Conference on “Infectious diseases as drivers of evolution: the challenges ahead.”
Roscoff, France. September 6-10. Plenary speaker.

“Principals of Population Genetics” Conference. Ithaca, NY. July 10-12. Co-organizer and plenary speaker.

Department of Biology, University of Pennsylvania. February 27.

Keystone Symposium on Mechanisms and Consequences of Invertebrate-Microbe Interactions.
Tahoe City, CA. January 26-30. Plenary speaker.

2013

Center for Infectious Disease Dynamics, Pennsylvania State University. October 17.

Cornell University – Stockholm University symposium on Insect Science. Ithaca, NY. October 13-14. Plenary speaker.

Division of Biological Sciences, University of Missouri. September 17.

Annual meeting of the Society for Invertebrate Pathology, Pittsburgh, PA. Aug 11-15. Plenary speaker.

Seventh annual Arthropod Genomics Consortium Symposium, Notre Dame, IN. June 13-15. Plenary speaker.

Instituto Gulbenkian de Ciência, short course on evolutionary ecology, Oeiras, Portugal. April 9-14.

Program in Infection and Pathobiology, Cornell University. March 8.

2012

Symposium on “Nutrition, Metabolism, and Disease.” Cornell University. October 9. Plenary speaker.

Department of Biology and Biochemistry, University of Houston. February 29.

2011

Stockholm University – Cornell University symposium on Insect Science. Stockholm, Sweden. Nov 9-14. Plenary speaker.

9th Annual Ecological Genomics Symposium. Kansas City, MO. Nov 4 - 6. Plenary speaker.

EMBO/Institut Pasteur conference on Host Genetic Control of Infectious Diseases. Paris, France. Sept 28 - 30. Plenary speaker.

52nd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 30 - April 3. Plenary speaker.

2010

Program in Population Biology, Ecology and Evolution, Emory University. November 5.

Department of Molecular Microbiology and Immunology, Johns Hopkins University. October 28.

Department of Microbiology and Immunology, Stanford University. May 5.

Department of Ecology and Evolutionary Biology, Cornell University. April 26.

Department of Biology, SUNY Albany. April 23.

Keystone conference on “Molecular Targets for Control of Vector-Borne Diseases: Bridging Lab and Field Research.” Copper Mountain, CO. April 11-16. Plenary speaker.

2009

Royal Entomological Society conference on “Insect Infection and Immunity: Evolution, Ecology and Mechanisms.” Sheffield, United Kingdom. July 15-17. Plenary speaker and session chair.

Department of Genetics, North Carolina State University, March 30.

2008

Department of Entomology, North Carolina State University, September 15.

Wellcome Trust conference on “Genomic Epidemiology of Malaria,” Hinxton, United Kingdom, June 15-18. Plenary speaker.

International workshop on “Asking Questions with Genomics,” Edinburgh, UK, June 4. Plenary speaker.

Department of Entomology, Cornell University, April 28.

2007

Fifth Annual Ecology and Evolution of Infectious Disease conference. Ithaca, NY, May 29-30. Plenary speaker.

European Science Foundation conference on “The Impact of the Environment on Innate Immunity,” Obergurgl, Austria, April 22-27. Plenary speaker.

2006

Department of Ecology and Evolutionary Biology, University of Arizona, October 9.

International Congress of Developmental and Comparative Immunology symposium on “Ecoimmunity,” Charleston, SC, July 1-6. Session speaker.

77th annual meeting of the Eastern Branch of the Entomological Society of America symposium on “Recent Advances in Insect Pathology in the Northeast,” Charlottesville, VA, March 12-14. Session speaker.

Department of Entomology, University of Georgia, February 20.

Gordon Conference on Molecular Evolution, Ventura, CA, February 5-10. Plenary speaker.

SUBMITTED RESEARCH PRESENTATIONS (*presenting author)

2016

J.H. Im* and **B.P. Lazzaro**. “Population genetic analysis of autophagy and phagocytosis genes in *Drosophila melanogaster*.” Poster presentation at The Allied Genetics Conference. Orlando, FL. July 13-17.

