

Molly Staley

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EDUCATION

Ph.D. Biological Sciences, Auburn University (AU), 2016
B.S. Biology, Minor: Spanish, Iowa State University (ISU), 2010

RESEARCH POSITIONS

09/2016-present Postdoctoral Research Fellow, Chicago Zoological Society (CZS) - Brookfield Zoo, IL, USA

Validation of enzyme immunoassay-based tools for non-invasive monitoring of physiological and immunological parameters in chimpanzees (*Pan troglodytes*) and common bottlenose dolphins (*Tursiops truncatus*). Supervised by **Dr. Lance J. Miller**, Vice President of Conservation Science and Animal Welfare Research.

2010-2016 Ph.D., Biological Sciences, AU

Conducted research on the host shift of the bacterial pathogen *Mycoplasma gallisepticum* from poultry into wild North American house finches (*Haemorhous mexicanus*) as well as house finch disease resistance evolution. Advised by **Dr. Geoffrey E. Hill** and **Dr. Camille Bonneaud**.

05/2012 Visiting Researcher, Centre national de la recherche scientifique, Moulis France.

Design of primers for quantitative reverse-transcription PCR of house finch genes involved in testosterone production in order to investigating the molecular basis of tradeoffs between immune function and reproduction. Sponsored by **Dr. Camille Bonneaud**.

01/2011-05/2011 AU Cellular and Molecular Biosciences Fellowship Rotation

Random shear shuttle Bacterial Artificial Chromosomes (BAC) libraries for anti-microbial discovery from soil metagenomes. Advised by **Dr. Mark R. Liles** and work performed in collaboration with **Dr. Kavita Kakirde**.

11/2007-05/2010 Undergraduate Research Assistant, Veterinary Microbiology and Preventative Medicine, ISU

Arbovirus surveillance and identification through cell culture, reverse-transcription PCR, and sequencing based analyses. See publications list for more details. Advised by **Dr. Bradley J. Blitvich**.

05/2008-07/2010 Undergraduate Research Assistant, Ecology, Evolution, and Organismal Biology, ISU

Performed field and laboratory research on tree swallows (*Tachycineta bicolor*) for an independent honors project entitled "Circulating testosterone concentrations in adult tree swallows during the breeding season" as well as for the PI's grant-funded study "Oxidative stress, telomere dynamics, and aging in a free-living organism." Advised by **Dr. Carol M. Vleck**.

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RESEARCH FUNDING

- 2018 Women's Board of the Chicago Zoological Society, CZS (PI, \$6,443)
2017 Women's Board of the Chicago Zoological Society, CZS (PI, \$4,330)
2012-16 Graduate Student Dissertation Research Award, AU (three awards totaling \$1,500)
2013-15 College of Sciences and Mathematics Graduate Student Travel Award, AU (three awards totaling \$1,100)
2012-15 Cellular and Molecular Biosciences (CMB) Program Summer Graduate Research Fellowship, AU (four awards totaling \$19,224)
2014 Louis Agassiz Fuertes Grant, Wilson Ornithological Society (\$2,500)
2014 Grant in Aid of Research, Society for Integrative and Comparative Biology (\$1,000)
2013 American Ornithologists' Union Research Award (\$2,497)
2012 Dan C. Holliman Research Fund, Alabama Ornithological Society (\$1,000)
2012 Walter F. Coxe Research Fund, Birmingham Audobon Society (\$1,700)
2011 Research Training Exchange Grant, NSF Research Collaborative Network in Ecological Immunology (\$2,000)
2010 CMB Program Doctoral Graduate Research Fellowship, AU (\$18,360)
2009 Honors Program Grant, ISU (\$616)

