Jabale Rahmat
Email: rahmat.jabale03oct@gmail.com
Home: 211 University Park, Rochester, NY, 14620
Work: University of Rochester 175 Corporate Woods Ste 100, Rochester, NY, 14623

Education

University of Rochester, Rochester, NY, USA
PhD, Biology, Expected Graduation Date: *May 2031*
Miami University, Oxford, OH, USA
M.S., Biology, Expected Graduation Date: *December 2024*
Advisor: Dr. Yoshinori Tomoyasu
Independent University, Bangladesh, Dhaka, Bangladesh
B.S., Biochemistry, *2020* (Magna Cum Laude)
Advisor: Ornob Alam

Honors and Awards

Ernst Caspari Fellowship ($2000 per year)
Top three poster presentation award in GRF ($300 in professional expense funds), *2023*
Graduate Assistantship at Miami University *2021-Present*
100% IUB Merit Scholarship (100% Tuition Waived), *2016-2020*
Vice Chancellor Honor's List (Book Scholarship: 30, 000 BDT/yr.), *2017-2020*

Teaching Experience

BIO 113L: Perspectives in Biology II: TA *Fall 2024* (Recitation)
BIO 116: Biological Concepts 2 lab: TA *Fall 2023* (Prep TA)
BIO 116: Biological Concepts 2 lab: TA *Spring 2023* (Lab lecture and Prep TA)
BIO 115: Biological Concepts 1 lab: TA *Fall 2022* (Lab lecture)
BIO 361: Developmental Biology lab: TA *Spring 2022* (Lab lecture)
BIO 115: Biological Concepts 1 lab: Prep TA *Fall 2021*
BIO 116: Biological Concepts 2 lab: TA *Spring 2021* (Lab lecture)

Research Experience

Justin Fay's lab at the University of Rochester, NY (1st Rotation) September 2024 – December 2024
My project focused on evaluating the impact of *CUP1* copy number on growth and replication in brewer's yeast Saccharomyces cerevisiae. The *CUP1* gene encodes a metallothionein involved in copper detoxification. To investigate the potential trade-offs associated with increased gene dosage, I attempted experiments to make transgenic yeast strains by introducing one additional copy of the *CUP1* gene. I employed two distinct transformation methods popular in yeast transgenic assays. To assess potential fitness costs or benefits, I conducted phenotypic assays by growing both transformed and wild-type control strains in media containing varying concentrations of copper.

Yoshinori Tomoyasu's lab at Miami University, Ohio, *January 2021 – Present*
My study focuses on understanding the underlying molecular mechanism of wing evolution in insects. I am using *Drosophila melanogaster* as a model organism to answer the question how the wing enhancers of *vestigial* (*vg*), a crucial wing gene, have evolved from the *vg*

ancestral body wall enhancers by the acquisition of signal transduction response elements.
Skills acquired: Fly genetics, gateway cloning, dissecting larva for imaginal discs, antibody staining, embryo collection and analyzing different stages of embryos, documenting imaginal discs and embryos using Zeiss LSM 710 Scanning Confocal and Zeiss Axio Imager 2 with ApoTome.2

Hackbio Internship online, *August 2020 – September 2020*
Transcriptomic dysregulations associated with SARS-CoV-2 infection in human nasopharyngeal and peripheral blood mononuclear cells using differential gene expression analysis with publicly available RNA-seq datasets
Skills acquired: R programming, Python 3, DAVID, Galaxy server

Independent University, Bangladesh, *June 2019 – December 2019*
Evidence for positive selection acting on the immune pleiotropic gene IDO1 since its emergence in mammals using bioinformatics tools such as PAML, Datamonkey, Phylip, clustalW etc.

Publications

1. Melo, Caroline Vilas Boas de, Maruf Ahmed Bhuiyan, Winfred Nyoroka Gatua, Stephen Kanyerezi, Leonard Uzairue, Priscilla Abechi, Karan Kumar, Jabale Rahmat, et al. 2020. "Transcriptomic Dysregulations Associated with SARS-CoV-2 Infection in Human Nasopharyngeal and Peripheral Blood Mononuclear Cells." *BioRxiv*, January, 2020.09.09.289850. https://doi.org/10.1101/2020.09.09.289850.
    a. Internship Research: Bioinformatic-Analysis of samples collected from two distinct regions of patients afflicted by the coronavirus. This research indicates that host response to SARS-CoV-2 is compartmentalized and suggests potential biomarkers of response to SARS-CoV-2 infection.
2. Asma Hasiba, Tieke Ellen, Deem Kevin D., Rahmat Jabale, Dong Tiffany, Huang Xinbo, Tomoyasu Yoshinori, Halfon Marc S. (2024) Regulatory genome annotation of 33 insect species eLife 13:RP96738 https://doi.org/10.7554/eLife.96738.1
    a. Master's side project: Evaluation of machine learning in predicting enhancer sequences within the genome of metazoan species. This research indicates that scrmShaw (a machine learning algorithm) can predict novel and orthogonal enhancer sequences from different insect species while getting trained using only *Drosophila melanogaster* enhancers.

Presentations

Wing enhancers of vestigial evolved through modifications of the body wall enhancers (Poster)
Miami University Graduate Research Forum (GRF)
Oxford OH, *November 2023*

Wing enhancers of vestigial evolved through modifications of the body wall enhancers (Poster)
64th Annual *Drosophila* Research Conference
Chicago IL, *April 2023*

Wing enhancers of vestigial evolved through modifications of the body wall enhancers (Poster)
Miami University Graduate Research Forum (GRF)
Oxford OH, *November 2022*

Did acquired transcription factor binding sites at *vestigial* enhancers lead to the evolution of wings in insects? (Poster)
Miami University Graduate Research Forum (GRF)
Oxford OH, *November 2021*

Evidence for positive selection acting on the immune pleiotropic gene IDO1 since its emergence in mammals. (Poster)
4th IPFS-ICBHA 2019-GNOBB Conference, *November 2019*

Extracurricular activities
Independent University, Bangladesh (IUB), Dhaka, Bangladesh
Center for Health, Population, and Development
Served as Student Ambassador for study on the social impact of the 1947 partition, in collaboration with Harvard South Asia Institute, *January 2018 - March 2019*

Here Be Dragons (Departmental Blog of SLS, Independent University, Bangladesh)
Writer, *May 2017- April 2020*
• "Cancer: An Unwanted Guest": on cancer
• "The age of Optogenetics: Lightning up Neurons to Explore Brain Functions": on a neuroscience method, optogenetics.
• "Moths hold their own in an Acoustic Evolutionary Arms Race": on a study about bat-moth arms race.
• "When cancer becomes a SCANDAL" on transmissible cancer