

## CURRICULUM VITAE

University of Idaho

NAME: Shirley Luckhart

DATE: 6 April 2024

RANK OR TITLE: Professor

DEPARTMENT: Entomology, Plant Pathology, and Nematology; Biological Sciences

OFFICE LOCATION AND CAMPUS ZIP: 262 LSS, 83844-3051

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EMAIL: sluckhart@uidaho.edu

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DATE OF FIRST EMPLOYMENT AT UI: May 2017

DATE OF TENURE: 2004

DATE OF PRESENT RANK OR TITLE: 2009

EDUCATION BEYOND HIGH SCHOOL:

Degrees: PhD, Rutgers University, New Brunswick, NJ, 1995, Entomology  
MS, Auburn University, Auburn, AL, 1990, Entomology  
BS, University of Florida, Gainesville, FL, 1986, Natural Resource Conservation

EXPERIENCE:

1995 – 1998 National Research Council Postdoctoral Fellow, Walter Reed Army Institute of Research  
1996 – 1998 Adjunct Assistant Professor, Department of Preventive Medicine and Biometrics, Uniformed Service University of the Health Sciences  
1998 – 2004 Assistant Professor, Department of Biochemistry, Virginia Tech  
2004 – 2004 Associate Professor, Department of Biochemistry, Virginia Tech  
2004 – 2009 Associate Professor, Department of Medical Microbiology and Immunology, School of Medicine, UC Davis  
2009 – 2017 Professor, Department of Medical Microbiology and Immunology, School of Medicine, UC Davis  
2012 – 2017 Professor, Department of Entomology and Nematology, UC Davis  
2012 – 2017 Chair, Designated Emphasis in the Biology of Vector-borne Diseases, UC Davis  
2014 – 2015 Interim Co-Director, Center for Vector-borne Diseases, UC Davis  
2017 – Emeritus Professor, UC Davis  
2017 – Professor, Department of Entomology, Plant Pathology and Nematology, University of Idaho  
2017 – Professor, Department of Biological Sciences, University of Idaho  
2017 – Founding Co-Director, Center for Health in the Human Ecosystem, University of Idaho  
2021 – Founding Co-Director, Institute for Health in the Human Ecosystem, University of Idaho

TEACHING ACCOMPLISHMENTS:

Specialization: Physiology, Entomology, Molecular Cell Biology, Biochemistry, Immunology, Parasitology

Courses Taught:

Molecular Biology of Eukaryotic Gene Expression, BCHM 5204, fall semester 1999-2004, Virginia Tech  
Cytokines, IMM 295, spring quarter 2005/2006, UC Davis  
Medical Microbiology, MMI 480C, spring quarter 2005-2016, UC Davis  
Eukaryotic Cell Signaling, CDB 298, spring quarter 2010-2016, UC Davis  
Medical Parasitology, MMI 215, spring quarter 2011/2012/2014, UC Davis  
Medical Entomology, ENT 153, winter quarter 2015/2016/2017, UC Davis  
Insect Physiology, ENT 504, spring semester 2018, University of Idaho  
Veterinary and Medical Entomology, ENT 411/511, spring semester 2019, 2021, 2023, University of Idaho  
Medical Parasitology, ENT 476/576, spring semester 2020, 2022, University of Idaho

## Students Advised:

Undergraduate Students: [NOTE: this list does not include students from UC Davis and Virginia Tech]

CJ Nunley, Jan 2024 – present, University of Idaho  
Constanze Paoli, Jan 2024 – present, University of Idaho  
Kayla Savoie-Penton, Sept 2023 – present, University of Idaho  
Ryan Wild, Jan 2023 – present, University of Idaho  
Evan Martinez, Sept 2022 – present, University of Idaho  
Emily Hernandez, Sept 2022 – present, University of Idaho  
Amy Hernandez, Sept 2022 – present, University of Idaho  
Hannah Kaylor, Jan 2021 – present, University of Idaho  
Abby Fellows, Jan 2020 – present, University of Idaho  
Tanya Estrada-Garza, Jan 2023 – May 2023, University of Idaho  
Alexandria Adams, Jan 2020 – Sept 2023, University of Idaho  
George Simitjis, Jan 2021 – June 2022, University of Idaho  
Cheyenne Rumsey, Jan 2020 – June 2022, University of Idaho  
Malayna Hambley, Sept 2019 – June 2022, University of Idaho  
Gretchen Hansten, Sept 2019 – May 2020, University of Idaho  
Delaney Wagers, Sept 2019 – May 2020, University of Idaho  
Solon Brenner, Sept 2019 – May 2020, University of Idaho  
Alex Dominguez, Sept 2019 – May 2020, University of Idaho  
Alex McKeeken, Jan 2019 – Dec 2019, University of Idaho  
Reagan Haney, Aug 2017 – June 2019, University of Idaho  
Taylor Azizeh, Nov 2018 – June 2019, University of Idaho  
Jessica Strickland, Jan 2018 – Dec 2018, University of Idaho

Graduate Students:

Advised to completion of degree – major professor:

Tina Peterson, PhD, Biochemistry, Virginia Tech, 2004  
Jungwha Lim, PhD, Biochemistry, Virginia Tech, 2004  
Win Surachetpong, PhD, Immunology, UC Davis, 2010  
Ashley (Horton) Brenton, PhD, Entomology, UC Davis, 2010  
Jennifer Chau, PhD, Microbiology, UC Davis, 2012  
Anna Drexler, PhD, Entomology, UC Davis, 2013  
Jose Pietri, PhD, Microbiology, UC Davis, 2015  
Elizabeth Glennon, PhD, Entomology, UC Davis, 2016  
Lattha Souvannaseng, PhD, Genetics, UC Davis, 2016  
Matthew J. Lieber, MS, Biochemistry, Virginia Tech, 2005  
Mi-Ae Kang, MS, Immunology, UC Davis, 2005 Current position: unknown  
Alex Marquez, MS, Microbiology, UC Davis, 2010  
Eric Hauck, MS, Entomology, UC Davis, 2014  
Rashaun Potts, MS, Immunology, UC Davis, 2015  
Stephanie Kurniawan, MS, Entomology, UC Davis, 2017  
Heather Baker, MS, Entomology, UC Davis, 2017  
Dean Taylor, MS, Entomology, University of Idaho, 2019  
Erinn Donnelly, PhD, Microbiology, Molecular Biology and Biochemistry, University of Idaho, 2018-2022  
Anna Rodriguez, PhD, Entomology, University of Idaho, 2018-2022  
Taylor Coles, MS, Entomology, University of Idaho, 2021-2023  
Ronald Bentil, PhD, Entomology, University of Idaho, 2023-present  
Megan Dobson, MS, Biology, University of Idaho, 2023-present

Served on graduate committee: [NOTE: degree dates not required by Virginia Tech or UC Davis]

Monique Coy, MS, Entomology, Virginia Tech  
Melody Schmid, PhD, Entomology, UC Davis  
Betty Huang, PhD, Comparative Pathology, UC Davis  
Lisa Chanbusarakum, PhD, Entomology, UC Davis  
Brian Butler, PhD, Comparative Pathology, UC Davis  
Lacey Baldiviez, PhD, Nutrition, UC Davis  
Abigail Hayes, PhD, Entomology, Washington State University, 2018-2020

Anwar Saud, PhD, Entomology, University of Idaho, 2022-present

Postdoctoral Fellows:

Andrea Crampton, PhD, Virginia Tech  
Leyla Akman-Anderson, PhD, UC Davis  
Naresh Singh, PhD, UC Davis  
Nazzy Pakpour, PhD, UC Davis  
Bo Wang, PhD, UC Davis  
Cassandra Olds, PhD, University of Idaho  
Raquel Simão Gurge, PhD, University of Idaho  
Nora Céspedes, PhD, University of Idaho  
Kevin Omondi Ochwedo, PhD, University of Idaho  
Yared Debebe Desta, PhD, University of Idaho

Courses Developed:

Molecular Biology of Eukaryotic Gene Expression, BCHM 5204, fall semester 1999-2004, Virginia Tech  
Cytokines, IMM 295, spring quarter 2005/2006, UC Davis  
Eukaryotic Cell Signaling, CDB 298, spring quarter 2010-2016, UC Davis  
Medical Parasitology, MMI 215, spring quarter 2011/2012/2014, UC Davis  
Medical Entomology, ENT 153, winter quarter 2015/2016/2017, UC Davis  
Insect Physiology, ENT 504, spring semester 2018, University of Idaho  
Medical Entomology, ENT 404/504, spring semester odd years, University of Idaho  
Medical Parasitology, ENT 476/576, spring semester even years, University of Idaho

Non-credit Classes:

Coordinator, Biology of Vector-borne Diseases, 6-day course, University of Idaho, 2018-present

Workshops and Symposia:

Organizer, "Biodefense and Emerging Infectious Diseases (BEI)" NIH co-hosted workshop, Washington, DC, 2014  
Organizer, "Parallels, Opportunities, and Shared Challenges Across Plant, Animal, and Human Vector-borne Diseases," College Station, TX, 2016  
Organizer, Symposium: "What Can We Learn About Vector-borne Diseases of Plants, Animals, and Humans From Talking to Each Other?", Entomological Society of America, Vancouver, BC, 2018  
Co-organizer, "Insulin Signaling as a Master Regulator for Arthropod Adaptation," Entomological Society of America, Denver, CO, 2021  
Co-organizer, "One Health Training for Plant, Animal and Human Vector-borne Diseases to Improve Practice and Policy," Entomological Society of America, National Harbor, MD, 2023  
Organizer, "National Resources Network Workshop for Vector-borne Diseases and Vector Biology," Entomological Society of America, National Harbor, MD, 2023

Seminars, Invited Presentations:

1. 1999 Luckhart, S. "Inducible invertebrate nitric oxide: mosquitoes and humans share a defense against malaria parasites" Gordon Conference on Nitric Oxide Biology and Chemistry, Ventura, CA, February.
2. 1999 Luckhart, S. "*Anopheles stephensi* nitric oxide synthase: impact on *Plasmodium* development and our understanding of NOS gene evolution and regulation" 8th Annual Meeting of the NIAID International Centers for Tropical Disease Research, Washington, DC, April.
3. 1999 Luckhart, S. "*Anopheles* nitric oxide synthase: new perspectives on mosquito immunity and evolution of an ancient gene family" Entomological Society of America Annual Meeting, Atlanta, GA, December.
4. 2002 Luckhart, S. "*Plasmodium*, NO, and TGF- $\beta$ : an interface on mammalian and mosquito immunity" Entomological Society of America Annual Meeting, Ft. Lauderdale, FL, November.
5. 2002 Luckhart, S. "NO- mediated immunological cross-talk between mosquitoes and mammals" 2nd International Conference on Biology, Chemistry, and Therapeutic Applications of Nitric Oxide, Prague, Czech Republic, June.
6. 2002 Luckhart, S. "Nitric oxide and transforming growth factor- $\beta$ 1 homologs: cross-talk between mosquito and mammalian hosts of *Plasmodium*" International Congress of Parasitology, Vancouver, BC, August.

