

Sumit Mukherjee, PhD

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Education

- 2018 Doctor of Philosophy in Biology**, Department of Biology, Texas Tech University, Lubbock, Texas, USA
Dissertation: “Understanding the role of ergosterol synthesis in *Leishmania major* stress responses”
Advisor: Dr. Kai Zhang
- 2008 Advanced Diploma in Biophysics and Bioinformatics**, Department of Molecular Biology, University of Calcutta, India
Thesis: “Factors influencing evolution of alternatively spliced genes in mammalian genomes”
Advisor: Dr. Tapas Chandra Ghosh
- 2007 Master of Science in Biology**, University of Calcutta, India
- 2005 Bachelor of Science in Biology**, University of Calcutta, India

Professional Experience

- 2025 – current Assistant Professor**, Department of Biology, Texas State University, San Marcos, Texas, USA
- 2019-2024 Postdoctoral Associate**, Washington University School of Medicine in St. Louis, St. Louis, Missouri, USA
- 2010-2018 Graduate Teaching Assistant**, Department of Biology, Texas Tech University, Lubbock, Texas, USA
- 2009-2010 Project Scientist**, Department of Medicinal Chemistry, Indian Institute of Chemical Biology, Kolkata, India

Selected List of Publications

- ♦ Rubiano K, Morris A , De Luna FV, Garcia B , **Mukherjee S**, Goldberg DG. A role for the poly-asparagine repeats in the *Plasmodium* histone acetyltransferase PfGCN5, 2025, Under revision. doi: 10.21203/rs.3.rs-7490809/v1
- ♦ Moitra S, **Mukherjee S**, Hernandez VL, Zhang K. C14DM Ablation Leads to Reduced Tolerance to Plasma Membrane Stress and Increased Drug Sensitivity in *Leishmania major*. *Int J Mol Sci*. 2025 Aug 31;26(17):8473. doi: 10.3390/ijms26178473.
- ♦ **Mukherjee S**, Nasamu A, Rubiano K, Goldberg DE. Activation of the *Plasmodium* egress effector subtilisin-like protease 1 is achieved by plasmepsin X destruction of the propiece. *MBIO*, 2023. doi: 10.1128/mbio.00673-23.
- ♦ Hasan MM, Polino AJ, **Mukherjee S**, Vaupel B, Goldberg DE. The mature N termini of *Plasmodium* effector proteins confer specificity of export. *MBIO*, 2023. doi: 10.1128/mbio.01215-23.

- ◆ **Mukherjee S**, Nguyen S, Sharma E, Goldberg DE: Maturation and substrate processing topography of the *Plasmodium falciparum* invasion/egress protease plasmepsin X. *Nature Communications*, 2022, doi: 10.1038/s41467-022-32271-7.
- ◆ Polino AJ, Miller JJ, Bhakat S, **Mukherjee S**, Bobba S, Bowman GR, Goldberg DE: The nepenthesin insert in the *Plasmodium falciparum* aspartic protease plasmepsin V is necessary for enzyme function. *Journal of Biological Chemistry*, 2022, doi: 10.1016/j.jbc.2022.102355.
- ◆ Karamysheva ZN, Moitra S, Perez A, **Mukherjee S**, Tikhonova EB, Karamyshev AL, Zhang K: Unexpected role of sterol synthesis in RNA stability and translation in *Leishmania*. *Biomedicines*, 2021, doi: 10.3390/biomedicines9060696.
- ◆ **Mukherjee S**, Moitra S, Xu W, Hernandez V, Zhang K: Sterol 14- α -demethylase is vital for mitochondrial functions and stress tolerance in *Leishmania major*; *Plos Pathogens*, 2020, doi: 10.1371/journal.ppat.1008810.
- ◆ **Mukherjee S**, Basu S and Zhang K: Farnesyl pyrophosphate synthase is essential for the promastigote and amastigote stages in *Leishmania major*. *Mol Biochem Parasitol*, 2019. doi: 10.1016/j.molbiopara.2019.03.001.
- ◆ **Mukherjee S**, Xu W, Fsu F, Patel J, Huang J and Zhang K: Sterol methyltransferase is required for optimal mitochondrial function and virulence in *Leishmania major*. *Molecular Microbiology*, 2018. doi: 10.1111/mmi.14139.
- ◆ Xu W, **Mukherjee S**, Ning Y, Fsu F and Zhang K: Cyclopropane fatty acid synthesis affects cell shape and acid resistance in *Leishmania mexicana*. *International Journal of Parasitology*, 2017. doi: 10.1016/j.ijpara.2017.09.006.

Book Chapter

- ◆ **Mukherjee S** and Goldberg DE: Plasmodial plasmepsins. *Proteolytic Enzymes and their Inhibitors in Infectious Pathogens*. Elsevier, 2025. In press.

