Chiara E. Micchelli

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Education

University of South Florida, Morsani College of Medicine Aug 2023–Present
PhD in Medical Sciences
Concentration in Allergy, Immunology, & Infectious Disease

Clemson University, Calhoun Honors College, Clemson, SC Aug 2017–May 2021
BS in Microbiology, concentration in Biomedicine
Magna cum laude | GPA 3.83/4.00

Research Experience

Doctoral Researcher, University of South Florida Jan 2024–Present
College of Public Health, Center for Global Health and Interdisciplinary Research
Advisor: John H. Adams, PhD

- Investigate how hemoglobinopathy-associated oxidative stress affects growth and antimalarial drug sensitivity in *Plasmodium falciparum*.
- Used growth and drug-sensitivity assays to show that parasites grown in oxidized red blood cells proliferate more slowly and are less sensitive to DHA.
- Analyzed RNA-seq data with DESeq2 and identified a blunted transcriptional response to DHA in oxidized red blood cells.

Postbaccalaureate Research Fellow, NIH Jul 2021–Jul 2023
Laboratory of Malaria and Vector Research, NIAID
Mentor: Thomas E. Wellems, MD, PhD

- Investigated the genetic and physiological basis of antimalarial drug tolerance.
- Organized experiments using cultured parasites and nonhuman primate samples.
- Collaborated with researchers at NIH, Johns Hopkins University, and the University of Maryland.

Undergraduate Researcher, Clemson University Jan 2019–May 2021
Eukaryotic Pathogens Innovation Center
Mentor: Zhicheng Dou, PhD

- Conducted biosafety level 2 research on *Toxoplasma gondii* for more than 11 hours per week.
- Contributed to poster presentations and two peer-reviewed publications.

Fellowships and Awards

NIH/NIAID Ruth L. Kirschstein Predoctoral NRSA (F31) 2026–Present

Identification of the genetic mechanisms involved in modulating artemisinin tolerance under oxidative stress in P. falciparum | Award No. F31AI200144 | 2026–2028

Outstanding Poster Award, NIH Postbac Poster Day May 2022

Outstanding Junior in Science, Microbiology, Clemson University Spring 2020

President's List, Clemson University Fall 2018–Spring 2019, Spring 2021

Dean's List, Clemson University Fall 2017–Spring 2018, Fall 2019–Fall 2020

Publications

Pires CV, Wang CCQ, Zhang M, **Micchelli C**, Prakash P, Oberstaller J, Rayner JC, Otto TD, Adams JH. *Plasmodium falciparum* leucine-rich repeat 5 disruption alters the transcription progression during asexual and sexual stage development. *mSphere*. 2026; PMID 42294623.

Pires CV, Oberstaller J, Wang C, Gibbons J, **Micchelli C**, Zhang M, Otto TD, Rayner JC, Taylor S, Adams JH. Phenotypic screens reveal *Plasmodium falciparum* genetic factors associated with infection of sickle-trait cells. *Blood Cells Mol Dis*. 2025; PMID 40782493.

Kiboi D, Sá JM, Nayak A, **Micchelli CE**, Amin SN, Burbelo AG, Abielmona SA, Xi B, Mulei LA, Onchieku NM, Percopo CM, Mu J, Wellems TE. Isolation and characterization of *Plasmodium falciparum* blood-stage persisters by improved selection protocols using dihydroartemisinin alone. *Antimicrob Agents Chemother*. 2025; PMID 39927767.

Micchelli CE, Percopo C, Traver M, Brzostowski J, Amin SN, Prigge ST, Sá JM, Wellems TE. Progressive heterogeneity of enlarged and irregularly shaped apicoplasts in *Plasmodium falciparum* persister blood stages after drug treatment. *PNAS Nexus*. 2024; PMID 39381646.

Thornton LB, Key M, **Micchelli C**, Stasic AJ, Kwain S, Floyd K, Moreno SNJ, Dominy BN, Whitehead DC, Dou Z. A cathepsin C-like protease mediates the post-translation modification of *Toxoplasma gondii* secretory proteins for optimal invasion and egress. *mBio*. 2023; PMID 37326431.

Key M, Bergmann A, **Micchelli C**, Thornton LB, Millard S, Dou Z. Determination of chemical inhibitor efficiency against intracellular *Toxoplasma gondii* growth using a luciferase-based growth assay. *J Vis Exp*. 2020; PMID 32420988.

Presentations and Posters

Micchelli CE, Pires CV, Adams JH. Genetic basis of hemoglobinopathy-associated oxidative stress adaptation and artemisinin tolerance of the human malaria parasite *Plasmodium falciparum*. Oral presentation at the ASTMH Annual Meeting, National Harbor, MD. November 2026.

Micchelli CE, Pires CV, Adams JH. The effects of hemoglobinopathy-associated oxidative stress on artemisinin sensitivity in *Plasmodium falciparum.* Oral presentation at USF Health Work in Progress seminar series, Tampa, FL. Nov 2026.

Micchelli CE, Pires CV, Adams JH. Genetic basis of hemoglobinopathy-associated oxidative stress adaptation and artemisinin tolerance in the human malaria parasite *Plasmodium falciparum.* Poster presentation at USF Molecular Medicine Retreat, Tampa, FL. Apr 2026.

Micchelli CE, Pires CV, Adams JH. Identification of the genetic mechanisms involved in modulating artemisinin tolerance under oxidative stress in *Plasmodium falciparum.* Oral presentation at the March Malaria Madness Meeting 2026, Tampa, FL. Mar 2026.

Micchelli CE, Pires CV, Adams JH. Identification of the genetic mechanisms involved in modulating artemisinin tolerance under oxidative stress in *Plasmodium falciparum.* Poster presentation at USF Health Research Day 2025, Tampa, FL. Feb 2026.