7. 2004 Luckhart, S. "Immunological cross-talk and conservation of anti-parasite resistance between *Anopheles* and mammals" Entomological Society of America Annual Meeting, Salt Lake City, UT, November.
8. 2005 Luckhart, S. "TGF- $\beta$  signaling and anti-malarial immunity are conserved between mosquitoes and mammals" FASEB Summer Conference on TGF- $\beta$  Superfamily: Signaling and Development, Snowmass, CO, June.
9. 2005 Luckhart, S. "Conserved anti-plasmodial defenses and signaling in *Anopheles stephensi* and *Anopheles gambiae*" EMBO Workshop on the Molecular and Population Biology of Mosquitoes and Other Disease Vectors, Crete, Greece, August.
10. 2005 Luckhart, S. "Signal transduction and innate immunity in *Anopheles*" American Society of Tropical Medicine and Hygiene Annual Meeting, Washington DC, December.
11. 2005 Luckhart, S. "Effects of mosquito innate immunity on pathogen transmission" American Society of Tropical Medicine and Hygiene Annual Meeting, Washington DC, December.
12. 2006 Luckhart, S. "Small scale, big problem: mosquito-malaria parasite interactions" Bay Area Malaria Meeting, UCSF, March.
13. 2006 Luckhart, S. "Novel NO chemistry and host defense in a malaria vector mosquito" 4th International Congress on Nitric Oxide Chemistry and Biology, Monterey, CA, June.
14. 2006 Luckhart, S. "Immunological crosstalk between mosquitoes and mammals: impacts on vectorial capacity for malaria transmission" International Society for Developmental and Comparative Immunology, Charleston SC, July.
15. 2006 Luckhart, S. "The interactions among malaria parasites, mosquitoes, and mammalian hosts: high-tech, high-throughput and the need for validation in the real world" UC Retreat on Host-Microbe Interactions, Lake Tahoe, CA, October.
16. 2006 Luckhart, S. "Mechanisms underlying susceptibility and refractoriness of *Anopheles gambiae* to *Plasmodium falciparum*" Annual Meeting for the American Society of Tropical Medicine and Hygiene, Atlanta, GA, November.
17. 2007 Luckhart, S. "The Roads to NOwhere: the regulation of NO-mediated malaria parasite killing" Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, November.
18. 2008 Luckhart, S. "Insect Immunity overview"; Emerging Barriers to the Management of Vector-borne Infectious Diseases Workshop of the 2nd Annual Meeting of the US-Japan Parasitic Diseases Joint Panels. Davis, CA, January.
19. 2008 Luckhart, S. "Developing animal models of malaria co-infection". Bay Area Malaria Meeting, UC San Francisco, June.
20. 2008 Luckhart, S. "Immunology 101: what we can learn from the bloodfeeding interface"; Annual Meeting of the Entomological Society of America. Reno, NV, November.
21. 2009 Luckhart, S. "Malaria and HIV: relative rates of asymptomatic falciparum gametocytemia and HIV carriage in the blood donor population in Nyanza Province, Kenya". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
22. 2009 Luckhart, S. "A highly sensitive real-time reverse transcription-PCR assay for detection of *Plasmodium falciparum* gametocytes using a single amplification step". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
23. 2009 Luckhart, S. "Effects of human IGF1 on insulin signaling in the malaria vector *Anopheles stephensi*". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
24. 2009 Luckhart, S. and Correa, M. "Microgeographic genetic diversity of the malaria vectors *Anopheles darlingi* from Cordoba and Antioquia, Colombia". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
25. 2009 Luckhart, S. "MEK/ERK signaling and reactive oxygen species regulate the mosquito anti-malarial immune response". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
26. 2009 Luckhart, S. "Human insulin ingested by *Anopheles stephensi* signals the midgut to increase oxidative damage and reduce lifespan". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Washington DC, November.
27. 2010 Luckhart, S. "Three single nucleotide polymorphisms in *Anopheles gambiae* immune signaling genes are associated with natural *Plasmodium falciparum* infection" Keystone Symposium "Malaria: new approaches to understanding host-parasite interactions," Copper Mountain, CO, April.

28. 2010 Luckhart, S. and Correa, M. "Vector biology of anopheline mosquitoes in La Capilla-El Bagre, Antioquia, Colombia". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Atlanta GA, November.
29. 2010 Luckhart, S. "Identifying the *Anopheles gambiae* protein kinase C gene family and exploring its role in mosquito innate immunity". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Atlanta GA, November.
30. 2010 Luckhart, S. "Malaria and non-typhoidal Salmonella: understanding the underlying mechanisms of human co-infection using an animal model". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Atlanta GA, November.
31. 2010 Luckhart, S. and Correa, M. "Microgeographic genetic diversity of *Anopheles nuneztovari* SL from Cordoba and Antioquia, Colombia". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Atlanta GA, November.
32. 2010 Luckhart, S. and Abel, K. "A nonhuman primate co-infection model of simian immunodeficiency virus (SIV) and *Plasmodium fragile*". Annual Meeting of the American Society of Primatologists, August.
33. 2011 Luckhart, S. "The effects of ingested human insulin on NF-kB activation and the mosquito immune response to malaria infection". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, December.
34. 2011 Luckhart, S. and Correa, M. "Malaria entomological inoculation rates in three localities of Antioquia and Cordoba departments in Colombia". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, December.
35. 2011 Luckhart, S. and Correa, M. "Genetic diversity of *Anopheles triannulatus* s.l. from localities of northwestern and southeastern Colombia and detection of natural infection by *Plasmodium* spp.". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, December.
36. 2011 Luckhart, S. "Effects of human IGF1 on lifespan, immune signaling and parasite survival in the malaria vector *Anopheles stephensi*". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, December.
37. 2011 Luckhart, S. and Correa, M. "Diversity and composition of anthropophilic species of *Anopheles* (Diptera: Culicidae) in two malaria endemic areas of Colombia". Annual Meeting for the American Society of Tropical Medicine and Hygiene, Philadelphia, PA, December.
38. 2012 Luckhart, S. IGF extends lifespan and enhances immunity in *Anopheles stephensi* by regulating midgut epithelial homeostasis. Annual meeting of the American Society for Tropical Medicine and Hygiene, Atlanta, November.
39. 2012 Luckhart, S. Inducible insulin-like peptide synthesis in *Anopheles stephensi*: A mechanism for *Plasmodium*-mediated immunosuppression. Annual Meeting of the American Society for Tropical Medicine and Hygiene, Atlanta, November.
40. 2012 Luckhart, S. p38 MAPK signaling in *Anopheles stephensi*: a mechanism for tolerance or resistance during parasite infection? Annual meeting of the American Society for Tropical Medicine and Hygiene, Atlanta, November.
41. 2012 Luckhart, S, Conn, JE, Correa, M. Population structure of the malaria vector *Anopheles darlingi* Root in Colombia. Annual meeting of the American Society for Tropical Medicine and Hygiene, Atlanta, November.
42. 2012 Luckhart S. The role of the protein kinase C superfamily in the innate immune response of Anopheline mosquitoes. Annual meeting of the American Society for Tropical Medicine and Hygiene, Atlanta, November.
43. 2013 Luckhart S, Conn JE, Correa MM. The relationship of land covers with anthropophilic *Anopheles* species diversity and composition in two malaria endemic regions of Colombia. Annual meeting of the American Society for Tropical Medicine and Hygiene, Washington, D.C., November.
44. 2014 Luckhart, S, Stewart VA. Characterization of *Plasmodium ovale curtisi* and *P. ovale wallikeri* in Western Kenya utilizing a novel species-specific real-time PCR Assay. Annual meeting of the American Society for Tropical Medicine and Hygiene, New Orleans, November.
45. 2014 Luckhart, S. Identification and characterization of *Anopheles* mosquito MAPK phosphatases. Annual meeting of the American Society for Tropical Medicine and Hygiene, New Orleans, November.
46. 2014 Luckhart, S. Malaria-associated L-Arginine deficiency regulates epithelial barrier defenses in both the mammalian and mosquito hosts, seminar, Kansas State University, October.
47. 2014 Luckhart, S. How signaling through two proteins became a whole new world of biology,

- Bay Area Malaria Meeting, Emeryville, CA.
48. 2015 Luckhart, S. Invited Plenary: Six degrees of separation: shared biology to empower novel translational approaches to vector-borne disease control, Keystone Meeting, Taos, NM, May.
  49. 2016 Luckhart, S. Global malaria elimination and eradication – a perspective on the science and challenges behind these efforts, Program in International and Community Nutrition seminar series, Davis, CA, April.
  50. 2017 Luckhart, S. An ancient stress hormone in malaria: cross-kingdom signaling in mosquitoes and mammals, seminar, Kansas State University, September.
  51. 2017 Luckhart, S. An ancient stress hormone in malaria: cross-kingdom signaling in mosquitoes and mammals, seminar, Washington State University, November.
  52. 2018 Luckhart, S. and Lewis, E.E. Parasites and hosts, investigators and disciplines: cross-talk and shared wisdom inform behavior, Maramorosch distinguished lecturers, Rutgers University, March.
  53. 2018 Luckhart, S. Ingested blood factors drive mosquito physiology – why your transmission data make sense when you think about this, invited presentation, NIH Workshop “Caveats of the Mouse Model,” Washington, DC, September.
  54. 2018 Luckhart, S. Founders’ Memorial Award Lecture in honor of Major Walter Reed, Joint Annual Meeting of the Entomological Society of America, Entomological Society of Canada, and the Entomological Society of British Columbia, Vancouver, BC, November.
  55. 2018 Luckhart, S. Cross-kingdom biology in malaria – shared cell signaling and responses of mosquitoes and humans to parasite infection, symposium organizer and presenter, Joint Annual Meeting of the Entomological Society of America, Entomological Society of Canada, and the Entomological Society of British Columbia, Vancouver, BC, November.
  56. 2018 Luckhart, S. Addressing issues of harassment in pursuing career goals, invited presentation, Joint Annual Meeting of the Entomological Society of America, Entomological Society of Canada, and the Entomological Society of British Columbia, Vancouver, BC, November.
  57. 2019 Luckhart, S. Cross-kingdom biology in malaria: JNK signaling reveals novel mechanisms of parasite manipulation in the mosquito host. Paul Allen School of Global Animal Health, Washington State University, Pullman, WA, April.
  58. 2019 Luckhart, S. Abscisic acid and cross-system stress signaling among mosquito, host and parasite. Annual Meeting of the Entomological Society of America, St. Louis, MO, November.
  59. 2020 Luckhart, S. In flux and under threat – how can our value of diversity in science help preserve global democracy? University of Idaho, Moscow, ID, September.
  60. 2020 Luckhart, S. “Host factors in the bloodmeal as regulators of vector-parasite interactions and transmission in malaria.” Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC, November.
  61. 2021 Luckhart, S. “Evolutionary fingerprints of transmission in malaria.” Rutgers New Jersey School of Medicine, April.
  62. 2021 Luckhart, S. “Evolutionary fingerprints of transmission in malaria” and “An ancient plant and animal hormone functions as a transmission blocking therapeutic against diverse *Plasmodium* spp.” Woods Hole Biology of Parasitism course, July.
  63. 2021 Luckhart, S. “Insulin signaling as a master regulator for arthropod adaptation,” Annual meeting of the Entomological Society of America, Denver, CO.
  64. 2023 Luckhart, S. “The arthropod-host feeding interface: ancient adaptation to information and a context for the physiology of transmission,” Department of Entomology, Cornell University, Ithaca, NY.
  65. 2023 Luckhart, S. “Intersectoral, transdisciplinary training for sustainable solutions to vector-borne diseases in complex ecosystems,” Annual meeting of the Entomological Society of America, National Harbor, MD.
  66. 2024 Luckhart, S. “The arthropod-host feeding interface: ancient adaptation to information and a context for the physiology of transmission,” Department of Entomology, Washington State University, Pullman, WA.
  67. 2024 Luckhart, S. invited speaker for the session “Elucidating vector-pathogen interactions with an aim to engineer anti-pathogen effectors,” for the 2024 Genetic Biocontrol Gordon Research Conference, Castelldefels, B Spain.