T.B. Sackton*, **B.P. Lazzaro**, and A.G. Clark “Rapid acquisition of novel immune system genes via duplication and *de novo* origin in dipterans.” Poster presentation at The Allied Genetics Conference. Orlando, FL. July 13-17.

E.L. Behrman*, V.M. Howick, **B.P. Lazzaro** and P.S. Schmidt. “Seasonal change in *Drosophila melanogaster* innate immunity.” Poster presentation at the annual meeting of the Society for the Study of Evolution. Austin, TX. June 17-21.

J.H. Im* and **B.P. Lazzaro**. “Population genetic analysis of autophagy and phagocytosis genes in *Drosophila melanogaster*.” Poster presentation at the 14th annual Ecology and Evolution of Infectious Disease meeting. Ithaca, NY. June 3-5.

2015

- E.L. Behrman*, V.M. Howick, **B.P. Lazzaro** and P.S. Schmidt. “Seasonal and latitudinal immune trade-offs in wild *Drosophila*.” Poster presentation at the annual meeting of the Society for the Study of Evolution. Guarujá, Brazil. June 26-30.
- J.E. Crawford*, M.M. Riehle, W.M. Guelbeogo, A. Gneme, N’F. Sagnon, K.D. Vernick, R. Nielsen, and **B.P. Lazzaro**. “Evolution of GOUNDRY, a cryptic subgroup of *Anopheles*, and its impact on susceptibility to *Plasmodium* infection.” Oral presentation at the 9th annual Arthropod Genomics Symposium. Manhattan, KS. June 17-19.
- B.P. Lazzaro***, R.A. Schwenke, N. Buchon, and D.F. Duneau. “Sexual dimorphism and costs of reproduction in the *Drosophila* immune system.” Poster presentation at the 13th annual Ecology and Evolution of Infectious Disease meeting. Athens, GA. May 27-29.
- R.L. Unckless*, V.M. Howick and **B.P. Lazzaro**. “Balancing selection and convergent evolution in an antimicrobial peptide.” Poster presentation at Ecology and Evolution of Infectious Disease. Athens, GA. May 27-29.
- M.C. Chambers*, E. Jacobson, S. Khalil and **B.P. Lazzaro**. “Tolerating chronic infection in *Drosophila melanogaster*.” Poster presentation at the annual meeting of the American Society for Microbiology. New Orleans, LA. May 20-June 2.
- B.P. Lazzaro***, D.F. Duneau, and R.A. Schwenke “Sexual dimorphism and costs of reproduction in the *Drosophila* immune system.” Oral presentation at the 56th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 4-8.
- V. Howick* and **B.P. Lazzaro** “The genetic architecture of defense as tolerance and resistance.” Poster presentation at the 56th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 4-8.
- R. Schwenke* and **B.P. Lazzaro** “Post-mating reduction of immune defense in *Drosophila melanogaster* females: testing the hormonal pleiotropy hypothesis.” Poster presentation at the 56th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 4-8.
- D. Duneau, R.A. Schwenke and **B.P. Lazzaro*** “Sexual dimorphism in the *D. melanogaster* immune system.” Workshop presentation at the 56th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 4-8.

2014

- D. Duneau* and **B.P. Lazzaro** “Host sexual dimorphism and its consequences for parasite evolution.” Poster presentation at CNRS Jacques Monod Conference on “Infectious diseases as drivers of evolution: the challenge ahead.” Roscoff, France. September 6-10.
- P. Shahrestani*, J. Vandenberg, M. Griggs, S. Wraight, Y. Estrella, S.M. Rottschaefer, A.G. Clark and **B.P. Lazzaro**. “The genomic basis for evolved resistance to a fungal pathogen in *Drosophila melanogaster*.” Poster presentation at the annual meeting of the Society for Invertebrate Pathology. Mainz, Germany. August 3-8.