Micchelli CE, Pires CV, Adams JH. Identification of the genetic mechanisms involved in modulating artemisinin tolerance under oxidative stress in *Plasmodium falciparum.* Oral presentation at USF Health Work in Progress seminar series, Tampa, FL. Nov 2025.

Micchelli CE. Identification of the genetic mechanisms involved in modulating artemisinin tolerance under oxidative stress in *P. falciparum*. Oral presentation at USF Health, comprehensive qualifying examination, Tampa, FL. Jun 2025.

Micchelli CE, Pires CV, Prakash P, Subramani PA, Adams JH. Potential reversal of oxidative stress-induced artemisinin tolerance by epigenetic disruption in *Plasmodium falciparum*. Poster presentation at USF Health Research Day 2025, Tampa, FL. Feb 2025.

Micchelli CE. Cellular characterization of *Plasmodium falciparum* antimalarial responses. Oral presentation at USF Health Work in Progress seminar series, Tampa, FL. Nov 2024.

Micchelli CE, Percopo CM, Brzostowski J, Traver M, Amin SN, Sá JM, Wellems TE. Apicoplast heterogeneity in dormant forms of *Plasmodium falciparum*. Oral presentation at the Laboratory of Malaria and Vector Research Friday Seminar Series, Rockville, MD. Jul 2023.

Micchelli CE, Percopo CM, Brzostowski J, Traver M, Amin SN, Sá JM, Wellems TE. Airyscan Microscopy Reveals Drastic Organelle Alterations and Apicoplast Heterogeneity in Dormant *Plasmodium falciparum* Parasites. Poster presented at 2023 NIH Postbac Poster Day, Bethesda, MD. Apr 2023.

Micchelli CE, Amin SN, Percopo CM, Brzostowski J, Kiboi DM, Prigge ST, Sá JM, Wellems TE. Characterization of *Plasmodium falciparum* Subcellular Organelles and Their Interactions in Artemisinin-Induced Dormancy. Oral presentation at the Laboratory of Malaria and Vector Research Friday Seminar Series, Rockville, MD. Jul 2022.

Micchelli CE, Amin SN, Percopo CM, Brzostowski J, Kiboi DM, Prigge ST, Sá JM, Wellems TE. Characterization of *Plasmodium falciparum* Subcellular Organelles and Their Interactions in Artemisinin-Induced Dormancy. Poster presented at the 2022 NIH Virtual Postbac Poster Day. Apr 2022.

Amin SN, **Micchelli CE**, Percopo CM, Kiboi DM, Sá JM, Wellems TE. Examining *Plasmodium falciparum* Recrudescence after Artemisinin Treatment Using Single-Cell RNA Sequencing. Poster presented at the 2022 NIH Virtual Postbac Poster Day. Apr 2022.

Micchelli C, Thornton LB, Dou Z. The spatial resolution of the endolysosomal pathway in *Toxoplasma gondii*, a human protozoan pathogen. Oral presentation at the 2019 Cellular Biology of Eukaryotic Pathogens Conference, Clemson, SC. Oct 2019.

Micchelli C, Thornton LB, Dou Z. The spatial resolution of the endolysosomal pathway in *Toxoplasma gondii*, a human protozoan pathogen. Poster presented at the 3rd Annual Summer Creative Inquiry and Undergraduate Research Showcase, Clemson, SC. Aug 2019.

Technical Skills

Molecular and cell biology: Parasite and mammalian cell culture, drug-sensitivity assays, cloning, immunoblotting, flow cytometry

Imaging: Airyscan confocal microscopy, immunofluorescence microscopy, Imaris

Data analysis: RNA-seq differential expression with DESeq2, pathway enrichment analysis

Conferences Attended

March Malaria Madness Meeting | University of Central Florida College of Medicine, Orlando, FL | Mar 2025

USF Health Research Day | University of South Florida, Tampa, FL | Feb 2024 and Feb 2025

Johns Hopkins World Malaria Day Symposium | Virtual | Apr 2023

NIH Postbac Poster Day | Bethesda, MD | Apr 2023

Johns Hopkins 8th Future of Malaria Research Symposium | Virtual | Oct 2022

Molecular Parasitology Meeting | Virtual | Sep 2022

NIH Postbac Poster Day | Virtual | Apr 2022

NIAID–Fiocruz Symposium, Emerging and Persistent Global Health Threats | Virtual | Apr 2022

Keystone Symposium, Malaria: Confronting Challenges from Drug Discovery to Treatment | Virtual | Apr 2022

ASTMH Annual Meeting | Virtual | Nov 2021

Johns Hopkins 7th Future of Malaria Research Symposium | Virtual | Nov 2021

Cellular Biology of Eukaryotic Pathogens Conference | Clemson, SC | Oct 2019

3rd Annual Summer Creative Inquiry and Undergraduate Research Showcase | Clemson, SC | Aug 2019

Activities and Outreach

Volunteer, Mobile Medical Care, Inc. Feb 2022–Jul 2023

- Volunteered four hours per week, triaging and guiding patients as they arrived at the clinic.

Phi Delta Epsilon Medical Fraternity Feb 2018–May 2021

- Founding member of the Clemson SC Beta chapter. Contributed to finance committee and philanthropy activities.

Clemson University Microbiological Society Aug 2017–May 2021

- Attended career talks and networked with microbiologists in research, academia, and industry.

Additional Employment

Sales Associate, C. Orrico, Palm Beach, FL Mar 2017–Jan 2020

- Coordinated communication and merchandise transfers across five locations.
- Assisted customers with online and mobile purchases.