Honors and Awards in Teaching and Mentoring:

- 2004 Justin Morrill Award for Contributions to Graduate Education in Entomology, Virginia Tech

- 2012 Outstanding Mentor Award, The Consortium for Women and Research, UC Davis
- 2016 UC Davis Award for Excellence in Service to Graduate Students, UC Davis Graduate Student Association
- 2019 University of Idaho, Alumni Award for Excellence in Mentoring
- 2021 University of Idaho, Alumni Award for Inspirational Mentor

SCHOLARSHIP ACCOMPLISHMENTS: (Including scholarship of teaching and learning, artistic creativity, discovery, and application/integration)

Publications, Exhibitions, Performances, Recitals:

Refereed Journal:

1. 1989 Beerntsen, B.T., Luckhart, S. and Christensen, B.M. *Brugia malayi* and *Brugia pahangi*: inherent difference in immune activation in the mosquitoes *Armigeres subalbatus* and *Aedes aegypti*. *Journal of Parasitology*, 75: 76-81.
2. 1991 Luckhart, S., Mullen, G.R. and Wright, J.C. Etiologic agent of Lyme disease, *Borrelia burgdorferi*, detected in ticks (Acari: Ixodidae) collected at a focus in Alabama. *Journal of Medical Entomology*, 28: 652-657.
3. 1991 Durden, L.A., Luckhart, S., Mullen, G.R. and Smith, S. Tick infestations of white-tailed deer in Alabama. *Journal of Wildlife Diseases*, 27: 606-614.
4. 1992 Luckhart, S., Cupp, M.S. and Cupp, E.W. Morphological and functional classification of the hemocytes of adult female *Simulium vittatum* (Diptera: Simuliidae). *Journal of Medical Entomology*, 29: 457-466.
5. 1992 Luckhart, S., Mullen, G.R., Durden, L.A. and Wright, J.C. *Borrelia* sp. in ticks recovered from white-tailed deer in Alabama. *Journal of Wildlife Diseases*, 28: 449-452.
6. 1992 Olson, C.A., Cupp, E.W., Luckhart, S., Ribeiro, J.M.C. and Levy, C. Occurrence of *Ixodes pacificus* (Parasitiformes: Ixodidae) in Arizona. *Journal of Medical Entomology*, 29: 1060-1062.
7. 1994 Webb, B.A. and Luckhart, S. Evidence for an early immunosuppressive role for related *Campoletis sonorensis* venom and ovarian proteins in *Heliothis virescens*. *Archives of Insect Biochemistry and Physiology*, 26: 147-163.
8. 1996 Webb, B.A. and Luckhart, S. Factors mediating short-term and long-term immunosuppression in a parasitized insect. *Journal of Insect Physiology*, 42: 33-40.
9. 1996 Luckhart, S. and Webb, B.A. Interaction of a wasp ovarian protein and polydnavirus in host immune suppression. *Developmental and Comparative Immunology*, 20: 1-21.
10. 1998 Luckhart, S., Vodovotz, Y., Cui, L., and Rosenberg, R. The mosquito *Anopheles stephensi* limits malaria parasite development with inducible synthesis of nitric oxide. *Proceedings of the National Academy of Sciences USA*, 95: 5700-5705.
11. 1999 Luckhart, S. and Rosenberg, R. Gene structure and polymorphism of an invertebrate nitric oxide synthase gene. *Gene*, 232: 25-34.
12. 2000 Cui, L., Luckhart, S., and Rosenberg, R. Molecular characterization of a prophenoloxidase cDNA from the malaria mosquito *Anopheles stephensi*. *Insect Biochemistry and Molecular Biology*, 9: 127-137.
13. 2001 Luckhart, S. and Li, K. Transcriptional complexity of the *Anopheles stephensi* nitric oxide synthase gene. *Insect Biochemistry and Molecular Biology*, 31: 249-256.
14. 2001 Crampton, A.L. and Luckhart, S. Isolation and characterization of As60A, a transforming growth factor- $\beta$  gene, from the malaria vector *Anopheles stephensi*. *Cytokine*, 13: 65-74.
15. 2001 Crampton, A.L. and Luckhart, S. The role of As60A, a TGF- homolog, in *Anopheles stephensi* innate immunity and defense against *Plasmodium* infection. *Infection, Genetics, and Evolution*, 1: 131-141.
16. 2003 Luckhart, S., Li, K., Dunton, R., Lewis, E.E., Crampton, A.L., Ryan, J.R. and Rosenberg, R. *Anopheles gambiae* immune gene variants associated with natural *Plasmodium* infection. *Molecular and Biochemical Parasitology*, 128: 83-86.
17. 2003 Luckhart, S., Crampton, A.L., Zamora, R. Lieber, M.J., Dos Santos, P.C., Peterson T.M.L., Lim, J., Emmith, N.A., Wink, D.A. and Vodovotz, Y. TGF $\beta$ -1, activated after ingestion by *Anopheles stephensi*, modulates mosquito immunity. *Infection and Immunity* 71: 3000-3009.
18. 2004 McClanan, M.E., Luckhart, S., and Pfeiffer, D.G. *Wolbachia* strains associated with univoltine and multivoltine plum curculios. *Journal of Entomological Science*, 39: 132-135.

19. 2004 McClanan, M.E., Luckhart, S., and Pfeiffer, D.G. Use of random amplified polymorphic DNA-polymerase chain reaction (RAPD-PCR) to differentiate populations of plum curculio. *Journal of Entomological Science*, 39: 117-121.
20. 2004 Lieber, M.J. and Luckhart, S. Transforming growth factor- $\beta$ s and related gene products in mosquito vectors of human malaria parasites: signaling architecture for immunological crosstalk. *Molecular Immunology*, 41: 965-77.21.
21. 2004 Vodovotz, Y., Zamora, R., Lieber, M.J. and Luckhart, S. Cross-talk between nitric oxide and transforming growth factor- $\beta$ 1 in malaria. *Current Molecular Medicine*, 4:787-97.
22. 2005 Lim, J., Gowda, D.C., Krishnegowda, G., and Luckhart, S. Induction of nitric oxide synthase in *Anopheles stephensi* by *Plasmodium falciparum*: mechanism of signaling and the role of parasite glycosylphosphatidylinositols. *Infection and Immunity*, 73:2778-2789.
23. 2005 Trujillo, A., Agudelo, O., Molina, P., Moreno, M., Zapata, M. Luckhart, S. and Correa, M. PCR-RFLP analyses of the internal transcribed spacer ITS1 and characterization of the morphological variations in isofamilies of *Anopheles nuneztovari*. *Laboratorio Actual Asociacion de Bacteriologos Javerianos* (ISSN: 1794-6220), October, 38: 6.
24. 2005 Zapata, M., Hernandez, M., Quinones, M., Luckhart, S. and Correa, M. Molecular detection of *Plasmodium falciparum* and *Plasmodium berghei* in *Anopheles stephensi* using nested PCR and ELISA. *Laboratorio Actual Asociacion de Bacteriologos Javerianos* (ISSN: 1794-6220), October, 38: 6.
25. 2006 Peterson, T.M.L. and Luckhart, S. A mosquito 2-Cys peroxiredoxin protects against nitrosative and oxidative stresses associate with malaria parasite infection. *Free Radical Biology Medicine*, 40: 1067-1082.
26. 2006 Ryan, J.R., J.A. Stoute, J. Amon, R.F. Dunton, R. Mtalib, J. Koros, B. Owour, S. Luckhart, R.A. Wirtz, J.W. Barnwell, and R. Rosenberg. Evidence for transmission of *Plasmodium vivax* among a Duffy antigen negative population in western. Kenya. *American Journal of Tropical Medicine and Hygiene* 75: 575-581.
27. 2007 Peterson, T.M.L., A.J. Gow, and S. Luckhart. Nitric oxide metabolites induced in *Anopheles stephensi* control malaria parasite infection. *Free Radical Biology and Medicine*, 42: 132-142.
28. 2007 Zapata, M., A.V. Cienfuegos, O. Quiros, M.L. Quinones, S. Luckhart and Correa-Ochoa, M. Discrimination of seven *Anopheles* species from San Pedro de Uraba-Antioquia, Colombia, by PCR-RFLP analysis of its sequences. *American Journal of Tropical Medicine and Hygiene*, 77: 67-72.
29. 2007 Akman-Anderson, L., M. Olivier, and S. Luckhart. Induction of nitric oxide synthase and activation of signaling proteins in *Anopheles* mosquitoes by the malaria pigment, hemozoin. *Infection and Immunity*, 75: 4012-4019.
30. 2007 Luckhart, S., K. Kato, and C. Giulivi. Impact of nitrate/nitrosative stress in mitochondria: unraveling targets for malaria chemotherapy. *Advances in Experimental Biology*, 1: 129-149.
31. 2007 Luckhart, S., M.J. Lieber, N. Singh, R. Zamora, and Y. Vodovotz. Low levels of mammalian TGF- $\beta$ 1 are protective against malaria parasite infection, a paradox clarified in the mosquito host. *Experimental Parasitology* 118: 290-6.
32. 2007 Son, Y., Luckhart, S., Lieber, M.J. and Lewis, E.E. Effects and Implications of antibiotic treatment on *Wolbachia*-infected black vine weevil (Coleoptera: Curculionidae). *Agricultural and Forest Entomology*, 10: 147-155.
33. 2007 Kang, M-A., T.M. Mott, E.C. Tapley, E.E. Lewis, and S. Luckhart. Insulin regulates aging and oxidative stress in *Anopheles stephensi*. *Journal of Experimental Biology*, 211: 741-748.
34. 2007 Luckhart, S. and M.A. Riehle. The insulin signaling cascade from nematodes to mammals: insights into innate immunity of *Anopheles* mosquitoes to malaria parasite infection. *Developmental and Comparative Immunology*, 31: 647-56.
35. 2007 Kato, K, Luckhart, S, and C. Giulivi. Impact of nitrate/nitrosative stress in mitochondria: unraveling targets for malaria chemotherapy. *Advances in Experimental Biology*, 1: 129-149.
36. 2008 Cienfuegos, A.V., G.F. Gómez, L.A. Córdoba, S. Luckhart, J.E. Conn, and M. Correa. Design and evaluation of methodologies based on PCR-RFLP of ITS2 for the molecular identification of mosquitoes *Anopheles* spp. (Diptera: Culicidae) of the Pacific Coast of Colombia. *Revista Biomedica*, 19: 35-44.
37. 2008 Gutiérrez, L.A., N. Naranjo, L.M. Jaramillo, C. Muskus, S. Luckhart, J.E. Conn and M.M. Correa, M.M. Natural infectivity of *Anopheles* species from the Pacific and Atlantic