- S. Khalil*, M.C. Chambers and **B.P. Lazzaro**. “The effect of chronic infection on resource allocation.” Poster presentation at the annual meeting of the Society for the Study of Evolution. Raleigh, NC. June 20-24. Undergraduate presenter and travel award winner.
- V. Howick and **B.P. Lazzaro**. “The genetic architecture of defense as tolerance and resistance against a bacterial pathogen in *Drosophila melanogaster*.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. San Juan, Puerto Rico. June 8-12.
- R.L. Unckless*, V.M. Howick, and **B.P. Lazzaro**. “Convergent balancing selection on an antimicrobial peptide in *Drosophila*.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. San Juan, Puerto Rico. June 8-12.
- D.F. Duneau* and **B.P. Lazzaro**. “Batemen’s Principle and sexual dimorphism in resistance to infection.” Poster presentation at the 55th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 26-30.
- R.L. Unckless*, V.M. Howick, and **B.P. Lazzaro**. “Convergent balancing selection on an antimicrobial peptide in *Drosophila*.” Oral presentation at the 55th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 26-30.
- M.C. Chambers*, S. Khalil, E. Jacobson, and **B.P. Lazzaro**. “Physiological trade-offs during chronic infection of *Drosophila melanogaster*.” Poster presentation at the 55th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 26-30.
- E.L. Berhman*, V.M. Howick, **B.P. Lazzaro** and P. Schmidt. “Spatial and temporal variation in innate immunity.” Poster presentation at the 55th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 26-30.
- M.C. Chambers*, S. Khalil and **B.P. Lazzaro**. “Physiological trade-offs during chronic infection of *Drosophila melanogaster*.” Poster presentation at the Keystone Symposium on “Mechanisms and Consequences of Invertebrate-Microbe Interactions.” Tahoe City, CA. January 26-30.
- V.M. Howick* and **B.P. Lazzaro**. “Genotype and diet mediate tolerance of and resistance to bacterial infection in *Drosophila melanogaster*.” Poster presentation at the Keystone Symposium on “Mechanisms and Consequences of Invertebrate-Microbe Interactions.” Tahoe City, CA. January 26-30.

2013

- B.P. Lazzaro***. “Complexity in the function and evolution of insect immunity.” Oral presentation at the European Science Foundation conference on “Integrated Insect Immunology: From Basic Biology To Environmental Applications.” Poltusk, Poland. September 23-28.
- D. Duneau*, D. Ebert, and B.P. Lazzaro. “The role of host sex in parasite evolution.” Poster presentation at the annual meeting of the European Society of Evolutionary Biology. Lisbon, Portugal. August 19-24.
- P. Shahrestani, M. Griggs, S. Wraight, **B.P. Lazzaro**, and J. Vandenberg*. “Sexually dimorphic response of *Drosophila melanogaster* to infection by two strains of *Beauveria bassiana*.” Poster presentation at the annual meeting of the Society for Invertebrate Pathology. Pittsburgh, PA. August 11-15.

- P. Shahrestani*, J. Vandenberg, M. Griggs, A.G. Clark and **B.P. Lazzaro**. “The genomic basis for adaptation to a fungal pathogen.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Chicago, IL. July 7-11.
- E. Behrman*, V. Howick, **B.P. Lazzaro** and P. Schmidt. “Seasonal and temporal immune adaptations in wild *Drosophila*.” Oral presentation at the annual meeting of the Society for the Study of Evolution. Snowbird, UT. June 21-25.
- V.M. Howick* and **B.P. Lazzaro**. “The dynamics of tolerance and resistance in heterogeneous environments.” Oral presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.
- P. Shahrestani* and **B.P. Lazzaro**. “Effects of host diet on the tradeoff between mating and immunity in *Drosophila melanogaster*.” Poster presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.
- R. Schwenke* and **B.P. Lazzaro**. “Elucidating the mechanistic basis for the trade-off between reproduction and immunity in female *D. melanogaster*.” Poster presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.
- D. Duneau *and **B.P. Lazzaro**. “Sex-specific immune response to bacterial infection.” Poster presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.
- R.L. Unckless*, S. Rottschaefer and **B.P. Lazzaro**. “The genetic architecture of diet-by-immune interaction in *Drosophila*.” Poster presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.
- M.C. Chambers*, C. Ota, I. Porges and **B.P. Lazzaro**. “Severity of chronic infections depends on the amount of dietary sugar.” Poster presentation at the 54th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 3-7.

