BRIAN PAUL LAZZARO

Department of Entomology
3134 Comstock Hall
Cornell University
Ithaca, NY 14853

tel: (607) 255-3254
fax: (607) 255-0939
email: bplazzaro@cornell.edu
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.

APPOINTMENTS

Professor, 2016 – present. Department of Entomology, Cornell University.
Department of Ecology and Evolutionary Biology, Cornell University.
Liberty Hyde Bailey Professor, College of Agriculture and Life Sciences.

Director, Cornell Institute of Host-Microbe Interactions and Disease, 2016 – present.

Advance Placement (AP) Biology Exam Development Committee, 2015 – 2018.
Outside Consultant for Educational Testing Services, responsible for creation of annual AP Biology test of college equivalency for high school students.
Committee co-Chair, 2016 – 2018.

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

59) Troha, K., P. Nagy, A. Pivovar, **B.P. Lazzaro**, P. Hartley and N. Buchon. Nephrocytes mediate immune tolerance to microbiota by removing peptidoglycan from systemic circulation. *Immunity* in revision.

58) Machado, H. A.O. Bergland, R. Tayler, S. Tilk, E. Behrman, K. Dyer, D. Fabian, T. Flatt, J. Gonzalez, T. Karasov, I. Kozeretska, B.P. Lazzaro, T. Merritt, J. Pool, K. O'Brien, S. Rajpurohit, P. Roy, S. Schaeffer, S. Serga, P. Schmidt, D. Petrov. Broad geographic sampling reveals predictable, pervasive and strong seasonal adaptation in *Drosophila*. *eLife* in revision.

57) Im, J.H. and **B.P. Lazzaro**. (2018) Population genetic analysis of autophagy and phagocytosis genes in *Drosophila melanogaster* and *D. simulans*. *PLoS One* 13:e0205024.

56) Shahrestani, P.* M. Chambers*, J. Vandenberg, K. Garcia, G. Malaret, P. Chowdhury, Y. Estrella, M. Zhu and **B.P. Lazzaro**. (2018) Sexually dimorphic response to fungal infection depends on core immune signaling in *Drosophila melanogaster*. *Scientific Reports* 8:12501.
*denotes equal contribution

55) Duneau, D.F. and **B.P. Lazzaro**. (2018) Persistence of an extracellular systemic infection across metamorphosis in a holometabolous insect. *Biology Letters* 14:20170771.

54) Troha K*, J.H. Im*, J. Revah, **B.P. Lazzaro**† and N. Buchon†. (2018) Comparative transcriptomics reveals CrebA as a novel regulator of infection tolerance in *D. melanogaster*. *PLoS Pathogens* 14:e1006847.
* denotes equal contribution
† denotes equal contribution

53) Behrman, E.L., V.M. Howick, F. Staubach, A.O. Bergland, D.A. Petrov, **B.P. Lazzaro** and P.S. Schmidt. (2018) Rapid seasonal adaptation in innate immunity of wild *Drosophila melanogaster*. *Proceedings of the Royal Society B: Biological Sciences* 285:20172599.

52) Duneau, D.F., J.H. Im, G.A. Ortiz, H.C. Kondolf, C. Chow, M.A. Fox, A.T. Eugénio, N. Buchon* and **B.P. Lazzaro***. (2017) The Toll pathway underlies sexual dimorphism in response to both Gram-negative and Gram-positive bacteria in *Drosophila*. *BMC Biology* 15:124.
*denotes equal contribution

51) Drott M.T, **B.P. Lazzaro**, D.L. Brown, I. Carbone, and M.G. Milgroom. (2017) Balancing selection for aflatoxin in *Aspergillus flavus* is maintained through interference competition with and fungivory by insects. *Proceedings of the Royal Society B: Biological Sciences* 284:20172408.