- regions of Colombia. *Acta Tropica*, 107:99-105.
38. 2008 Drexler, A.L., Y. Vodovotz, and S. Luckhart. *Plasmodium* development in the mosquito: biology bottlenecks and opportunities for mathematical modeling. *Trends in Parasitology*, 24: 333-336.
  39. 2008 Giulivi, C., C. Inta, A.A. Horton, and S. Luckhart. Metabolic pathways in *Anopheles stephensi* mitochondria. *Biochemical Journal*, 415: 309-316.
  40. 2008 Zhang, X., Z. Tu, S. Luckhart and D.G. Pfeiffer. Genetic diversity of plum curculio (Coleoptera: Curculionidae) among geographical populations in the eastern United States. *Annals of the Entomological Society of America*, 101: 824-832.
  41. 2009 Surachetpong, W., N. Singh, N., K.W. Cheung, and S. Luckhart. MAPK ERK signaling regulates the TGF- $\beta$ 1-dependent mosquito response to *Plasmodium falciparum*. *PLoS Pathogens*, 5: e1000366.
  42. 2009 Gutiérrez, LA, Naranjo, NJ, Cienfuegos, AV, Muskus, CE, Luckhart, S, Conn, JE, Correa, MM. Population structure analyses and demographic history of the malaria vector *Anopheles albimanus* from the Caribbean and the Pacific regions of Colombia. *Malaria Journal*, 8: 259.
  43. 2009 Gutiérrez, LA, González, JJ, Gómez, GF, Castro, MI, Rosero, DA, Luckhart, S, Conn, JE, Correa, MM. Species composition and natural infectivity of anthropophilic *Anopheles* (Diptera: Culicidae) in the states of Córdoba and Antioquia, Northwestern Colombia. *Memórias do Instituto Oswaldo Cruz*, 104(8): 1117-24.
  44. 2010 Roux, CM, Butler, BP, Chau, JY, Paixao, TA, Cheung, KW, Santos, RL, Luckhart, S, Tsolis, RM. Both hemolytic anemia and malaria parasite-specific factors increase susceptibility to Nontyphoidal *Salmonella enterica* serovar Typhimurium infection in mice. *Infection and Immunity*, 78(4): 1520-7.
  45. 2010 Luckhart, S, Lindsay, SW, James, AA, Scott, TW. Reframing critical needs in vector biology and management of vector-borne disease. *PLoS Neglected Tropical Diseases*, 4(2): e566.
  46. 2010 Horton, AA, Lee, Y, Coulibaly, CA, Rashbrook, VK, Cornel, AJ, Lanzaro, GC, Luckhart, S. Identification of three single nucleotide polymorphisms in *Anopheles gambiae* immune signaling genes that are associated with natural *Plasmodium falciparum* infection. *Malaria Journal*, 9:160.
  47. 2010 Gutiérrez, LA, Gómez, GF, González, JJ, Castro, MI, Luckhart, S, Conn, JE, Correa, MM. Microgeographic genetic variation of the malaria vector *Anopheles darlingi* Root (Diptera: Culicidae) from Cordoba and Antioquia, Colombia. *The American Journal of Tropical Medicine and Hygiene*, 83(1): 38-47.
  48. 2010 Corby-Harris, V, Drexler, A, Watkins de Jong, L, Antonova, Y, Pakpour, N, Ziegler, R, Ramberg, F, Lewis, EE, Brown, JM, Luckhart, S, Riehle, MA. Activation of Akt signaling reduces the prevalence and intensity of malaria parasite infection and lifespan in *Anopheles stephensi* mosquitoes. *PLoS Pathogens*, 6(7): e1001003.
  49. 2010 Pakpour, N, Cheung, KW, Souvannaseng, L, Concordet, JP, Luckhart, S. Transfection and mutagenesis of target genes in mosquito cells by locked nucleic acid-modified oligonucleotides. *Journal of Visualized Experiments*, (46) 2355.
  50. 2010 Gutiérrez, LA, Orrego, LM, Gómez, GF, López, A, Luckhart, S, Conn, JE, Correa, MM. A new mtDNA COI gene lineage closely related to *Anopheles janconnae* of the Albitarsis complex in the Caribbean region of Colombia. *Memórias do Instituto Oswaldo Cruz*, 105(8): 1019-25.
  51. 2010 Vodovotz, Y, Constantine, G, Faeder, J, Mi, Q, Rubin, J, Bartels, J, Sarkar, J, Squires, RH, Okonkwo, DO, Gerlach, J, Zamora, R, Luckhart, S, Ermentrout, B, An, G. Translational systems approaches to the biology of inflammation and healing. *Immunopharmacology and Immunotoxicology*, 32(2): 181-95.
  52. 2010 Zhang, X, Luckhart, S, Tu, Z, Pfeiffer, DG. Analysis of *Wolbachia* strains associated with *Conotrachelus nenuphar* (Coleoptera: Curculionidae) in the Eastern United States. *Environmental Entomology*, 39(2): 396-405.
  53. 2011 Surachetpong, W, Pakpour, N, Cheung, KW, Luckhart, S. Reactive oxygen species dependent cell signaling regulates the mosquito immune response to *Plasmodium falciparum*. *Antioxidants and Redox Signaling*, 14(6): 943-55.
  54. 2011 Marquez, AG, Pietri, JE, Smithers, HM, Nuss, A, Antonova, Y, Drexler, AL, Riehle, MA, Brown, MR, Luckhart, S. Insulin-like peptides in the mosquito *Anopheles stephensi*: identification and expression in response to diet and infection with *Plasmodium falciparum*. *General and Comparative Endocrinology*, 173(2): 303-12.

55. 2011 Trott, KA, Chau, JY, Hudgens, MG, Fine, J, Mfalila, CK, Tarara, RP, Collins, WE, Sullivan, J, Luckhart, S, Abel, K. Evidence for an increased risk of transmission of simian immunodeficiency virus and malaria in a rhesus macaque coinfection model. *Journal of Virology*, 85(22): 11655-63.
56. 2011 Pon, J, Napoli, E, Luckhart, S, Giulivi, C. Mitochondrial NAD<sup>+</sup>-dependent malic enzyme from *Anopheles stephensi*: a possible novel target for malaria mosquito control. *Malaria Journal*, 10(1): 318.
57. 2011 Cienfuegos, AV, Rosero, DA, Naranjo, N, Luckhart, S, Conn, JE, Correa, MM. Evaluation of a PCR-RFLP-ITS2 assay for discrimination of *Anopheles* species in northern and western Colombia. *Acta Tropica*, 118(2): 128-35.
58. 2011 Bishara, W, Sikora, U, Mudanyali, O, Su, TW, Yaglidere, O, Luckhart, S, Ozcan, A. Holographic pixel super-resolution in portable lensless on-chip microscopy using a fiber-optic array. *Lab Chip*, 11(7): 1276-9.
59. 2011 Kajla, MK, Shi, L, Li, B, Luckhart, S, Li, J, Paskewitz, SM. A new role for an old antimicrobial: lysozyme c-1 can function to protect malaria parasites in *Anopheles* mosquitoes. *PLoS One*, 6(5): e19649.
60. 2011 Horton A, Wang B, Camp L, Price MS, Arshi A, Nagy M, Nadler SA, Faeder JR, Luckhart S. The mitogen-activated protein kinome from *Anopheles gambiae*: identification, phylogeny and functional characterization of the ERK, JNK and p38 MAP kinases. *BMC Genomics* 12: 574.
61. 2011 Jaramillo, LM, Gutiérrez, LA, Luckhart, S, Conn, JE, Correa, MM. Molecular evidence for a single taxon, *Anopheles nuneztovari* s.l., from two endemic mal regions in Colombia. *Memórias do Instituto Oswaldo Cruz*, 106(8): 1017-23.
62. 2012 Pakpour, N, Corby-Harris, V, Green, GP, Smithers, HM, Cheung, KW, Riehle, MA, Luckhart, S. Ingested human insulin inhibits the mosquito NF- $\kappa$ B-dependent immune response to *Plasmodium falciparum*. *Infection and Immunity*, 80(6): 2141-9.
63. 2012 Fryxell, RT, Nieman, CC, Fofana, A, Lee, Y, Traoré, SF, Cornel, AJ, Luckhart, S, Lanzaro, GC. Differential *Plasmodium falciparum* infection of *Anopheles gambiae* s.s. molecular and chromosomal forms in Mali. *Malaria Journal*, 11: 133.
64. 2013 Hauck, ES, Antonova-Koch, Y, Drexler, A, Pietri, J, Pakpour, N, Liu, D, Blacutt, J, Riehle, MA, Luckhart, S. Overexpression of phosphatase and tensin homolog improves fitness and decreases *Plasmodium falciparum* development in *Anopheles stephensi*. *Microbes and Infection / Institut Pasteur*, 15(12): 775-87.
65. 2013 Drexler, A, Nuss, A, Hauck, E, Glennon, E, Cheung, K, Brown, M, Luckhart, S. Human IGF1 extends lifespan and enhances resistance to *Plasmodium falciparum* infection in the malaria vector *Anopheles stephensi*. *The Journal of Experimental Biology*, 216(Pt 2): 208-17.
66. 2013 Chau, JY, Tiffany, CM, Nimishakavi, S, Lawrence, JA, Pakpour, N, Mooney, JP, Lokken, KL, Caughey, GH, Tsois, RM, Luckhart, S. Malaria-associated L-arginine deficiency induces mast cell-associated disruption to intestinal barrier defenses against nontyphoidal *Salmonella* bacteremia. *Infection and immunity*, 81(10): 3515-26.
67. 2013 Luckhart, S, Giulivi, C, Drexler, AL, Antonova-Koch, Y, Sakaguchi, D, Napoli, E, Wong, S, Price, MS, Eigenheer, R, Phinney, BS, Pakpour, N, Pietri, JE, Cheung, K, Georgis, M, Riehle, M. Sustained activation of Akt elicits mitochondrial dysfunction to block *Plasmodium falciparum* infection in the mosquito host. *PLoS Pathogens*, 9(2): e1003180.
68. 2013 Pakpour, N, Camp, L, Smithers, HM, Wang, B, Tu, Z, Nadler, SA, Luckhart, S. Protein kinase C-dependent signaling controls the midgut epithelial barrier to malaria parasite infection in anopheline mosquitoes. *PLoS One*, 8(10): e76535.
69. 2013 Naranjo-Diaz, N, Rosero, DA, Rua-Urbe, G, Luckhart, S, Correa, MM. Abundance, behavior and entomological inoculation rates of anthropophilic anophelines from a primary Colombian malaria endemic area. *Parasites and Vectors*, 6: 61.
70. 2013 Price, I, Ermentrout, B, Zamora, R, Wang, B, Azhar, N, Mi, Q, Constantine, G, Faeder, JR, Luckhart, S, Vodovotz, Y. In vivo, in vitro, and in silico studies suggest a conserved immune module that regulates malaria parasite transmission from mammals to mosquitoes. *Journal of Theoretical Biology*, 334: 173-86.
71. 2014 Pietri, JE, Cheung, KW, Luckhart, S. Knockdown of mitogen-activated protein kinase (MAPK) signalling in the midgut of *Anopheles stephensi* mosquitoes using antisense morpholinos. *Insect Molecular Biology*, 23(5): 558-65.
72. 2014 Drexler, AL, Pietri, JE, Pakpour, N, Hauck, E, Wang, B, Glennon, EK, Georgis, M,

