Mónica Mercedes Acosta

Center for the Studies of Complex Systems (CSCS)
College of Literature, Science and the Arts (LSA)
Ann Arbor, Michigan USA

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EDUCATION

THE PENNSYLVANIA STATE UNIVERSITY, *State College, PA, USA* 2012-2019
Ph.D Advisor: *Dr. Andrew Read*
Dissertation: *Within-host ecology, drug pressure and the evolution of drug resistance*

ARIZONA STATE UNIVERSITY, *Tempe, AZ* 2007-2011
B.S. in Microbiology

RESEARCH EXPERIENCE

CENTER FOR THE STUDIES OF COMPLEX SYSTEMS, *Ann Arbor, MI, USA* November 2019-Present
Postdoctoral Research Fellow
Dr. Luis Zaman

ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASES, *State College, PA, USA* August 2012-2019
Graduate student in Biology at the Pennsylvania State University
Dr. Andrew Read

TROPICAL FOREST ECOLOGY, *Ipassa Research Station, Gabon* June 2015-July 2016
Field Research Assistant and Project Site Manager (Duke University)
Dr. John Poulsen

MOLECULAR EVOLUTION AND EPIDEMIOLOGY LAB, *Tempe, AZ, USA* May 2011-June 2012
NIH Postbaccalaureate Research Education Program (PREP) **Researcher**
Dr. Ananias Escalante

PAPERS

Carlton JM, Volkman SK, Uplekar S, Hupalo DN, Pereira Alves JM, Cui L, Donnelly M, Roos DS, Harb OS, **Acosta MM**, Read A, Ribolla P, Singh OP, Valecha N, Wassmer SC, Ferreira M, Escalante AA (2015). Population Genetics, Evolutionary Genomics and Genome-Wide Studies of Malaria: A View across the International Centers of Excellence for Malaria Research. *Am J Trop Med Hyg.* 93:87-98.

Rice BL, **Acosta MM**, Pacheco MA, Carlton JM, Barnwell JW, Escalante AA (2014) The origin and diversification of the merozoite surface protein 3 (msp3) multi-gene family in Plasmodium vivax and related parasites. *Mol Phylogenet Evol* 78:172-184.

Rice BL, **Acosta MM**, Pacheco MA, Escalante AA (2013) Merozoite surface protein 3-alpha as a genetic marker for epidemiologic studies in Plasmodium vivax: a cautionary note. *Malar J.* 12:288.

In prep, draft complete

Acosta MM, Read AF (*In prep*). A summary of the empirical investigations concerning antimicrobial dosing strategies and drug resistance evolution from *in-vivo* models: A review.

Acosta MM, Bram J, Sim DG, Read AF (*In prep*). The effect of drug dose and timing of treatment on the emergence of drug resistance in an *in-vivo* model of mouse malaria.

Acosta MM, Kennedy D, Sim DG, Read AF (*In prep*). Patterns and drivers of drug resistance in an *in-vivo* model across a spectrum of treatment doses and durations.

Acosta MM, Sim DG, Read AF (*In prep*). Superinfection of malarial infections alters parasite dynamics during resistance emergence.

PRESENTATIONS

ORAL PRESENTATIONS

Centre International de Recherches Médicales de Franceville (CIRMF), Gabon June 2016

- Presentation to International Center for Medical Research in Franceville (CIRMF) group on the relationship between strength of chemotherapy and drug resistance by pathogens

Guest presentation to the Maricopa County Department of Public Health, Phoenix, AZ, USA August 2011

- "Evolutionary Biology of Malaria: Importance and Current Trends"

POSTER PRESENTATIONS

II Joint Congress on Evolutionary Biology, Montpellier, France August 2018

- "The effect of drug dose and duration on the evolution of resistance in an in-vivo model"

Jacques Monod Conference: Open questions in disease ecology and evolution, Roscoff, France October 2017

- "Introduction of malaria parasites to an existing infection suppresses total parasite numbers during infection relapse"

Ecology and Evolution of Infectious Diseases (EEID), Colorado State University, USA June 2014

- "Within-host ecology, drug treatment and the emergence of atovaquone-resistant malaria parasites"

Ecology and Evolution of Infectious Diseases (EEID), The Pennsylvania State University, USA June 2013

- "Exploring the effect of clone rarity on parasite success following drug treatment in mixed infections of *Plasmodium chabaudi*"

The American Society of Tropical Medicine and Hygiene (ASTMH) 60th Annual Meeting November 2012

- "A more ancient origin for high copy number of the merozoite surface protein 3 (MSP3) family"

The American Society of Tropical Medicine and Hygiene (ASTMH) 59th Annual Meeting December 2011

- "Similar diversity of the merozoite surface protein 3 alpha subfamily in Thai and Venezuelan *Plasmodium vivax* populations"

ACADEMIC AWARDS AND HONORS

SLOAN SCHOLAR, *The Pennsylvania State University* June 2015-2019
BRADDOCK AWARD, *The Pennsylvania State University* August 2012
POSTBACCALAUREATE SCHOLAR, NIH PREP PROGRAM, *Arizona State University* August 2011-June 2012
NATIONAL HISPANIC MERIT FINALIST SCHOLARSHIP AWARDEE, *Arizona State University* 2007-2011

TEACHING AND MENTORING

GUEST LECTURER, *The Pennsylvania State University* Fall 2018
Human infectious diseases (BIO 497) – "Malaria and drug resistance"

MENTOR TO HONORS UNDERGRADAUTE STUDENTS, *The Pennsylvania State University* 2014-Current
*Bridget Garrity *graduated May 2019*
*Joshua Bram *current medical student at The University of Pennsylvania*

GRADUATE STUDENT TEACHING ASSISTANT, *The Pennsylvania State University* Fall 2013, Spring 2017
Populations and Communities (BIO 220) – Instructor of course laboratory component
Biology: Basic Concepts and Biodiversity (BIO 110) – Instructor of course laboratory component

LANGUAGE

Conversationally fluent in Spanish, conversationally proficient in French