50) Duneau, D.F., J.-B. Ferdy, J. Revah, H. Kondolf, G. Ortiz, **B.P. Lazzaro*** and N. Buchon*. (2017) Stochastic variation in the initial phase of bacterial infection predicts the probability of survival in *D. melanogaster*. *eLife* 6:e28298.
*denotes equal contribution

49) Schwenke, R.A. and **B.P. Lazzaro**. (2017) Juvenile hormone mediates resistance to infection in female *Drosophila melanogaster*. *Current Biology* 27:596-601.

48) Howick, V.M. and **B.P. Lazzaro**. (2017) The genetic architecture of defense as resistance to and tolerance of bacterial infection in *Drosophila melanogaster*. *Molecular Ecology* 26:1533-1546.

47) Sackton, T.B., **B.P. Lazzaro**, and A.G. Clark. (2017) Rapid expansion of immune-related gene families in the house fly, *Musca domestica*. *Molecular Biology and Evolution* 34:857-872.

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 *APL1* 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.

9) Braverman, J.M., **B.P. Lazzaro**, M. Aguadé, and C.H. Langley (2005) DNA sequence polymorphism and divergence at the *erect wing* and *suppressor of sable* loci of *Drosophila melanogaster* and *D. simulans*. *Genetics* 170:1153-65.
8) **Lazzaro, B.P.** (2005) Elevated polymorphism and divergence in the class C scavenger receptors of *Drosophila melanogaster* and *D. simulans*. *Genetics* 169:2023-34.
7) **Lazzaro, B.P.**, B.K. Sceurman and A.G. Clark (2004) Genetic basis of natural variation in *D. melanogaster* antibacterial immunity. *Science* 303:1873-6.
6) **Lazzaro, B.P.** and A.G. Clark (2003) Molecular population genetics of genes encoding inducible antibacterial peptides in *Drosophila melanogaster*. *Molecular Biology and Evolution* 20:914-23.
5) **Lazzaro, B.P.**, B.K. Sceurman, S.L. Carney and A.G. Clark (2002) fRFLP and fAFLP: Medium-throughput genotyping by fluorescently post-labeling restriction digestion. *Biotechniques* 33:539-46.
4) **Lazzaro, B.P.** and A.G. Clark (2001) Evidence for recurrent paralogous gene conversion and exceptional allelic divergence in the *Attacin* genes of *Drosophila melanogaster*. *Genetics* 159:659-71.
3) Langley, C.H., **B.P. Lazzaro**, W. Phillips, E. Heikkinen, and J. Braverman (2000) Linkage disequilibria and the site frequency spectra in the *su(s)* and *su(w^a)* regions of the *Drosophila melanogaster* X chromosome. *Genetics* 156:1837-52.
2) Carvalho, A.B, **B.P. Lazzaro**, and A.G. Clark (2000) Y-chromosomal fertility factors *kl-2* and *kl-3* of *D. melanogaster* encode dynein heavy chain polypeptides. *Proceedings of the National Academy of Sciences USA* 97:13239-44.
1) Savolainen, O., C.H. Langley, **B.P. Lazzaro**, and H. Frèville (2000) Contrasting patterns of nucleotide polymorphism at the *Alcohol Dehydrogenase* locus in the outcrossing *Arabidopsis lyrata* and the selfing *Arabidopsis thaliana*. *Molecular Biology and Evolution* 17:645-55.

Peer Reviewed Book Chapters, Review Articles and Perspectives

17) Wigby, S. S. Suarez, **B.P. Lazzaro**, T. Pizarri and M.F. Wolfner. Sperm success and immunity. *Current Topics in Developmental Biology* in review.
16) **Lazzaro, B.P.** (2018) Detecting adaptation with genome-scale molecular evolutionary analysis: an educational primer for use with "RNA interference pathways display high rates of adaptive protein evolution in multiple invertebrates". *Genetics* 210:773-780.
15) **Lazzaro, B.P.** and G.M. Fox (2017) Dispatch; Host-microbe interactions: Winning the colonization lottery. *Current Biology* 27:R642-644.
14) Unckless, R.L. and **B.P. Lazzaro**. (2016) The potential for adaptive maintenance of diversity in insect antimicrobial peptides. *Philosophical Transactions of the Royal Society B*, 371:20150291.
13) Schwenke, R.A., **B.P. Lazzaro**, and M.F. Wolfner. (2016) Reproduction-immunity 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 like 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.
1) Vernick, K.D., F. Oduol, **B.P. Lazzaro,** J. Glazebrook, J. Xu, M. Riehle and J. Li (2005) Molecular genetics of mosquito resistance to malaria parasites. *Current Topics in Microbiology and Immunology*: *Malaria: drugs, disease and post-genomic biology* 295:383-415.