- Riehle, MA, Luckhart, S. Human IGF1 regulates midgut oxidative stress and epithelial homeostasis to balance lifespan and *Plasmodium falciparum* resistance in *Anopheles stephensi*. PLoS Pathogens, 10(6): e1004231.
73. 2014 Jiang, X, Peery, A, Hall, A, Sharma, A, Chen, XG, Waterhouse, RM, Komissarov, A, Riehl, MM, Shouche, Y, Sharakhova, MV, Lawson, D, Pakpour, N, Arensburger, P, Davidson, VL, Eiglmeier, K, Emrich, S, George, P, Kennedy, RC, Mane, SP, Maslen, G, Oringanje, C, Qi, Y, Settlage, R, Tojo, M, Tubio, JM, Unger, MF, Wang, B, Vernick, KD, Ribeiro, JM, James, AA, Michel, K, Riehle, MA, Luckhart, S, Sharakhov, IV, Tu, Z. Genome analysis of a major urban malaria vector mosquito, *Anopheles stephensi*. Genome Biology, 15(9): 459.
74. 2014 Mooney, JP, Butler, BP, Lokken, KL, Xavier, MN, Chau, JY, Schaltenberg, N, Dandekar, S, George, MD, Santos, RL, Luckhart, S, Tsolis, RM. The mucosal inflammatory response to non-typhoidal *Salmonella* in the intestine is blunted by IL-10 during concurrent malaria parasite infection. Mucosal Immunology, 7(6): 1302-11.
75. 2014 Lokken, KL, Mooney, JP, Butler, BP, Xavier, MN, Chau, JY, Schaltenberg, N, Begum, RH, Müller, W, Luckhart, S, Tsolis, RM. Malaria parasite infection compromises control of concurrent systemic non-typhoidal *Salmonella* infection via IL-10-mediated alteration of myeloid cell function. PLoS Pathogens, 10(5): e1004049.
76. 2014 Brenton, AA, Souvannaseng, L, Cheung, K, Anishchenko, M, Brault, AC, Luckhart, S. Engineered single nucleotide polymorphisms in the mosquito MEK docking site alter *Plasmodium berghei* development in *Anopheles gambiae*. Parasites and Vectors, 7(1):287.
77. 2014 Murdock, CC, Blanford, S, Luckhart, S, Thomas, MB. Ambient temperature and dietary supplementation interact to shape mosquito vector competence for malaria. Journal of Insect Physiology, 67: 37-44.
78. 2014 Naranjo-Díaz, N, Altamiranda, M, Luckhart, S, Conn, JE, Correa, MM. Malaria vectors in ecologically heterogeneous localities of the Colombian Pacific region. PLoS One, 9(8): e103769.
79. 2014 Pakpour N, Riehle MA, Luckhart S. Effects of ingested vertebrate-derived factors on insect immune responses. Current Opinion in Insect Science 3:1-5.
80. 2014 Pietri JE, Cheung KW, Luckhart S. Knockdown of mitogen-activated protein kinase (MAPK) signalling in the midgut of *Anopheles stephensi* mosquitoes using antisense morpholinos. Insect Molecular Biology, 23: 558-65.
81. 2014 Mooney JP, Butler BP, Lokken KL, Xavier MN, Chau JY, Schaltenberg N, Dandekar S, George MD, Santos RL, Luckhart S, Tsolis RM. The mucosal inflammatory response to non-typhoidal *Salmonella* in the intestine is blunted by IL-10 during concurrent malaria parasite infection. Mucosal Immunology 7: 1302-11.
82. 2015 Miller RH, Obuya CO, Wanja EW, Ogotu B, Waitumbi J, Luckhart S, Stewart VA. Characterization of *Plasmodium ovale curtisi* and *P. ovale wallikeri* in Western Kenya utilizing a novel species-specific real-time PCR assay. PLoS Neglected Tropical Diseases 15; 9: e0003469.
83. 2015 Neafsey DE, Waterhouse RM, Abai MR, Aganezov SS, Alekseyev MA, Allen E, Amon J, Arcà B, Arensburger P, Artemov G, Assour LA, Basseri H, Berlin A, Birren BW, Blandin SA, Brockman AI, Burkot TR, Burt A, Chan CS, Chauve C, Chiu JC, Christensen M, Costantini C, Davidson VL, Deligianni E, Dottorini T, Dritsou V, Gabriel SB, Guelbeogo WM, Hall AB, Han MV, Hlaing T, Hughes DS, Jenkins AM, Jiang X, Jungreis I, Kakani EG, Kamali M, Kempainen P, Kennedy RC, Kirmizoglou IK, Koekemoer LL, Laban N, Langridge N, Lawniczak MK, Lirakis M, Lobo NF, Lowy E, MacCallum RM, Mao C, Maslen G, Mbogo C, McCarthy J, Michel K, Mitchell SN, Moore W, Murphy KA, Naumenko AN, Nolan T, Novoa EM, O'Loughlin S, Oringanje C, Oshaghi MA, Pakpour N, Papathanos PA, Peery AN, Povelones M, Prakash A, Price DP, Rajaraman A, Reimer LJ, Rinker DC, Rokas A, Russell TL, Sagnon N, Sharakhova MV, Shea T, Simão FA, Simard F, Slotman MA, Somboon P, Stegny V, Struchiner CJ, Thomas GW, Tojo M, Topalis P, Tubio JM, Unger MF, Vontas J, Walton C, Wilding CS, Willis JH, Wu YC, Yan G, Zdobnov EM, Zhou X, Catteruccia F, Christophides GK, Collins FH, Cornman RS, Crisanti A, Donnelly MJ, Emrich SJ, Fontaine MC, Gelbart W, Hahn MW, Hansen IA, Howell PI, Kafatos FC, Kellis M, Lawson D, Louis C, Luckhart S, Muskavitch MA, Ribeiro JM, Riehle MA, Sharakhov IV, Tu Z, Zwiebel L, Besansky NJ. Mosquito genomics. Highly evolvable malaria vectors: the genomes of 16 *Anopheles* mosquitoes. Science 347: 1258522.

84. 2015 Cator LJ, Pietri JE, Murdock CC, Ohm JR, Lewis EE, Read AF, Luckhart S, Thomas MB. Immune response and insulin signaling alter mosquito feeding behaviour to enhance malaria transmission potential. *Scientific Reports* 5: 11947.
85. 2015 Wang B, Pakpour N, Napoli E, Drexler A, Glennon EK, Surachetpong W, Cheung K, Aguirre A, Klyver JM, Lewis EE, Eigenheer R, Phinney BS, Giulivi C, Luckhart S. *Anopheles stephensi* p38 MAPK signaling regulates innate immunity and bioenergetics during *Plasmodium falciparum* infection. *Parasites and Vectors* 8:424.
86. 2015 Mooney JP, Lokken KL, Byndloss MX, George MD, Velazquez EM, Faber F, Butler BP, Walker GT, Ali MM, Potts R, Tiffany C, Ahmer BM, Luckhart S, Tsolis RM. Inflammation-associated alterations to the intestinal microbiota reduce colonization resistance against non-typhoidal *Salmonella* during concurrent malaria parasite infection. *Scientific Reports* 5: 14603.
87. 2015 Pietri JE, Pietri EJ, Potts R, Riehle MA, Luckhart S. *Plasmodium falciparum* suppresses the host immune response by inducing the synthesis of insulin-like peptides (ILPs) in the mosquito *Anopheles stephensi*. *Developmental and Comparative Immunology* 53: 134-44.
88. 2016 Potts RA, Tiffany CM, Pakpour N, Lokken KL, Tiffany CR, Cheung K, Tsolis RM, Luckhart S. Mast cells and histamine alter intestinal permeability during malaria parasite infection. *Immunobiology* 221:468-74.
89. 2016 Klionsky DJ...Luckhart S.....Zughaier SM. Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*. 12:1-222.
90. 2016 Glennon EK, Adams LG, Hicks DR, Dehesh K, Luckhart S. Supplementation with abscisic acid reduces malaria disease severity and parasite transmission. *American Journal of Tropical Medicine and Hygiene* 94:1266-75.
91. 2016 Pakpour N, Cheung K, Luckhart S. Enhanced transmission of malaria parasites to mosquitoes in db/db mouse model of type 2 diabetes. *Malaria Journal*, 15(1):231.
92. 2016 Papadopoulos NT, Carey JR, Ioannou CS, Ji H, Mueller H-G, Wang J-L, Luckhart S, Lewis EE. Seasonality of post-capture longevity in a medically-important mosquito (*Culex pipiens*): implications for aging research and epidemiological policies. *Frontiers in Ecology and Evolution*, 4:63.
93. 2016 Pietri JE, Pakpour N, Napoli E, Song G, Pietri EJ, Potts RA, Cheung K, Walker G, Riehle MA, Starcevic H, Giulivi C, Lewis EE, Luckhart S. Two insulin-like peptides differentially regulate malaria parasite infection in the mosquito vector *Anopheles stephensi* through distinct effects on intermediary metabolism. *Biochemical Journal* 473:3487-3503.
94. 2017 Glennon EK, Torrevillas BK, Morrissey SF, Ejercito J, Luckhart S. Abscisic acid induces a transient metabolic shift that enhances NF- $\kappa$ B signaling in the midgut of *Anopheles stephensi* without reducing lifespan or fecundity. *Parasites and Vectors* 10:333.
95. 2018 Olds C, Glennon EK, Luckhart S. Abscisic acid: new perspectives on an ancient universal stress signaling molecule. Invited review, *Microbes and Infection* 20:484-492.
96. 2018 Glennon EK, Megawati D, Torrevillas BK, Ssewanyana I, Huang L, Aweeka F, Greenhouse B, Adams LG, Luckhart S. Elevated plasma abscisic acid is associated with asymptomatic falciparum malaria and with IgG-/caspase-1-dependent immunity in *Plasmodium yoelii*-infected mice. *Scientific Reports* 8:8896.
97. 2018 Souvannaseng L, Hun LV, Baker H, Klyver JM, Wang B, Pakpour N, Bridgewater JM, Napoli E, Giulivi C, Riehle MA, Luckhart S. Inhibition of JNK signaling in the Asian malaria vector *Anopheles stephensi* extends mosquito longevity and improves resistance to *Plasmodium falciparum* infection. *PLoS Pathogens* 14:e1007418.
98. 2019 Hun LV, Luckhart S, Riehle MA. Increased Akt signaling in the fat body of *Anopheles stephensi* extends lifespan and increases lifetime fecundity through modulation of insulin-like peptides. *Journal of Insect Physiology* 118:103932.
99. 2019 Ahlers LRH, Trammell CE, Carrell GF, Mackinnon S, Torrevillas BK, Chow CY, Luckhart S, Goodman AG. Insulin potentiates JAK/STAT signaling to broadly inhibit flavivirus replication in insect vectors. *Cell Reports* 29:1946-1960.
100. 2020 Taylor DM, Olds CL, Haney RS, Torrevillas BK, Luckhart S. Comprehensive and durable modulation of growth, development, lifespan and fecundity in *Anopheles stephensi* following larval treatment with the stress signaling molecule and novel antimalarial abscisic acid. *Frontiers in Microbiology* 10:3024.
101. 2020 Torrevillas BK, Garrison SM, Van Leuven JT, Patel D, Kifude C, Waitumbi J, Stewart VA, Luckhart S. Known *Plasmodium falciparum* DHFR and DHPS mutations are associated with HIV co-infection in the absence of HIV therapy in western Kenya and the novel