2012

- J.E. Crawford* and **B.P. Lazzaro**. “Assessing the accuracy and power of population genetic inference from low-pass next-generation sequencing data.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Dublin, Ireland, June 23-26.
- R.L. Unckless*, S.M. Rottschaefer and **B.P. Lazzaro**. “Interaction between diet and genotype in immune defense.” Poster presentation at the 53rd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 7-11.
- S.M. Short*, M.F. Wolfner and **B.P. Lazzaro**. “Trade-offs and immune defense: the effect of mating and reproduction on immunity in female *D. melanogaster*.” Poster presentation at the 53rd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 7-11.

2011

- S. Fellous and **B.P. Lazzaro**. “A link between the communities of parasites of insect larvae and adults mediated by the host's immune system.” Oral presentation at the 96th annual meeting of the Ecological Society of America. Austin, TX. August 7-12.
- M.R. Galac* and **B.P. Lazzaro**. “Elucidating virulence mechanisms of *Providencia* infections in *Drosophila melanogaster* through pathology and whole genome comparisons of closely related

bacteria species.” Poster presentation at the annual meeting of the American Society for Microbiology. New Orleans, LA. May 21-24.

S.M. Short*, M.F. Wolfner and **B.P. Lazzaro**. “Sick from sex: How mating affects the function and evolution of immune defense in female *Drosophila melanogaster*.” Oral presentation at the 52nd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 30-Apr 3.

V.M. Howick *, A.C.N. Wong, A.E. Douglas and **B.P. Lazzaro**. “The interactions of gut microbiota and the innate immune system in response to pathogenic infection.” Poster presentation at the 52nd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. March 30-Apr 3.

2010

S.M. Short* and **B.P. Lazzaro**. “Female *D. melanogaster* harbor significant genetic variation for reduction in immune resistance due to mating.” Poster presentation at the 8th annual Ecology and Evolution of Infectious Disease meeting. Ithaca, NY. June 3-5.

J.S. Comstock* and **B.P. Lazzaro**. “Relationships between pathogen, immune response, diet and metabolic state in *Drosophila melanogaster*.” Poster presentation at the 8th annual Ecology and Evolution of Infectious Disease meeting. Ithaca, NY. June 3-5.

J. Crawford* and **B.P. Lazzaro**. “*De novo* sequencing and analysis of the adult *Anopheles funestus* transcriptome using the Illumina GAIIx platform.” Poster presentation at the 8th annual Ecology and Evolution of Infectious Disease meeting. Ithaca, NY. June 3-5.

M.R. Galac* and **B.P. Lazzaro**. “*Providencia* species as natural pathogens of *Drosophila melanogaster*.” Poster presentation at the annual meeting of the American Society for Microbiology. San Diego, CA. May 23-27.

S.M. Short* and **B.P. Lazzaro**. “Female *D. melanogaster* harbor significant genetic variation for reduction in immune resistance due to mating.” Poster presentation at the 51st annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 7-11.

J.S. Comstock* and **B.P. Lazzaro**. “Relationships between pathogen, immune response, diet and metabolic state in *Drosophila melanogaster*.” Poster presentation at the 51st annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, DC. April 7-11.

2009

P. Juneja* and **B.P. Lazzaro**. “Population genetics of Eater, a recognition molecule that promotes phagocytosis by the cellular immune response.” Oral presentation at Royal Entomological Society conference “Insect Infection and Immunity: Evolution, Ecology and Mechanisms.” Sheffield, United Kingdom. July 15-17.

S. Short*, M.F. Wolfner and **B.P. Lazzaro**. “Understanding resistance: the effects of mating on pathogen defense in *Drosophila melanogaster*.” Poster presentation at Royal Entomological Society conference “Insect Infection and Immunity: Evolution, Ecology and Mechanisms.” Sheffield, United Kingdom. July 15-17. Awarded 1st prize for Best Student Poster.

- J. Crawford* and **B.P. Lazzaro**. “Inferring the demographic histories of the molecular forms of *Anopheles gambiae sensu strictu*.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Iowa City, IA. June 3-7.
- M. Galac* and **B.P. Lazzaro**. “*Providencia* species as natural pathogens of *Drosophila melanogaster*.” Poster presentation at the CNRS Jacques Monod conference “Insect immunity in action: from fundamental mechanisms of host defense to resistance against infections in nature.” Aussois, France. May 23-27.
- S. Fellous* and **B.P. Lazzaro**. “Links between immunities at different life stages.” Poster presentation at the European Science Foundation conference on “The impact of the environment on innate immunity: the threat of diseases.” Obergurgl, Austria. May 4-9.
- P. Juneja* and **B.P. Lazzaro**. “Population genetics of Eater, a recognition molecule that promotes phagocytosis by the cellular immune response” Poster presentation at the 50th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL. March 4-8.