GRANT SUPPORT

Current Support

Project Title:	Cellular Basis for Diverse Multifunction of *Drosophila* Fat Body Tissue
Investigator(s):	B.P. Lazzaro (PI)
Objectives:	To investigate cellular heterogeneity in the RNA transcript level in how the insect fat body balances requirements of immune response, reproductive investment, and basal metabolism.
Sponsor:	National Institutes of Health / NIAID (R03 AI144882)
Funding:	$157,00 ($50,000 direct; 2 years, 4/1/19– 3/31/21)

Project Title:	The Causes of Balancing Selection on Immunity Genes: From Populations to Molecular Interactions
Investigator(s):	R.L. Unckless (PI) and B.P. Lazzaro (co-I)
Objectives:	To use *in vitro* assays, functional genetic manipulations, and molecular evolutionary inference to determine how conflicting natural selective pressures can lead to balanced polymorphisms in antimicrobial peptide genes.
Sponsor:	National Institutes of Health / NIAID (R01 AI139154)
Funding:	$2,063,677 ($1,250,000 direct; 5 years, 7/1/18– 6/30/23; Lazzaro subcontract $249,762 ($154,089 direct))

Completed 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:	Seed Funding for Discovery and Research, Cornell University Office of the Vice Provost for Research
Funding:	$250,000 (2 years, 6/1/16– 5/31/18)

Project Title:	Genetic and Physiological Constraint on Immunity
Investigator(s):	B.P. Lazzaro
Objectives:	To determine how physiological conflicts can constrain immune defense and lead to life history tradeoffs as a function of host genotype and external environment.
Sponsor:	National Institutes of Health / NIAID (R56 AI083932)
Funding:	$248,149 ($159,070 direct; 1 years, 5/1/17– 4/30/18)

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, unfunded extension to 4/30/17)

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 *Beauvaria 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)

Project Title:	Functional and Comparative Genomics of *Drosophila* Immunity
Investigator(s):	Clark, A.G. (P.I.) and B.P. Lazzaro

Objectives:	To use genome-scale molecular evolutionary analyses across 12 genome-sequenced *Drosophila* species to infer evolutionary pressures on immunity genes. To measure and model tradeoffs between immunity and other fitness components. To model the gene regulatory network underlying immunity in a systems context.
Sponsor:	National Institutes of Health / NIAID (R01 AI064950)
Funding:	$1,895,691 ($1,250,000 direct; 5 years, 4/01/05 – 3/31/10, unfunded extension through 3/31/11)

Project Title:	Comparative and Functional Genomics of Entomopathogenic Bacteria in the Genus *Providencia*
Investigator(s):	Lazzaro, B.P.
Objectives:	Comparative genomics across the genus *Providencia* in order to lay the foundation for functional genetic analysis of pathogenic interactions with insect hosts.
Sponsor:	Priming Grant from the Cornell Center for Comparative and Population Genomics
Funding:	$18,000 (1 year, 1/1/10 – 12/31/10)

Project Title:	Evolutionary Genetics of Pathogen Recognition Genes and the Spectrum of Bacteria Associated with Wild *D. melanogaster*
Investigator(s):	Lazzaro, B.P.
Objectives:	To identify infectious bacteria from wild-caught *D. melanogaster* and to test temporal heterogeneity in prevalence of infection. To test geographic structuring of variation in *D. melanogaster* immunity genes, and to establish genetic determinants of resistance to infection in the field.
Sponsor:	National Science Foundation (DEB-0415851)
Funding:	$540,003 ($351,123 direct; 4 years, 8/15/04 – 7/31/08, extension through 7/31/09)