- mutation DHPS I504T is identified despite limitations on antifolate use. *Frontiers in Cellular and Infection Microbiology* 10:600112.
- 102.2020 Céspedes N, Donnelly E, Garrison S, Haapanen L, Van De Water J, Luckhart S. Nonlethal *Plasmodium yoelii* Infection Drives Complex Patterns of Th2-Type Host Immunity and Mast Cell-Dependent Bacteremia. *Infection and Immunity* 88(12):e00427-20.
- 103.2020 Taylor DM, Haney RS, Luckhart S. Aquatic Exposure to Abscisic Acid Transstadially Enhances *Anopheles stephensi* Resistance to Malaria Parasite Infection. *Genes (Basel)*. 11(12):1393.
- 104.2021 Lee Y, Souvannaseng L, Collier TC, Main BJ, Norris LC, Fofana A, Traoré SF, Cornel AJ, Luckhart S, Lanzaro GC. Evidence for Divergent Selection on Immune Genes between the African Malaria Vectors, *Anopheles coluzzii* and *A. gambiae*. *Insects* 11(12):893.
- 105.2021 Luckhart S, Riehle MA. Midgut Mitochondrial Function as a Gatekeeper for Malaria Parasite Infection and Development in the Mosquito Host. *Frontiers in Cellular and Infection Microbiology* 10:593159.
- 106.2021 Oringanje C, Delacruz LR, Han Y, Luckhart S, Riehle MA. Overexpression of Activated AMPK in the *Anopheles stephensi* Midgut Impacts Mosquito Metabolism, Reproduction and Plasmodium Resistance. *Genes (Basel)* 12(1):119.
- 107.2021 Stiffler D, Oyieko J, Kifude C, Rockabrand D, Luckhart S, Stewart VA. HIV-1 infection increases the prevalence and abundance of *Plasmodium falciparum* gametocyte transcripts in asymptomatic adults in western Kenya. *Frontiers in Cellular and Infection Microbiology* 10:600106.
- 108.2021 Tao H, Li L, Liao NS, Schluns KS, Luckhart S, Sleasman JW, Zhong XP. Thymic Epithelial Cell-Derived IL-15 and IL-15 Receptor  $\alpha$  Chain Foster Local Environment for Type 1 Innate Like T Cell Development. *Frontier in Immunology* 12:623280.
- 109.2021 Roberds A, Ferraro E, Luckhart S, Stewart VA. HIV-1 Impact on Malaria Transmission: A Complex and Relevant Global Health Concern. *Frontiers in Cellular and Infection Microbiology* 11:656938.
- 110.2021 Andrews KR, Hunter SS, Torrevillas BK, Céspedes N, Garrison SM, Strickland J, Wagers D, Hansten G, New DD, Fagnan MW, Luckhart S. A new mouse SNP genotyping assay for speed congenics: combining flexibility, affordability, and power. *BMC Genomics* 22(1):378.
- 111.2021 Rodriguez AM, Hambly MG, Jandu S, Simão-Gurge R, Lowder C, Lewis EE, Riffell JA, Luckhart S. Histamine Ingestion by *Anopheles stephensi* Alters Important Vector Transmission Behaviors and Infection Success with Diverse *Plasmodium* Species. *Biomolecules* 11(5):719.
- 112.2021 Simão-Gurge RM, Thakre N, Strickland J, Isoe J, Delacruz LR, Torrevillas BK, Rodriguez AM, Riehle MA, Luckhart S. Activation of *Anopheles stephensi* Pantothenate Kinase and Coenzyme A Biosynthesis Reduces Infection with Diverse *Plasmodium* Species in the Mosquito Host. *Biomolecules* 11(6):807.
- 113.2021 Kifude C, Stiffler D, Rockabrand D, Miller R, Parsons E, Ocholla S, Dizon NI, Torrevillas BK, Waitumbi J, Oyieko J, Luckhart S, Stewart VA. Asymptomatic falciparum and Non-falciparum Malarial Parasitemia in Adult Volunteers with and without HIV-1 Coinfection in a Cohort Study in Western Kenya. *American Journal of Tropical Medicine and Hygiene* 105(1):159–66.
- 114.2021 Hun L, Cheung KW, Brooks E, Zudekoff R, Luckhart S, Riehle MA. Increased insulin signaling in the *Anopheles stephensi* fat body regulates metabolism and enhances the host response to both bacterial challenge and *Plasmodium falciparum* infection. *Insect Biochemistry and Molecular Biology* 139:103669.
- 115.2021 Donnelly E, de Water JV, Luckhart S. Malaria-induced bacteremia as a consequence of multiple parasite survival strategies. *Current Research in Microbial Sciences* 2:100036.
- 115.2022 Céspedes N, Donnelly E, Lowder C, Hansten G, Wagers D, Briggs AM, Schauer J, Haapanen L, Åbrink M, Van de Water J, Luckhart S. Mast cell chymase/Mcpt4 suppresses the host immune response to *Plasmodium yoelii*, limits malaria-associated disruption of intestinal barrier integrity and reduces parasite transmission to *Anopheles stephensi*. *Frontiers in Immunology* 13:801120.
- 116.2022 Trammell CE, Ramirez G, Sanchez-Vargas I, St Clair LA, Ratnayake OC, Luckhart S, Perera R, Goodman AG. Coupled small molecules target RNA interference and JAK/STAT signaling to reduce Zika virus infection in *Aedes aegypti*. *PLoS Pathogens* 18(4):e1010411.
- 117.2022 Briggs AM, Hambly MG, Simão-Gurge RM, Garrison SM, Khaku Z, Van Susteren G, Lewis EE, Riffell JA, Luckhart S. *Anopheles stephensi* Feeding, Flight Behavior, and Infection With Malaria Parasites are Altered by Ingestion of Serotonin. *Frontiers in*

- Physiology 13:911097.
- 118.2022 Donnelly EL, Céspedes N, Hansten G, Wagers D, Briggs AM, Lowder C, Schauer J, Garrison SM, Haapanen L, Van de Water J, Luckhart S. Basophil Depletion Alters Host Immunity, Intestinal Permeability, and Mammalian Host-to-Mosquito Transmission in Malaria. *Immunohorizons* 6(8):581-599.
- 119.2022 Donnelly EL, Céspedes N, Hansten G, Wagers D, Briggs AM, Lowder C, Schauer J, Haapanen L, Van de Water J, Luckhart S. The Basophil IL-18 Receptor Precisely Regulates the Host Immune Response and Malaria-Induced Intestinal Permeability and Alters Parasite Transmission to Mosquitoes without Effect on Gametocytemia. *Immunohorizons* 6(8):630-641.
- 120.2022 Thakre N, Simão Gurge RM, Isoe J, Kivi H, Strickland J, Delacruz LR, Rodriguez AM, Haney R, Sadeghi R, Joy T, Chen M, Luckhart S, Riehle MA. Manipulation of pantothenate kinase in *Anopheles stephensi* suppresses pantothenate levels with minimal impacts on mosquito fitness. *Insect Biochemistry and Molecular Biology* 149:103834.
- 121.2022 Roberds A, Kifude C, Oyieko J, Ocholla S, Mutunga J, Oullo D, Waga C, Li Z, Luckhart S, Stewart VA. Longitudinal impact of asymptomatic malaria/HIV-1 co-infection on *Plasmodium falciparum* gametocyte transcript expression and transmission to *Anopheles* mosquitoes. *Frontiers in Cellular and Infection Microbiology* 12:934641.
- 122.2022 Oyieko J, Copeland NK, Otieno S, Kifude C, Ocholla S, Hutter J, Smith H, Roberds A, Luckhart S, Stewart VA. Longitudinal and Cross-sectional Analyses of Asymptomatic HIV-1/Malaria Co-infection in Kisumu County, Kenya. *American Journal of Tropical Medicine and Hygiene* 108(1):85-92.
- 123.2022 Kifude CM, Roberds A, Oyieko J, Ocholla S, Otieno S, Waitumbi JN, Hutter J, Smith H, Copeland NK, Luckhart S, Stewart VA. Initiation of anti-retroviral/Trimethoprim-Sulfamethoxazole therapy in a longitudinal cohort of HIV-1 positive individuals in Western Kenya rapidly decreases asymptomatic malarial parasitemia. *Frontiers in Cellular and Infection Microbiology* 12:1025944.
- 124.2023 Stefanovska T, Luckhart S, Ripa L, Stevens G, Lewis E. *Steinernema carpocapsae*. *Trends in Parasitology* 39(5):400-401. doi: 10.1016/j.pt.2023.01.002.
- 125.2023 Coles TA, Briggs AM, Hambly MG, Céspedes N, Fellows AM, Kaylor HL, Adams AD, Van Susteren G, Bentil RE, Robert MA, Riffell JA, Lewis EE, Luckhart S. Ingested histamine and serotonin interact to alter *Anopheles stephensi* feeding and flight behavior and infection with *Plasmodium* parasites. *Frontiers in Physiology* 14:1247316.
- 126.2023 Riske BF, Luckhart S, Riehle MA. Starving the Beast: Limiting coenzyme A biosynthesis to prevent disease and transmission in malaria. *International Journal of Molecular Sciences* 24:13915.
- 127.2024 Céspedes N, Donnelly EL, Hansten G, Fellows AM, Dobson M, Kaylor HL, Coles TA, Schauer J, Van de Water J, Luckhart S. Mast cell-derived IL-10 protects intestinal barrier integrity during malaria and regulates parasite transmission to *Anopheles stephensi* with a female-biased immune response. *Infection and Immunity* 92: e0036023.
- 128.2024 Chaves LF, Friberg MD, Pascual M, Calzada JE, Luckhart S, Bergmann L. Community-serving research addressing climate change impacts on vector-borne diseases, *Lancet Planetary Health*, in press.
- 129.2024 Zhang J, Sarollahi M, Luckhart S, Harrison M, Vasdekis AE. Quantitative phase imaging by gradient retardance optical microscopy (GROM), *Scientific Reports*, in press.
- 130.2024 Céspedes N, Fellows A, Donnelly EL, Kaylor H, Coles TA, Wild R, Dobson M, Schauer J, Van de Water J, Luckhart S. Basophil-derived IL-4 and IL-13 protect intestinal barrier integrity and control bacterial translocation during malaria, in revision.