2008

- M.C. Hardstone*, **B.P. Lazzaro**, and J. G. Scott. “Fitness of cytochrome P450 monooxygenase-mediated permethrin resistance in mosquitoes.” Poster presentation at the 40th annual Society of Vector Ecology meeting. Ft. Collins, CO. September 28-October 2.
- B.P. Lazzaro***, S.M. Rottschaefer, M.M. Riehle and K.D. Vernick. “Population genetics of the *APLI* malaria resistance gene cluster of *Anopheles gambiae*.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Barcelona, Spain. June 5-8.
- S. Fellous* and **B.P. Lazzaro**. “Divergent effect of larval food richness on larval and adult constitutive immunity.” Poster presentation at the 6th annual Ecology and Evolution of Infectious Disease workshop and conference. Fort Collins, CO. June 1-6.
- S.M. Short* and **B.P. Lazzaro**. “The effects of accessory gland proteins and sperm on immune response in female *Drosophila melanogaster*.” Poster presentation at the 49th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. April 2-6.
- Hardstone, M.C.* , **B.P. Lazzaro**, and J.G. Scott. “Fitness of cytochrome P450 monooxygenase-mediated permethrin resistance in the mosquito under three environmental conditions.” Poster presentation at the 79th annual Eastern Branch of the Entomological Society of America meeting. Syracuse, NY. March 18-20.

2007

- T.B. Sackton*, **B.P. Lazzaro**, T.A. Schlenke, J.E. Evans, D. Hultmark and A.G. Clark. “Comparative genomics of innate immune pathways in *Drosophila*.” Poster presentation at the European Science Foundation conference on “The impact of the environment on innate immunity.” Obergurgl, Austria. April 22-27.
- B.P. Lazzaro***. “Quantitative Genetics of Antibacterial Immunity in *Drosophila*.” Poster presentation at the 48th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Philadelphia, PA. March 7-11.
- M.R. Galac* and **B.P. Lazzaro**. “Infection of *Drosophila melanogaster* with *Providencia* species, natural bacterial pathogens.” Poster presentation at the 48th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Philadelphia, PA. March 7-11.

- P. Juneja* and **B.P. Lazzaro**. “Epidemiology of bacterial disease in wild *Drosophila melanogaster*.” Oral presentation at the 48th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Philadelphia, PA. March 7-11.
- T.B. Sackton, **B.P. Lazzaro**, T.A. Schlenke, J.E. Evans, D. Hultmark and A.G. Clark. “Comparative genomics of innate immune pathways in *Drosophila*.” Oral presentation at the 48th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Philadelphia, PA. March 7-11.

2006

- B.P. Lazzaro***. “Linking functional and evolutionary genetics in the study of *Drosophila* antibacterial immunity.” Oral presentation at the CNRS Jacques Monod conference on “Insect Immunity: the Post-Genomic Era.” Roscoff, France, June 10-14.
- P. Juneja* and **B.P. Lazzaro**. “Spectrum of bacteria associated with wild *D. melanogaster*.” Poster presentation at the Jacques Monod conference on “Insect Immunity: the Post-Genomic Era.” Roscoff, France, June 10-14.
- K.A. McKean*, C.P. Yourth, **B.P. Lazzaro** and A.G. Clark. “The immunological costs of reproduction.” Poster presentation at the Jacques Monod conference on “Insect Immunity: the Post-Genomic Era.” Roscoff, France, June 10-14.
- T.B. Sackton, **B.P. Lazzaro** and A.G. Clark*. “Gene expression determinants of immunocompetence in the innate immune system of *Drosophila melanogaster*.” Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Tempe, AZ, May 24-28.
- K.A. McKean*, C.P. Yourth, **B.P. Lazzaro** and A.G. Clark. “The immunological costs of reproduction.” Poster presentation at the Eastern Great Lakes Molecular Evolution meeting. Buffalo, NY, May 6.
- B.P. Lazzaro*** and P. Juneja. “Polymorphism for virulence in entomopathogenic bacteria of the genus *Providencia*.” Oral presentation at the 47th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Houston, TX. March 29-April 2.
- P. Juneja* and **B.P. Lazzaro**. “Spectrum of bacteria associated with wild *D. melanogaster*.” Poster presentation at the 47th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Houston, TX, March 29-April 2.
- T.B. Sackton*, **B.P. Lazzaro** and A.G. Clark. “Gene expression determinants of the innate immune system of *Drosophila melanogaster*.” Poster presentation at the 47th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Houston, TX, March 29-April 2.