Project Title:	Dissertation Research: Genetic Variation in Induction Kinetics and Antibacterial Strength of *Drosophila* Immunity Genes
Investigator(s):	Lazzaro, B.P. and A.G. Clark (P.I.)
Objectives:	To identify genetic polymorphism associated with natural variation in immunocompetence in *Drosophila melanogaster*.
Sponsor:	National Science Foundation (DEB-0073598)
Funding:	$10,000 (9/1/00 – 8/31/02)

Project Title:	Quantitative Analysis of Functional Variation in Promoter Activity
Investigator(s):	A.G. Clark, B.P. Lazzaro, E.T. Dermitzakis
Objectives:	To identify DNA sequences with gene regulatory functions, and to determine whether polymorphism in those sequences affects gene expression level.
Sponsor:	Life Sciences Consortium Innovative Biotechnology Research (Pennsylvania State University)
Funding:	$25,000 (1999 – 2000)

HONORS and AWARDS

Rising Star Faculty Award, CALS Alumni Association, Cornell University, 2017
Liberty Hyde Bailey Professorship, Cornell University, 2016
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, Fall 2017, Spring 2018, Fall 2018.

Ecological Genetics (Entom 4700 / BioEE 4800, 4 credits), Instructor. Spring 2005, 2007, 2008, 2009, 2011, 2013, 2017, 2019.

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, Spring 2019.

Current Topics in Entomology (Entom 7670, 1 credit), Faculty coordinator. Fall 2006, Spring 2007, Fall 2018.

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.

Population Genetics (Biol 428), Teaching Assistant. Instructed by Drs. Andrew Clark and Hiroshi Akashi, Pennsylvania State University, Spring 2002, Spring 1999.

Biology of Molecules and Cells (Biol 230W), Teaching Assistant, Laboratory Instruction. Instructed by Drs. Esther Siegfreid and Graham Thomas, Pennsylvania State University, Fall 1999.

Guest Lectures in Population Genetics (Drs. Andrew Clark and Hiroshi Akashi, Pennsylvania State University, 2002), Genetic Analysis (Dr. Stephen Schaeffer, Pennsylvania State University, 2000), Evolutionary Immunogenetics (Dr. Austin Hughes, Pennsylvania State University, 1999), Population Genetics (Dr. Andrew Clark, Pennsylvania State University, 1999).

Peer Tutor in Biology, University of California, Davis, 1993-1994; Peer Tutor in English Composition for native and non-native English speakers, UC Davis, 1993-1994.

PROFESSIONAL SERVICE

Editorial and Review Service

Associate Editor, *Genetics* (2012 – present)
Associate Editor, *Frontiers in Evolutionary and Population Genetics* (2011 – 2017)
Editorial Board, *Ecological Parasitology and Immunology* (2011 – 2016)
Editorial Advisory Board, *Developmental and Comparative Immunology* (2008 – 2012)
Special Issue Editor, *Insects*; Special issue on "Insect Immunity" (2011-2012)
Special Issue Editor, *Insect Biochemistry and Molecular Biology*; Special issue on "Insect Immunity and Responses to Infection" (2018-2019)
Guest Associate Editor, *eLife* (2018)
Guest Associate Editor, *PLoS Pathogens* (2015, 2017)
Guest Associate Editor, *Proc. Natl. Acad. Sci. USA* (2016, 2108)
Guest Associate Editor, *PLoS Genetics* (2010, 2014)