#### Refereed Book Chapters:

1. 2008 Anderson L, Vodovotz Y, Zamora R, and Luckhart S: Bloodfeeding as an interface of mammalian and arthropod immunity, N. Beckage, (ed), for *Insect Immunology*, Elsevier Press.
2. 2013 Vodovotz Y, Azhar N, Miskov-Zivanov N, Buliga M, Zamora R, Ermentrout B, Constantine GM, Faeder JR, Pakpour N, Luckhart S: Modeling Host–Vector–Pathogen Immunoinflammatory Interactions in Malaria, Y. Vodovotz and G. An, (ed), In, *Complex Systems and Computational Biology, Approaches to Acute Inflammation*, Springer Science+Business Media, DOI 10.1007/978-1-4614-8008-2\_14, New York.265-279.
3. 2014 Riehle MA and Luckhart S: Antipathogen Effector Molecules: Current and Future Strategies, Mark Q. Benedict, (ed), In *Transgenic Insects*, CAB International.
4. 2017 Pietri, JE, Luckhart, S. Insulin-like peptides (ILPs) regulate *Plasmodium falciparum*

- infection in *Anopheles stephensi*. Arthropod Vector: Controller of Disease Transmission, Serap Aksoy, George Dimopoulos, Steven Wikel (eds.), Elsevier.
5. 2017 Luckhart, S, Riehle MA. Conservation and convergence of immune signaling pathways with mitochondrial regulation in vector arthropod physiology. Arthropod Vector: Controller of Disease Transmission, Serap Aksoy, George Dimopoulos, Steven Wikel (eds.), Elsevier.

Patents:

Combination therapies for malaria, Patent number: 9918989

Abstract: The present disclosure provides methods for treating or preventing malaria by administration of a protein kinase inhibitor and optionally one or both of a further protein kinase inhibitor and an antimalarial drug to a mammalian subject infected with or at risk of exposure to Plasmodium sp. In some aspects, the therapeutic and prophylactic regimens of the present disclosure are effective in reducing parasite development in mosquitoes feeding on recipients of the regimens. Additionally, the present disclosure provides methods for screening candidate antimalarial agents.

Date of Patent: 20 March 2018

Assignee: The Regents of The University of California

Inventors: Shirley Luckhart, Cecilia Giulivi

Grants and Contracts Awarded:

Grants active

Title: ForeSITE: Forecasting and Surveillance of Infectious Threats and Epidemics  
Agency: Centers for Disease Control and Prevention  
Grant No.: NU38FT000009  
Amount: \$17,500,000 total costs  
Date(s): 09/12/2023 – 09/11/2028  
Role: Consultant  
Type: Health services

Title: How to starve a parasite: manipulating CoA biosynthesis to control Plasmodium development in the mosquito  
Agency: NIH/NIAID  
Grant No.: R01 AI170506  
Amount: \$2,516,717 total costs  
Date(s): 04/14/2023 – 03/31/2027  
Role: Multi-PI (with M. Riehle, University of Arizona)  
Type: Research

Title: Biogenic amines, malaria and manipulation of mosquito physiology and behavior  
Agency: NIH/NIAID  
Grant No.: R01 AI165481  
Amount: \$2,184,819 total costs  
Date(s): 08/08/2022 – 07/31/2026  
Role: Multi-PI (with Multi-PI J. Riffell, UW; Co-I E. Lewis, UI; M. Robert, VT)  
Type: Research

Title: Undergraduate research and mentoring at the nexus of plant, animal and human health  
Agency: USDA NIFA Research and Extension Experiences for Undergraduates  
Grant No.: 2021-67038-34629  
Amount: \$499,969 total costs  
Date(s): 08/01/2021 – 07/31/2026  
Role: Lewis (PI), Luckhart (Co-PI)  
Type: Training  
Status: Active

Title: Malaria and allergic inflammatory changes to the gut barrier  
Agency: NIH/NIAID  
Grant No.: R01 AI131609

Amount: \$1.94M total costs  
Date(s): 06/01/2018 – 05/31/2024  
Role: Principal Investigator  
Type: Research  
Status: Active

#### Grants pending

Title: Insulin-mediated immunity to West Nile Virus infection  
Agency: NIH/NIAID  
Grant No.: R01 AI175248  
Amount: \$3,689,943 total costs  
Date(s): 07/01/2024 – 06/30/2029  
Role: Co-PI (with PI A. Goodman, WSU)  
Type: Research

#### Grants completed

Title: Midgut mitochondrial function as a driver of resistance and fitness in mosquitoes  
Agency: NIH/NIAID  
Grant No.: R56 AI129420-01A1  
Amount: \$726,380 total costs  
Date(s): 08/17/2018 – 07/31/2021  
Role: Luckhart (Multi-PI, with M.A. Riehle)  
Type: Research  
Status: Active

Title: Improving anopheline fitness and resistance through fat body insulin signaling  
Agency: NIH/NIAID  
Grant No.: R21 AI125823  
Amount: \$425,856 total costs  
Date(s): 07/01/2016 - 06/30/2019  
Role: Co-Investigator, M.A. Riehle (PI)  
Type: Research  
Status: Completed

Title: The burden of malaria transmission due to asymptomatic HIV co-infection  
Agency: NIH/NIAID  
Grant No.: R01 AI104423  
Amount: \$2.9M total costs  
Date(s): 09/24/2012 - 08/31/2019  
Role: Multi-PI with V.A. Stewart (USUHS)  
Type: Research  
Status: Completed

Title: Midgut mitochondrial function as the key to fit, *Plasmodium*-resistant Anopheline mosquitoes  
Agency: NIH NIAID  
Grant No.: R56 AI118926  
Amount: \$728,842  
Date(s): 07/01/2016 - 07/31/2018  
Role: Multi-PI (with M.A. Riehle, C. Giulivi)  
Type: Research  
Status: Completed

Title: Pathogenesis of Salmonella Bacteremia  
Agency: NIH NIAID  
Grant No.: R01 AI089078  
Amount: \$365,791 (2016)  
Date(s): 12/01/2012 - 12/31/2016

Role: Co-Investigator, R. Tsohis (PI)  
Type: Research  
Status: Completed

Title: Harnessing midgut mitochondrial dynamics to enhance anopheline mosquito fitness  
Agency: NIH/NIAID  
Grant No.: R56 AI107263  
Amount: \$773,854 (2014-16)  
Date(s): 07/14/2014 - 06/30/2016  
Role: Multi-PI (with M.A. Riehle, C. Giulivi)  
Type: Research  
Status: Completed

Title: Systems biology approach to MAPK regulation of malaria infection in *A. stephensi*  
Agency: NIH/NIAID  
Grant No.: R01 AI080799  
Amount: \$3,394,397  
Date(s): 07/01/2009 - 06/30/2015  
Role: Multi-PI (with Y. Vodovotz)  
Type: Research  
Status: Completed

Title: *An. gambiae* immune signaling gene SNPs and natural *P. falciparum* infection  
Agency: NIH/NIAID  
Grant No.: R01 AI078183  
Amount: \$3,207,840 TC  
Date(s): 01/01/2010 - 12/31/2015  
Role: Multi-PI (with G. Lanzaro)  
Type: Research  
Status: Completed

Title: Training in the biology of disease vectors  
Agency: NIH/NIAID  
Grant No.: T32 A1074550-01A2  
Amount: \$941,135 TC  
Date(s): 07/01/2009 - 05/31/2015  
Role: Co-Investigator and Associate Director, Greg Lanzaro, Ph.D. (PI)  
Type: Teaching and Training  
Status: Completed

Title: BioMark Real Time PCR System (equipment)  
Agency: NIH  
Grant No.: 1S10OD010671-01A1  
Amount: \$261,191  
Date(s): 07/01/2013 - 06/30/2014  
Role: Principal Investigator  
Type: Other  
Status: Completed

Title: Insulin, IGF and insulin signaling: effects on Anopheles lifespan and immunity  
Agency: NIH/NIAID  
Grant No.: R01 AI073745  
Amount: \$899,035.98  
Date(s): 07/01/2008 - 05/31/2014  
Role: Co-Investigator, M. Riehle (PI)  
Type: Research  
Status: Completed

Title: Nutritional intervention for malaria-induced NTS bacteremia  
Agency: Bill and Melinda Gates Foundation

Grant No.: OPP1044467  
Amount: \$100,000 TC  
Date(s): 11/01/2011 - 04/30/2013  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Mechanisms of Salmonella bacteremia in pediatric malaria  
Agency: NIH/NIAID  
Grant No.: R21 AI082320-01A1  
Amount: \$405,270.64 TC Date(s): 03/01/2010 - 02/28/2012  
Role: Co-Investigator, R. Tsois (PI)  
Type: Research  
Status: Completed

Title: Training in the biology of malaria vectors in Mali  
Agency: NIH Fogarty International Center  
Grant No.: D43 TW007390  
Amount: \$745,200  
Date(s): 09/01/2005 - 08/31/2011  
Role: Co-Investigator, Greg Lanzaro (PI)  
Type: Research  
Status: Completed

Title: A rhesus macaque model of SIV-malaria co-infection  
Agency: NIH/NIAID  
Grant No.: R21 AI077373  
Amount: \$415,250  
Date(s): 04/01/2008 - 03/31/2010  
Role: Co-Investigator, K. Abel UNC Chapel Hill (PI)  
Type: Research  
Status: Completed

Title: Electron paramagnetic resonance spectrometer(equipment)  
Agency: NIH NCRR  
Grant No.: S10 RR023586481  
Amount: \$481,143  
Date(s): 04/01/2009 - 03/31/2010  
Role: Co-Investigator, C. Giulivi (PI)  
Type: Other  
Status: Completed