LAB MEMBERS and ALUMNI

Graduate Students

- Joo Hyun Im (Ph.D., Genetics, Genomics and Development, 2014 – present)
- Katia Sotelo-Troha (Ph.D., Comparative Biomedical Sciences, 2012 – present)
- Robin Schwenke (Ph.D., Genetics, Genomics and Development, 2011 – present)
- Virginia Howick (Ph.D., Entomology, 2010 – 2015)
- Jennifer Comstock (Genetics and Development, 2008 – 2010)
- Susan Rottschafer (M.S., Entomology, 2008 – 2015)
- Sarah Short (Ph.D., Genetics and Development, 2006 – 2012)

Jacob Crawford (Ph.D., Entomology, 2006 – 2012)
Madeline Galac (Ph.D., Genetics and Development, 2005 – 2012)
Punita Juneja (Ph.D., Entomology, 2004 – 2010)

Postdoctoral Associates

Vanika Gupta (2016 – present)
Moria Chambers (2012 – 2015)
Parvin Shahrestani (2012 – 2015)
David Duneau (2011 – 2015)
Robert Unckless (2011 – 2016)
Simon Fellous (2008)
J. Gerardo Marquez (2007 – 2010)
Christopher Yourth (2005 – 2007)

Research Professionals

Gabriel Fox (2015 – present)
Charlotte Renne (2015 – present)
Chloe Ota (2009 – 2011)
Mark Jandricic (2009 – 2011)
Susan Rottschaefer (2005 – 2015)

Undergraduate and High School Students Involved in Research

Matthew Ming (2016 – present)
Miguel Gomez (2016 – present)
Sarah Crowe (2015 – present)
Manuel Duarte (2015)
Ololade Olawale (2015)
Kenneth Serrano (2015 – 2016)
Tayyaba Arshad (2014 – 2015)
Janilya Baizack (2014 – 2015)
Pratik Chowdhury (2014 – 2015)
Eliana Jacobson (2014 – 2016)
Helen Kim (2014)
Mariam Zade (2014 – 2015)
Ming Zhu (2014 – 2015)
Adesanya Akinleye (summer 2013; City University of New York)
Austin Milunovich (summer 2013; Research Apprenticeship in Biological Sciences program)
Gerardo Ortiz (2013 – 2015)
Alireza Edraki (2013 – 2014)
Yonathan Estrella (2013 – 2015)
Sarah Khalil (2013 – 2015)
Alexandra Gresov (2012 – 2014)
Megan Alzona (2012)
Glen Malaret (2012 – 2015)
Kelly Garcia (2012 – 2015)
Christopher Chow (2012 – 2014)
Michael Fox (2012 – 2015)
Ilana Porges (summer 2011; Research Apprenticeship in Biological Sciences program)

Jamilla Akhund-Zade (2011 – 2014, undergraduate research honors)
Richard Yeom (2010 – 2012, undergraduate research honors)
Christine Toliias (2010 – 2012, undergraduate research honors)
Maria-Rosario Driscoll (2009 – 2010)
Miguel Rosado (2008 – 2010)
Gabriel Lahue (2007 – 2010; Howard Hughes undergraduate scholar, undergraduate research honors)
Rumi Sologuren (2007)
Nicholas Ledesma (2006 – 2008; undergraduate research honors)
Dorian Batt (2006 – 2007)
Grace Leonard (2006)
Sarah Phillips (2005 – 2007)