Ad hoc peer reviewer for primary journals *American Naturalist* (2012), *Animal Behavior* (2017), *Behavior Genetics* (2015), *Biocontrol* (2006), *Bioinformatics* (2004), *Biology Letters* (2008), *BMC Evolutionary Biology* (4x, 2009 – 2015), *BMC Genomics* (5x, 2007 – 2014), *Current Biology* (5x, 2005 – 2017), *Developmental and Comparative Immunology* (11x, 2006 – 2013), *DNA and Cell Biology* (2009), *Ecology* (2012), *Ecology Letters* (2017), *eLife* (2016, 2018), *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* (12x, 1998 – 2017), *Genome* (2004), *Genome Biology and Evolution* (2013), *Heredity* (2012), *Insect Molecular Biology* (2010, 2013), *Insect Biochemistry and Molecular Biology* (2007, 2104), *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* (3x, 2011 – 2017), *Journal of Heredity* (2002), *Journal of Innate Immunity* (2014), *Journal of Medical and Veterinary Entomology* (2008, 2012), *Journal of Medical Entomology* (2017), *Journal of Molecular Evolution* (3x, 2004), *Molecular Biology and Evolution* (9x, 2003 – 2017), *Molecular Ecology* (6x, 2006 – 2018), *mSystems* (2016), *Nature Communications* (2014, 2018), *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 – 2016), *PLoS One* (5x, 2011-2016), *PLoS Pathogens* (17x, 2007 – 2017), *Proc. Natl. Acad. Sci. USA* (6x, 2006 – 2016), *Proceedings of the Royal Society B Biological Sciences* (5x, 2012 – 2016), *Science* (4x, 2007 – 2013), *Trends in Evolution and Ecology* (2017), *Trends in Genetics* (3x, 2004 – 2009)

National Institutes of Health review panelist (2011, 2012, 2014, 2015, 2016, 2017)
National Science Foundation review panelist (2009)

Ad hoc reviewer for California Department of Food and Agriculture (2006), European Research Council (2011), Leverhume Trust (2009), British Biotechnology and Biological Sciences Research Council (3x, 2011 – 2012), British National Environment Research Council (4x, 2004 – 2012), Carver Trust (2016), Czech Science Foundation (2016), National Institutes of Health ARRA Challenge Grants (2009), National Science Foundation (14x, 2005 – 2018), 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, Imperial College London, New Mexico State University, Texas A&M University, University of Alabama at Birmingham, University of Central Florida, University of Edinburgh, University of Kansas (2012-2018)

Conference and Symposium Organization

Organizer of 14th annual Ecology and Evolution of Infectious Disease Conference. Ithaca, NY, June 3-5, 2016.
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:

Co-Chair, Provost's Task Force on Infection Biology, Cornell University (2016 – 2018)
Director, Cornell Institute of Host-Microbe Interactions and Disease (2016 – present)
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 – 2018)
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 Chair, Professor of Vector Biology and Vector-Borne Disease, College of Agriculture and Life Science (2017-2019)
Faculty Search Committee Member, Assistant Professor of Mathematical Biology of Infectious Disease, Department of Ecology and Evolutionary Biology (2018-2019)
Faculty Search Committee Chair, Assistant Professor of Host-Microbe Interactions, College of Agriculture and Life Science (2016-2017)
Faculty Search Committee Member, Assistant Professor of Evolutionary Biology, Department of Ecology and Evolutionary Biology (2016-2017)
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 (2007-2008)
Faculty Search Committee Member, Sarkaria Endowed Professor of Insect Physiology, Department of Entomology (2006-2007)
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)
Mentor for Asst. Prof. Joeva Barrow, Nutritional Sciences (2018 – present)
Mentor for Asst. Prof. Charles Danko, Biomedical Sciences (2015 – present)

Mentoring Committee Chair for Asst. Prof. Nicolas Buchon, Entomology (2012 – 2018)

Department Service

Executive Committee, Department of Entomology (2016)
Department Space Committee (2014 – 2015, 2016 – present)
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: Sabrina Celis (2017-present), Abby Davis (2017-present), Brandon Everhart (2015-2017), Abigail Heleba (2014-2015), Madeline Ostwald (2012-2013), Erin McCourt (2008-2012), Alexander Heleba (2008), Nicholas Ledesma (2004-2008), Keith Bayless (2003-2007)