Grants

Submitted (awaiting response)

- 2025:** “Understanding the molecular basis for *Plasmodium* rhoptry development”
Funding agency: NIAID, NIH; Role: PI
- “Function of a putative serine hydrolase in *Plasmodium* apicoplast”
Funding agency: NIAID, NIH; Role: PI

Awarded

- 2026-2027:** “Understanding the mechanisms of the host cell rupture during exit of the malaria parasite”
Funding agency: Texas State University, Division of Research; Total amount: \$11947.00
Role: PI
- 2023-2025:** “Understanding the molecular mechanism of parasitophorous vacuolar membrane disruption by egressing malaria parasites”
Funding agency: American Heart Association; Total amount: \$151476.00
Role: PI
- 2018:** **Doctoral Dissertation Award**
Funding agency: Texas Tech University, Graduate School; Total amount: \$3000.00
- 2017:** **Annual Research Award for Graduates**

Invited talks

- 2025** University of Wyoming, Department of molecular biology seminar series
Texas A&M University, San Antonio, Department of natural sciences
- 2024** University of Missouri Kansas City, Division of Biology and Biomedical Sciences
Washington University School of Medicine in St. Louis, Department of Cell Biology
National Center for Biological Sciences, Bengaluru, India
Indian Institute of Technology, Palakkad, India, Department of Microbiology
- 2023** Washington University School of Medicine in St. Louis, Department of Molecular Microbiology

Conference presentations and services

- 2025** Parasite Research in Progress (PARARip) webinar series
Molecular Parasitology Meeting, Woods Hole, MA, poster presentation
- 2023** Washington University Infectious Diseases/ Microbiology Conference, talk
- 2022** Molecular Parasitology Meeting, Woods Hole, talk & poster
- 2021** Molecular Parasitology Meeting, Woods Hole, talk
Washington University Infectious Diseases/ Microbiology Conference, talk
- 2019** Molecular Parasitology Meeting, Woods Hole
- 2018** Molecular Parasitology Meeting, Woods Hole, poster
Texas Tech annual graduate student research symposium
- 2017** Kinetoplastid Molecular Cell Biology Meeting, Woods Hole, poster
- 2013** Texas Tech Annual Biological Science Symposium, poster
- 2012** American Society of Cell Biology, annual meeting, poster
- 2007** Biological Sciences and Bio Engineering meeting, Indian Institute of Technology, Kanpur, India
poster

Academic Awards, Fellowships and Certificates

- 2023** Postdoctoral fellowship, American Heart Association
- 2018** Doctoral Dissertation Fellowship, Texas Tech University
- 2013** Best graduate poster presentation. Annual Biological Sciences Symposium,

2011 Best graduate teaching asst. award by Dept. of Biology, Texas Tech University

Certificate of achievement in video lecture series for teaching sponsored by TTU/HHMI Science Education Program Center for the Integration of Science Education and Research

2007 Department of Biotechnology Advanced Diploma Fellowship, Government of India

National Merit Scholarship for master's level studies, Government of India

2006 Foundation Subsistence Fellowship for master's level studies, University of Calcutta

Swati Bose Memorial Scholarship for Bachelor's education, University of Calcutta

Teaching

- ◆ **Lecture: Texas State University, Molecular Biology (BIO 4360):** Fall 2025, Spring 2026.
- ◆ **Teaching assistant and guest lecturer:**
Labs (2010-2018): Cell Biology for Biology major, Immunobiology for Microbiology major, Microbiology for Microbiology major and minor, Immunofluorescence Microscopy for Biology graduates. Human physiology and anatomy laboratory for Biology major.
Guest lectures: Immunobiology (MBIO 4300; Fall 2017, Spring 2018)

Mentoring

- ◆ **Texas State University (2025-current):** 1 postdoc, 1 PhD student, 4 undergraduates
- ◆ **Washington University in St. Louis (2019-2024):** 2 graduate and 2 undergraduate students
- ◆ **WUSTL molecular microbiology graduate students qualifying examination mentoring (2023-2024):** Mentoring students for preparing research proposals for their PhD qualifying examinations.
- ◆ **Postdoc Peer mentoring (2021-2023):** for incoming postdoctoral fellows, Washington University in Saint Louis Postdoctoral association.
- ◆ **Texas Tech University (2010-2018):** 4 undergraduate students

Services

- ◆ **Peer-Review Journal Reviewer**
 - *Scientific Reports*
 - The EMBO Journal
 - American Society for Microbiology journals
- ◆ Session chair: Molecular Parasitology Meeting, Woods Hole, MA, 2025

- ♦ **Reviewer, American Heart Association**, predoc and postdoc fellowships, virology and infectious diseases study section, 2024
- ♦ **Coordinator** for Return2India mentoring program, Sci-ROI Global, 2021-2022.

Professional membership

- ♦ American Heart Association (2022- current)
- ♦ American Society for Microbiology (2022-current)