Title: Cross-talk among mosquito and mammalian immune factors  
Agency: NIH/NIAID  
Grant No.: R01 AI50663  
Amount: \$1,536,930  
Date(s): 01/01/2004 - 12/31/2009  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Mosquito mitochondria: an untapped Resource for the development of aging biomarkers  
Agency: UC Mosquito Research Program  
Grant No.: None  
Amount: \$30,000  
Date(s): 12/04/2007 - 07/01/2008  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: *Plasmodium* signaling of innate immunity in *Anopheles*  
Agency: NIH/NIAID  
Grant No.: R01 AI60664  
Amount: \$957,814  
Date(s): 06/01/2004 - 05/31/2008  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Cross-talk among mosquito and mammalian immune factors  
Agency: NIH/NIAID  
Grant No.: R21 AI50663  
Amount: \$334,914  
Date(s): 09/01/2002 - 08/31/2004  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Analysis of the role of mosquito nitric oxide in inhibiting malaria parasite development in the insect vector and the role of mosquito cytokine activity in regulating malaria parasite development in the insect vector  
Agency: Intralaboratory Independent DOD Research Competitive Grants  
Grant No.: None  
Amount: \$156,156  
Date(s): 04/01/2002 - 03/31/2004  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Analysis of malaria vector competence using polymerase chain reaction differential display technology  
Agency: Uniformed Services University of the Health Sciences/Walter Reed Army Institute  
Grant No.: None  
Amount: \$409,226  
Date(s): 04/01/2002 - 03/31/2004  
Role: Co-Investigator, R. G. Andre (PI)  
Type: Research  
Status: Completed

Title: Comparative transcriptome analyses of murine and *Anopheles* cellular responses to mammalian TGF- $\beta$ 1  
Agency: Thomas F. and Kate M. Jeffress Memorial Trust  
Grant No.: None  
Amount: \$10,000  
Date(s): 07/01/2002 - 06/30/2003  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Signaling by transforming growth factor-beta homologs in *Anopheles stephensi*  
Agency: Thomas F. and Kate M. Jeffress Memorial Trust  
Grant No.: None  
Amount: \$30,000  
Date(s): 01/01/2002 - 12/31/2002  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: *Anopheles stephensi* NO synthase: Impact on *Plasmodium*  
Agency: NIH/NIAID

Grant No.: R29 AI041027  
Amount: \$350,000  
Date(s): 04/01/1997 - 03/31/2002  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Polymorphism analysis of the NO synthase gene in African *Anopheles*  
Agency: Intralaboratory Dept. of Defense Research Competitive Grant  
Grant No.: None  
Amount: \$89,880  
Date(s): 04/01/1999 - 03/31/2002  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: Gorgas Memorial Institute Research Award  
Agency: Gorgas Memorial Institute  
Grant No.: None  
Amount: \$20,000  
Date(s): 10/01/2000 - 08/31/2001  
Role: Co-Investigator, M. Correa-Ochoa (Principal Investigator)  
Type: Research  
Status: Completed

Title: Characterization of *Anopheles stephensi* NOS and its impact on *Plasmodium* development  
Agency: World Health Organization Tropical Disease Research Grant  
Grant No.: None  
Amount: \$43,000  
Date(s): 01/01/1997 - 12/31/2000  
Role: Principal Investigator  
Type: Research  
Status: Completed

Title: ASPIRES Award (for research equipment purchase)  
Agency: Virginia Tech  
Grant No.: None  
Amount: \$85,000  
Date(s): 12/01/1999 - 12/31/1999  
Role: Principal Investigator  
Type: Research  
Status: Completed

#### Honors and Awards for Scholarship:

1995 Outstanding Ph.D. Student in Entomology in US, Entomological Society of America  
1995-1998 National Research Council Postdoctoral Fellowship, US Army  
1999 Nominated for Howard Hughes Medical Institute Assistant Investigator Award by Virginia Tech Office of Research and Graduate Studies  
1999 Nominated by Virginia Tech for Dupont Young Professor Grant Award  
2007 Top 10 Hottest Articles in Developmental and Comparative Immunology (Luckhart, S., Riehle, M. The insulin signaling cascade from nematodes to mammals: insights into innate immunity of *Anopheles* mosquitoes to malaria parasite infection.)  
2009 President's Prize, 35th National Congress of the Colombian Society of Entomology, for best submitted paper (Gomez, G., Cienfuegos, A.V., Guitierrez, L.A., Rosero, D.A., Luckhart, S., Conn, J.E., and Correa, M.), Medellin, Colombia, 31 July 2009.  
2010 Top health invention for 2010, Time Magazine, for collaborative work with University of Arizona on the "malaria-proof mosquito" (Corby-Harris and Drexler et al. 2010, PLoS Pathogens 6(7):e1001003).  
2011 Publication #60 was recognized as a "Highly Accessed" article by the journal BMC Genomics

- 2014 Fellow, American Society for Tropical Medicine and Hygiene
- 2017 Career excellence award in Medical, Urban, and Veterinary Entomology, Pacific Branch of the Entomological Society of America
- 2018 Founders' Memorial Award Lecturer, Entomological Society of America, Vancouver, BC

SERVICE:

Major Committee Assignments (university):

- 2004 – 2017 Member, Center for Vector-borne Diseases, UC Davis
- 2004 – 2017 Member, Microbiology Graduate Group, UC Davis
- 2005 – 2017 Member, Genome Center Advisory Committee, UC Davis
- 2005 – 2017 Founding member, Host-Microbe Pathogenesis Discussion Group (Dr. Charles Bevins, coordinator), UC Davis
- 2005 – 2017 Member, Genome and Biomedical Sciences, UC Davis
- 2005 – 2017 Member, Entomology Graduate Group, UC Davis
- 2005 – 2017 Member, Immunology Graduate Group, UC Davis
- 2007 – 2017 Member, UCDHS Committee for Research Affairs, UC Davis
- 2009 Member, Entomology Faculty Search Committee, UC Davis
- 2009 – 2013 Chair, Program Committee for the Microbiology Graduate Group, UC Davis
- 2010 – 2012 Entomology Graduate Group Membership Committee, UC Davis
- 2010 – 2017 Member, Graduate Group in Genetics, UC Davis
- 2010 – 2017 UC Davis Fulbright Fellowship Review Committee, UC Davis
- 2010 – 2017 Member, Organizing Committee, UC Davis Host-Microbe Interaction Conference, Granlibakken, Lake Tahoe, UC Davis
- 2011 – 2014 School of Medicine Faculty Personnel Committee, UC Davis
- 2011 – 2014 Rotation Coordinator, (GGG 205), Graduate Group in Genetics, UC Davis
- 2011 – 2017 Mentor, Biology Undergraduate Scholar's Program, UC Davis
- 2012 – 2017 Chair, Designated Emphasis in the Biology of Vector-borne Diseases (DEBVBD), UC Davis
- 2013 Faculty Search Committee for Plant Pathology (CAES), UC Davis
- 2013 – 2017 Membership Committee for Biochemistry, Molecular, Cellular and Developmental Biology (BMCBD), UC Davis
- 2013 – 2017 Member, BMCDB Graduate Group, UC Davis
- 2013 – 2015 Executive Committee, Center for Vector-borne Diseases, UC Davis
- 2014 – 2017 Seminar Committee, UC Davis
- 2014 – 2015 Mentor, Maximizing Access to Research Careers Program, UC Davis
- 2014 – 2015 Interim Co-Director, Center for Vector-borne Diseases, UC Davis
- 2016 Chair, Entomology Faculty Search Committee, UC Davis
- 2016 – 2017 Member and Vice Chair, College Faculty Executive Committee, College of Agricultural and Environmental Sciences, UC Davis
- 2017 Member, Search Committee for the director of the Research Faculty Development Team (ORED), University of Idaho
- 2017 Member, Search Committee for Molecular Systematics, Department of Entomology, Plant Pathology and Nematology, University of Idaho
- 2017 – present Member, Space Committee, Department of Entomology, Plant Pathology and Nematology, University of Idaho
- 2017 – present McNair/TRIO Scholar Mentor, University of Idaho
- 2018 – 2019 Revision coordinator, Entomology Graduate Student Handbook, University of Idaho
- 2018 – 2020 Member, Faculty Senate, University of Idaho
- 2022 Member, Search Committee for Lab Animal Research Facility manager, University of Idaho
- 2018 – 2023 Seminar committee, Department of Biological Sciences, University of Idaho
- 2020 – 2023 Member, Randall Women in Science committee, Department of Biological Sciences, University of Idaho
- 2023 – present Member, Committee for Research and Education Infrastructure, Department of Biological Sciences, University of Idaho

Non-university Service:

- 2001 – 2005 Councilor, Executive Council, American Committee of Medical Entomology, American Society of Tropical Medicine and Hygiene

- 2003 – 2006 Secretary/Treasurer, Executive Council, American Committee of Medical Entomology, American Society of Tropical Medicine and Hygiene
- 2010 – present Ad hoc Reviewer, NIH NIAID and NIH NIGMS
- 2010 – 2014 Editorial board member, Journal of Medical Entomology
- 2010 – 2014 Editorial board member, Infection and Immunity
- 2011 – 2012 Member, NIH Review Panel for F awards
- 2011 – 2012 Member, Grant Review Panel for the French National Research Agency (ANR)
- 2011 – 2014 Member, NIH Special Emphasis Grant Review Panels for Vector Biology
- 2011 – 2017 Member, Scientific Advisory Group, Biodefense and Emerging Infectious Disease (BEI) Research Resources Repository; Co-Chair Malaria Focus Group; Chair Vectors Focus Group
- 2013 Co-organizer, Genetically Modified Vectors Symposium, International Congress for Society for Vector Ecology, La Quinta, California
- 2014 Organizer, NIH/BEI Resources Workshop
- 2015 – 2017 Panel Member, NIH Vector Biology Study Section
- 2016 – present Editorial board member, Microbes and Infection
- 2018 Guest editorial board member, Annual Review of Entomology
- 2018 – present Member, USDA Regional Project NE1443/NE1943 “Biology, Ecology and Management of Emerging Disease Vectors”
- 2018 – 2023 Member, Scientific Advisory Groups, Southeast Asia and Myanmar Regional International Centers of Excellence in Malaria Research (ICEMRs)
- 2018 – 2022 Ad hoc Reviewer, NIH Immunity and Host Defense Study Section
- 2019 – 2022 Board Member, Moscow Education Foundation, Moscow, ID
- 2019 Ad hoc Member, NIH SCORE Study Section
- 2019 – present Editorial board member, Biomolecules
- 2020 – present Member, NIH New Innovators Award (DP2) Study Section
- 2020 – present Editorial board member, Current Research in Microbial Sciences
- 2021 Member, NIH CSR ENQUIRE panel, Microbiology and Infectious Diseases
- 2022 Acting Chair, NIH New Innovators Award (DP2) Study Section
- 2023 – present Organizer, symposium “One Health training for plant, animal and human vector-borne diseases in complex ecosystems,” annual meeting of the Entomological Society of America, National Harbor, MD.
- 2023 – present Organizer, working group, National Resources Network for Vector-borne Diseases and Vector Biology (in collaboration with the Entomological Society of America)
- 2024 – present Chair, NIH New Innovators Award (DP2) Study Section

#### Professional and Scholarly Organizations:

- 1990 – present Member, Sigma Xi
- 1995 – present Member, American Association for the Advancement of Science
- 1998 – present Member, American Society of Tropical Medicine and Hygiene
- 1998 – present Member, Entomological Society of America
- 1998 – present Member, American Society for Microbiology
- 1999 – present Member, American Association of Immunologists