Biology: Brianna Le (2018-19), Julie Lewis (2018-19), Benjamin Libov (2018-19), Ashley Loke (2018-19), Jessie Lou (2018-19), Sanweda Mahagabin (2018-19), Hannah Mirando (2018-19), Gregory Schoeman (2018-19), Mathew Burnett (2017-18), Shayla Lugay (2017-18), Jake Lustig (2017-18), Sophie Malki (2017-18), Alan Mezheritsky (2017-18), Jacob Moore (2017-18), Ryan Mulloy (2017-18), Benjamin Nace (2017-18), Melissa Schaefer (2017-18), Emma Birch (2016-17), Ivan Falsztyn (2016-17), Jean Jimenez (2016-17), Caroline Kelly (2016-17), Dylan Lee (2016-17), Mitchell Plesser (2016-17), Grace Welle (2016-17), Lydia Zamidar (2016-17)

Graduate Thesis Committees

In Progress

Maria Teresa Reinoso-Perez (Ph.D., Ecology and Evolutionary Biology; Major Advisor: André Dhondt)
Ian Voorhees (Ph.D., Comparative Biomedical Sciences; Major Advisor: Colin Parrish)
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)
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)

Completed

Simone White (M.S., Genetics, Genomics and Development, 2017; Major Advisors: Mariana Wolfner and Andrew Clark)
Jennifer Apger (Ph.D., Genetics, Genomics and Development, 2016; Major Advisor: Mariana Wolfner)
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)
Ben Hamilton (Ph.D., Ecology and Evolutionary Biology, withdrew 2010; Major Advisor: Rick Harrison)
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)
Frank Rinkevich (M.S., Entomology, 2004; Major Advisor: Jeff Scott)

INVITED RESEARCH PRESENTATIONS

2019

Jacques Monod Conference on "Integrated Insect Immunology: Controlling Infections." Roscoff, France. June 24-28.

2018

Public Health Research Institute, Rutgers University. Newark, NJ. Oct 23.

Department of Biological Sciences, University of Idaho. Moscow, ID. April 20.

Seminar in Immunogenetics, Genetics Training Program, University of Michigan. Ann Arbor, MI. April 4.

Department of Biological Sciences, Indian Institute of Science Education and Research, Mohali. Mohali, India. January 26.

2017

Department of Ecology and Evolutionary Biology, University of Toronto. Toronto, CA. September 29.

Ecological Immunology Workshop. Insect immunity: genomics, microbiome, applications. Blossin, Germany. Aug 28-Sept 1. Plenary speaker.

Department of Biology, University of Nebraska. Lincoln, NE. March 30. Suzanne Ott Prather Lecture.

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. Stockolm, 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.

2005

Department of Biological Sciences, University of Maryland, Baltimore County, November 10.

Department of Plant Pathology, Cornell University, October 26.

Institutes of Evolutionary Biology and Immunology and Infection Research, University of Edinburgh, July 30.

Department of Biological Sciences, University of Buffalo, March 24.

Department of Entomology, Texas A&M University, February 17.

Department of Microbiology and Immunology, College of Veterinary Medicine, Cornell University, February 11.

2004 and prior

Department of Molecular Biology and Genetics, Cornell University, October 8, 2004.

Department of Entomology, New York State Agricultural Experiment Station at Geneva, Cornell University, March 4, 2004.

P.E.G.G. Seminar Series, Harvard University, April 24, 2003.

Department of Entomology, Cornell University, March 27, 2003.

Department of Medical Molecular Parasitology, New York University Medical School, February 11, 2003.

Department of Biology, University of Rochester, February 7, 2003.

Donald Danforth Plant Center, St. Louis, MO, March 27, 2002.

SUBMITTED RESEARCH PRESENTATIONS (*presenting author)

2019

Gupta, V.* and B.P. Lazzaro. Cellular heterogeneity underlying poly-functional *Drosophila* fat body tissue. Poster presentation at the 60th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Dallas, TX. Mar 27-31.

