Dunham Clark
368 N Taylor Ave, Apt 301, Saint Louis, MO
dunham@wustl.edu | (269) 929 - 7617 | www.linkedin.com/in/dunhamclark

Education

University of Michigan **Ann Arbor, MI**
Bachelor of Science in Biology, Health, and Society *May 2023*
Relevant Coursework: Fundamentals of Cell Biology, Organic Chemistry, Microbiology, Biochemistry, Human Physiology

Bachelor of Science in Biopsychology, Cognition, and Neuroscience *May 2023*
Relevant Coursework: Statistical Modeling & Data Visualization in R; Statistics, Cognitive Science, Qualtrics, Neurobiology

Scholarships & Awards

2024 ABRCMS Presentation Award
2023 Victoria Finnerty Award
2022 Gomberg Chemistry Scholarship
2020 Michigan Competetive Scholarship
2020 Regents Merit Scholarship

Research Experience

Ackerman Lab **St. Louis, MO**
Research Technician II July 2023 - Current

- Leveraged *Drosophila* mutants to dissect mitochondrial and cytoskeletal regulation of neural circuit development and activity, employing genetic crosses and RNAi-mediated knockdowns.
- Utilized confocal microscopy techniques including immunohistochemistry, advanced expansion microscopy, and electron microscopy to visualize subcellular structures in whole mount tissue.
- Designed custom primers, plasmids, and molecular constructs for efficient generation, validation, and functional analysis of transgenic *Danio rerio* (zebrafish) lines.
- Performed high-throughput CRISPR/Cas9 microinjections in zebrafish embryos, resulting in targeted genome edits and establishment of genetically defined mutant lines.
- Applied PCR-based genotyping and Sanger sequencing to accurately screen zebrafish populations, enabling identification and propagation of novel transgenic and knockout lines.

Yadlapalli Lab **Ann Arbor, MI**
Research Assistant I April 2021 - June 2023

- Interpreted and analyzed qualitative and quantitative data to elucidate molecular and genetic mechanisms underlying circadian clock regulation in *Drosophila.*
- Captured and processed high-resolution images in vivo and in vitro using laser confocal microscopy
- Employed qPCR and gel electrophoresis to validate genomic sequencing in *Drosophila*.
- Prepared publication-quality figures, scientific diagrams, and manuscript sections, contributing to peer-reviewed research articles and scientific presentations.
- Maintained meticulous laboratory records adhering to current Good Laboratory Practices (cGLPs)
- Upkept and calibrated laboratory instruments and systems

Publications

Clark D, Zolnoski S, Heckman E, Kann M, Ackerman S (2025, bioXriv). Activity-dependent mitochondrial transport in peri-synaptic glia drives motor function. In preparation.

Chen Q, Yuan Y, **Clark D**, Yadlapalli S (2025, bioXriv). Sequestration of clock proteins into repressive nuclear condensates orchestrates circadian gene repression. In review.

Chen Q, Yuan Y, **Clark D**, Yadlapalli S (2025, submitted) Moira condensates scaffold peripheral gene hubs for circadian chromatin control.

Yuan Y, **Clark D**, Tran R, Xiao Y, Yadlapalli S (2024). Subcellular Localization of DCO/CSNK1E and SLMB/BTRC is Critical for Post-Translational Regulation of PER in Drosophila. In *MOLECULAR BIOLOGY OF THE CELL*

Yuan Y, Padilla M-A, **Clark D,** Yadlapalli S (2022). Streamlined single-molecule RNA-FISH of core clock mRNAs in clock neurons in whole mount Drosophila brains. Frontiers in Physiololgy.

Presentations

Clark D, Zolnoski S, Heckman E, Kann M, Ackerman S. Activity-dependent mitochondrial transport in peri-synaptic glia drives motor function. Journal of Cell Biology (Presented as talk at Axon2025).

Clark, D, Zolnoski S, Heckman E, Kann M, Ackerman S. Activity-Dependent Regulation of Mitochondrial Transport in Astrocytes (Presented as poster at ABRCMS 2024, received ABRCMS 2024 Presentation Award)

Clark, D, Ackerman, S., *Defining the Contribution of the Dendritic Cytoskeleton to Critical Period Closure (Presented at TAGC 2024)*

Clark, D, Yuan, Y, Chen, Q, Wilson, C, Yadlapalli, S. Clock protein-chromatin complexes are assembled within nuclear condensates to enable circadian gene repression (Presented as poster at GSA Dros23, recipient of Victoria Finnerty Award)

Leadership/Extracurricular Experience

CURIS - Public Health Advocacy **Ann Arbor, MI**
Internal Vice President April 2021 - April 2023

- Coordinate seminars and panels with public health professionals to educate both club and community members
- Exercise and build basic team effectiveness skills {e.g., commitment, feedback} within the immediate work group
- Co-author on Program for Multicultural Health and Department of Equity and Inclusion collaborative newsletter
- Produce policy recommendations and reform for state legislature to be presented to 110 legislators

University of Michigan Rotaract **Ann Arbor, MI**
Secretary May 2021 - April 2023

- Organize club files and resources inside Google Suite to increase storage efficiency by 17%
- Act as point of communication for community partnership and public relations

- Brainstorm new ideas for social innovation through volunteering with an environmentally-focused lens

Volunteering/Outreach

Amazing Brain Carnival **Saint Louis, MO**
Volunteer Scientist Spring 2024 - Current

- Facilitated interactive neuroscience demonstrations at the Saint Louis Science Center's SciFest, engaging children and families in hands-on learning.
- Communicated complex neuroscience concepts in clear, accessible language to a wide and diverse audience, ranging from young children to adults.
- Promoted STEM education by sparking curiosity in children who may have limited early exposure to neuroscience.
- Collaborated with fellow volunteers to create an immersive, inclusive outreach experience for the St. Louis community.

Brain Discovery **Saint Louis, MO**
Volunteer Neuroscientist Spring 2024 - Current

- Engaged 4th–6th grade students in neuroscience outreach through weekly classroom visits across a six-week program.
- Led hands-on experiments and interactive activities exploring brain structure, nervous system function, and the scientific method.
- Fostered curiosity and scientific literacy by guiding students in observations, data collection, and critical thinking.
- Collaborated with teachers and fellow scientists to create an accessible and inspiring STEM learning environment.

Technical Skills

Computational: BLAST, Arduino, Microsoft Office Suite, R, Python, Benchling, Adobe Creative Suite, MATLAB, ImageJ/Fiji, Graphpad Prism, GitHub/Git, RNA-seq/ATAC-seq analysis, statistical analysis, statistical modelling, Data wrangling, SnapGene, machine learning,

Wet Laboratory: CRISPR/Cas9 genome editing, RNAi knockdown, PCR (standard and qPCR), gel electrophoresis, Sanger sequencing, primer and plasmid design, cloning, immunohistochemistry (IHC), confocal microscopy, expansion microscopy (ExM), electron microscopy (TEM, SEM), single-molecule RNA-FISH, *Drosophila* genetics, zebrafish transgenics, genotyping, tissue clearing, whole mount preparation, cGLP-compliant lab practices, live-imaging

Languages

English (Native)
Spanish (Conversational)