PUBLICATIONS

Peer-reviewed Publications

11. Bonneaud, C, L Tardy, M Girardeau, **M Staley**, GE Hill, and KJ McGraw. *In press*. Rapid antagonistic co-evolution in an emerging pathogen and its vertebrate host. *Current Biology*.
10. **Staley, M**, MG Conners, K Hall, and LJ Miller. 2018. Linking stress and immunity: Immunoglobulin A as a non-invasive physiological biomarker in animal welfare studies. *Hormones and Behavior* 102: 55-68.
9. **Staley, M**, C Bonneaud, KJ McGraw, CM Vleck, and GE Hill. 2018. Detection of *Mycoplasma gallisepticum* in house finches (*Haemorhous mexicanus*) from Arizona. *Avian Diseases* 62: 14-17.
8. **Staley, M**, GE Hill, CC Josefson, JW Armbruster, and C Bonneaud. 2018. Bacterial pathogen emergence requires more than direct contact with a novel passerine host. *Infection and Immunity* 86: e00863-17.
7. **Staley, M**, and C Bonneaud. 2015. Immune responses of wild birds to emerging infectious diseases. *Parasite Immunology* 37: 242-254.
6. McGraw, KJ, M Girardeau, GE Hill, MB Toomey, and **M Staley**. 2013. Ketocarotenoid circulation, but not retinal carotenoid accumulation, is linked to eye disease status in a wild songbird. *Archives of Biochemistry and Biophysics* 539: 156-162.
5. Blitvich, BJ, **M Staley**, MA Loroño-Pino, JE Garcia-Rejon, JA Farfan-Ale, and KS Dorman. 2012. Identification of a novel subtype of South River virus (family Bunyaviridae). *Archives of Virology* 157:1205-1209.
4. **Staley, M**, CM Vleck, and D Vleck. 2011. Plasma testosterone concentrations in adult tree swallows during the breeding season. *Wilson Journal of Ornithology*. 123: 608-613.
3. Farfan-Ale, JA, MA Loroño-Pino, JE Garcia-Rejon, V Soto, M Lin, **M Staley**, KS Dorman, LC Bartholomay, E Hovav, and BJ Blitvich. 2010. Detection of flaviviruses and

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- orthobunyaviruses in mosquitoes in the Yucatan Peninsula of Mexico in 2008. *Vector-Borne and Zoonotic Diseases* 10: 777-783.
2. **Staley, M**, KS Dorman, LC Bartholomay, I Fernández-Salas, JA Farfan-Ale, MA Loroño-Pino, JE Garcia-Rejon, L Ibarra-Juarez, and BJ Blitvich. 2010. Universal primers for the amplification and sequence analysis of actin-1 from diverse mosquito species. *Journal of the American Mosquito Control Association* 26: 214-218.
 1. Blitvich, BJ, M Lin, KS Dorman, V Soto, E Hovav, BJ Tucker, **M Staley**, KB Platt, and LC Bartholomay. 2009. Genomic sequence and phylogenetic analysis of culex flavivirus, an insect-specific flavivirus, isolated from *Culex pipiens* (Diptera: Culicidae) in Iowa. *Journal of Medical Entomology* 46: 934-941.

TEACHING EXPERIENCE

Lecture Experience

- 2013 Guest Lecturer for Genetics (AU BIOL 3000, 250 students): Gene Regulation and the Lac Operon
- 2012 Guest Lecturer for Ornithology (AU BIOL 5750, 40 students): Avian Diseases
- 2011 Gave four lectures in Molecular Developmental Biology (AU VBMS 7720, graduate course designed to simultaneously provide lecture experience)

Graduate Teaching Assistant, Department of Biological Sciences, AU

- 2013-16 Genetics Laboratory (AU BIOL 3000, 2 semesters)
- 2015-16 Organismal Biology Laboratory (AU BIOL 1031, 3 semesters)
- 2014 Recombinant DNA and Gene Expression Laboratory (AU BIOL 5521/6521, 1 semester)
- 2012 Immunology Laboratory (AU BIOL 5501/6501, 1 semester)
- 2012-14 Ornithology Laboratory (AU BIOL 5750/6750, 2 semesters)
- 2011-13 Principles of Biology Laboratory (AU BIOL 1021, 2 semesters)

Adjunct Instructor, AU-Montgomery Seamless Admission Program

- 2013-15 Organismal Biology Laboratory (AUM BIOL 1021, 3 semesters)
- 2012-14 Principles of Biology Laboratory (AUM BIOL 1011, 3 semesters)

OUTREACH AND SERVICE

Outreach

- 2017 Coordinated hour-long scat chat activity for zoo camps for 4th-8th grades, CZS
- 2016-17 Project SEARCH mentor providing job training for adults with developmental disabilities, CZS
- 2015 Pi Day, STEM education and outreach event for Girl Scouts volunteer, Graduate Women in Science, AU
- 2014 AU Explore volunteer, AU
- 2014 Bird Studies badge leader for Boy Scouts, Merit Badge University, AU
- 2013-14 Junior Mad Scientist Open House volunteer, Graduate Women in Science, AU
- 2012-14 Group project sponsor, Honors Organismal Biology, AU (3 semesters)

University Service

- 2015-16 Graduate Student Representative, University Concessions Board, AU

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2012-15 Graduate Student Representative on the Graduate Studies Committee, Department of Biological Sciences, AU

2011-12 Graduate Student Representative on the Functional Genomics Search Committee, AU

2011-12 Treasurer, Biological Sciences Graduate Student Association, AU

2007 Freshman Honors Program Seminar Leader, University Honors Program, ISU

Professional Reviewer

2017-18 Association of Zoos and Aquariums Conservation Grants Fund