Gordon, K.E.*, M.F. Wolfner and B.P. Lazzaro. Regulation of post-mating immune response in female *Drosophila melanogaster*. Poster presentation at the 60th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Dallas, TX. Mar 27-31.

2018

Im, J.H.* and B.P. Lazzaro. *Drosophila* genes involved in internalizing pathogens are shaped by recent and recurrent positive selection. Poster presentation at the Population, Evolutionary and Quantitative Genetics meeting of the Genetics Society of America. Madison, WI. May 14-17.

2017

Gupta, V.* and **B.P. Lazzaro**. "Role of Juvenile Hormone in mediating trade-off between immunity and reproduction in *Drosophila melanogaster*." Ecological Immunology Workshop. Insect immunity: genomics, microbiome, applications. Blossin, Germany. Aug 28-Sept 1.

J.H. Im* and **B.P. Lazzaro**. "Genes involved in internalizing pathogens in *Drosophila* are shaped by recent and recurrent positive selection." Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. Austin, TX. July 2-6.

J.H. Im, K. Troha, J. Revah, N. Buchon and **B.P. Lazzaro** *. "Comparative transcriptomics of the *D. melanogaster* response to bacterial infection." Poster presentation at the 58th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. Mar 30-Apr 2.

K. Troha*, J.H. Im, J. Revah, **B.P. Lazzaro** and N. Buchon. "The transcription factor CrebA promotes disease tolerance upon bacterial infection." Poster presentation at the 58th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. Mar 30-Apr 2.

D. Duneau, J.-B. Ferdy, J. Revah, H. Kondolf, G. Ortiz, **B.P. Lazzaro** and N. Buchon*. "Dynamic interplay between bacterial growth and the host immune response generates a stochastic outcome of infection." Poster presentation at the 58th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA. Mar 30-Apr 2.

2016

J. Pfannerstill* and **B.P. Lazzaro***. "The AP Curriculum meets vision and change: incorporating active learning in small classrooms and large lecture halls." Oral presentation at the National Association of Biology Teachers annual conference. Denver, CO. Nov 3-5.

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. Sactkton*, **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 *Beauvaria 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 *APL1* 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.

2005

C.P. Yourth* and **B.P. Lazzaro**. "Does circadian expression of immunity genes in *Drosophila* affect their ability to deal with infections at different times of day?" Poster presentation at the 10th Congress of the European Society for Evolutionary Biology. Krakow, Poland, August 15-20.

B.P. Lazzaro*. "Evolution of antimicrobial immunity in *Drosophila*." Poster presentation at the Gordon Conference on Evolutionary and Ecological Functional Genomics. Oxford, United Kingdom, July 31-August 5.

P. Juneja* and **B.P. Lazzaro**. "Polymorphism for virulence in the bacterium *Providencia rettgeri*." Poster presentation at the Eastern Great Lakes Molecular Evolution conference. Toronto, Canada, April 30.

2004 and prior

B.P. Lazzaro*, T.B. Sackton, T.A. Schlenke and A.G. Clark. "Evolutionary and Quantitative Genetics of *Drosophila* Innate Immunity." Poster presentation at the annual meeting of the Society for Molecular Biology and Evolution. State College, PA, June 17-20, 2004.

T.B. Sackton*, A.G. Clark and **B.P. Lazzaro**. "Specificity in innate immunity? Association mapping of resistance to diverse bacterial pathogens." Poster presentation at the international workshop "Innate Immunity: Bridging the Gap Between Ecology and Molecules." Plön, Germany, May 6-9, 2004.

T.B. Sackton*, A.G. Clark and **B.P. Lazzaro**. "Specificity in innate immunity? Association mapping of resistance to diverse bacterial pathogens." Poster presentation at the 45th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, D.C., March 24-28, 2004.

B.P. Lazzaro*, B.K. Sceurman, T.B. Sackton and A.G. Clark. "Effects of natural polymorphism on resistance to bacterial pathogenesis in *D. melanogaster*." Poster presentation at the 44th annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Chicago, IL, March 5-9, 2003.

B.P. Lazzaro*, B.K. Sceurman and A.G. Clark. "Naturally occurring variation in *D. melanogaster* immunocompetence." Oral presentation at the 43rd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. San Diego, CA, April 10-14, 2002.

B.P. Lazzaro*, B.K. Sceurman and A.G. Clark. "Naturally occurring variation in *Drosophila melanogaster* immunocompetence." Poster presentation at Keystone Symposium on "Innate Immunity: Evolution and Link to Adaptive Immunity." Taos, NM, February 12-16, 2002.

B.P. Lazzaro* and A.G. Clark. "The implications of long genealogical branches in *D. melanogaster* antibacterial peptide genes." Poster presentation at the 42nd annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Pittsburgh, PA, March 21-25, 2001.

D.L. Cox-Foster*, **B.P. Lazzaro**, and C.Y. Li. "*FAD-Glucose dehydrogenase*: Essential role in encapsulation in *Drosophila*." Poster presentation at the Keystone Symposium on "Genetic Manipulation of Insects." Taos, NM, February 5-11, 2001.

B.P. Lazzaro*. "Molecular population genetics of the *Attacin* antibacterial peptide family in *Drosophila*." Walter Fitch Competition, Oral presentation at the annual meeting of the Society for Molecular Biology and Evolution Meeting. New Haven, CT, June 17-20, 2000.

B.P. Lazzaro*. and A.G. Clark. "Molecular and phenotypic variation in *Drosophila* immunity." Poster presentation at 41st annual *Drosophila* Research Conference sponsored by the Genetics Society of America. Washington, D.C., March 22-26, 2000.

B.P. Lazzaro*. and A.G. Clark. "Variation in the antibacterial response of *Drosophila melanogaster*." Oral presentation at American Genetics Association symposium on "Genomic Diversity and Evolution." State College, PA, June 12-13, 1999.

D.L. Cox-Foster*, J.A. Fenimore, and **B.P. Lazzaro.** "Biochemistry of oxidative free radical production during innate immunity by insect hemocytes." Poster presentation at 5th Annual Meeting of The Oxygen Society. Washington, D.C., November 19-23, 1998.

LAB MEMBERS and ALUMNI

Graduate Students

Kathleen Gordon (Ph.D., Genetics, Genomics and Development, 2017 – present)
Radhika Ravikumar (Ph.D., Entomology, 2017 – present)
Joo Hyun Im (Ph.D., Genetics, Genomics and Development, 2013 – 2018)
Katia Sotelo-Troha (Ph.D., Comparative Biomedical Sciences, 2012 – 2018)
Robin Schwenke (Ph.D., Genetics, Genomics and Development, 2011 – 2016)
Virginia Howick (Ph.D., Entomology, 2010 – 2015)
Jennifer Comstock (Genetics and Development, 2008 – 2010)
Susan Rottschaefer (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 (2017 – 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

Ashley Frank (2017 – present)
Jeremy McIntyre (2017 – present)
Gabriel Fox (2016 – 2017)
Charlotte Renne (2015 – 2016)
Chloe Ota (2009 – 2011)
Mark Jandricic (2009 – 2011)
Susan Rottschaefer (2005 – 2015)
Cheryl Seidel (2004)

Undergraduate and High School Students Involved in Research

Ashlyn Amsden (2018 – present; CHIMID Undergraduate Research Experience)
Olivia Piscano (2018 – present; CHIMID Undergraduate Research Experience)

Amisha Agarwala (2018; intern from Indian Institute of Science Education and Researh, Mohali, India)
Sayyed Hussain (2017 – present; CHIMID Undergraduate Research Experience, McNair Scholar)
Miguel Gomez (2016 – present)
Matthew Ming (2016 – 2017)
Sarah Crowe (2015 – 2018; undergraduate reserch honors)
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 Tolias (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)
Michael Bosmeny (2004)
Laura Goetz (2003 – 2004)