Keilen Kelly

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EDUCATION

2019-present Ph.D. Candidate Microbiology, School of Life Sciences, Arizona State University
Dissertation: Osmotic stress tolerance conferred by RNA polymerase mutations in *Escherichia coli*
Dissertation advisor: Rajeev Misra

2019 B.S. Microbiology, Brigham Young University

TEACHING EXPERIENCE

2023-present **Instructor of Record**, School of Life Sciences, Arizona State University
School of Life Sciences Undergraduate Research (SOLUR) Seminar

2019-2022 **Graduate Teaching Assistant**, School of Life Sciences, Arizona State University
General Genetics, Bacterial Physiology Lab, General Biology Lab I

2019 **Teacher**, Paradise Valley Unified School District, Phoenix, AZ
Summer science class for K-3 students

2015-2019 **Teaching Assistant**, College of Life Sciences, Brigham Young University
Principles of Biology, Advanced Bacterial Physiology

RESEARCH EXPERIENCE

2019-present **Graduate Research Assistant**, School of Life Sciences, Arizona State University
Research topic: Characterizing the effect of an RNA polymerase mutation on stress responses in *E. coli*, particularly osmotic stress tolerance
Research advisor: Rajeev Misra, Ph.D.

2017-2019 **Undergraduate Research Assistant**, College of Life Sciences, Brigham Young University
Research topic: Examining the effect of mutations in polyphosphate metabolism in *E. coli*.
Research advisor: Bill McCleary, Ph.D.

PUBLICATIONS

2020 Nguyen D, **Kelly K**, Qiu N, Misra R. 2020. YejM controls LpxC levels by regulating protease activity of the FtsH/YciM complex of *Escherichia coli. J Bacteriol* **202**:e00303-20.

2018 Vuppada RK, Hansen CR, Strickland KAP, **Kelly KM**, McCleary WR. 2018. Phosphate signaling through alternate conformations of the PstSCAB phosphate transporter. *BMC Microbiol* **18**(1):8.

CONFERENCE PARTICIPATION

2024 **Kelly, K** & Misra, R. RNA polymerase mutation in *E. coli* confers osmotic stress tolerance independent of RpoS. American Society for Microbiology, Arizona and Southern Nevada Branch. Las Vegas, Nevada, April 2024. (poster presentation).

2021 **Kelly, K** & Misra, R. Highly osmotic tolerant *E. coli* RNA polymerase mutants. American Society for Microbiology, Arizona and Southern Nevada Branch. Virtual meeting, April 2021. (poster presentation).

2019 **Kelly, K**, Dean, B, Wood, J, McCleary, WR. Use of ScPPX to quantify polyphosphate accumulation in *E. coli* strains with mutations in phosphate homeostasis. TriBranch Meeting of the American Society for Microbiology. Provo, Utah, April 2019. (poster presentation).

2018 **Kelly, K**, Wood, J, McCleary, WR. Phosphate homeostasis mediated by transporter YjbB and polyphosphate sequestration. TriBranch Meeting of the American Society for Microbiology. Durango, Colorado, April 2018. (poster presentation).

ADDITIONAL RESEARCH PRESENTATIONS

2023 **Kelly, K** & Misra, R. RNA polymerase mutation *rpoB58* increases tolerance to osmotic stress by altering regulation of multiple interconnected stress responses in *Escherichia coli.* SoLS Graduate Poster Showcase. Tempe, Arizona. November 2023. (poster presentation).

2023 **Kelly, K** & Misra, R. RNA polymerase mutation in *Escherichia* coli confers high tolerance to osmotic stress. ARCS Foundation Phoenix Scholar Awards Dinner. Phoenix, Arizona. April 2023. (poster presentation).

2022 **Kelly, K** & Misra, R. RNA polymerase mutation in *Escherichia coli* confers high tolerance to osmotic stress. ARCS Foundation Phoenix Scholar Awards Dinner. Phoenix, Arizona. April 2022. (poster presentation).

2019 **Kelly, K,** Dean, B, McCleary, WR. A biochemical approach to quantifying phosphate accumulation in *E. coli.* College Undergraduate Research Award presentation. Provo, Utah, April 2019. (poster presentation).

PROFESSIONAL SERVICE

2019-present Speaker for students at Paradise Valley High School, Phoenix, AZ

- "Graduate experience in Microbiology", guest speaker for Paradise Valley High School CREST's Microbiology course, Phoenix AZ *(October 2023)*
- "Bacterial Staining and Morphology", guest speaker for Paradise Valley High School CREST's Microbiology course, Phoenix, AZ (*April and October 2020)*
- "From CREST to a Ph.D.", guest speaker for Paradise Valley High School CREST's Microbiology course, Phoenix AZ *(December 2019)*

2019-present Volunteer for "Ask A Biologist" at Arizona State University

2023 Research mentor for high school microbiology capstone projects at Paradise Valley High School, Phoenix, AZ

2020 Volunteer teacher for Graduate Partners in Science Education (GPSE) at Arizona State University

FELLOWSHIPS, AWARDS, AND DISTINCTIONS

2022-2025 Achievement Rewards for College Scientists (ARCS) Scholarship

2021 Harry Lowell Swift Advancing Health Scholarship

2019 School of Life Sciences Fellowship, Arizona State University

2018 College Undergraduate Research Award, Brigham Young University

ADDITIONAL TRAINING AND EXPERIENCE

2023-2024 **Instructor for Laboratory Immersion week**, Arizona State University
Lead instructor: Susan Holechek, Ph.D.

2023 **Student in Bioscience Data Carpentry in R seminar**, Arizona State University
Instructor: Reed Cartwright, Ph.D.

TECHNICAL SKILLS

Online Course Management: Canvas, LearningSuite

Data Management: R, RStudio, Excel

Office Programs: Microsoft Office (Word, PowerPoint, Excel, OneNote), Google Drive (Docs, Sheets, Slides, Forms), Zoom

Laboratory Skills: Molecular cloning, PCR, Western blotting, bacterial culture, beta-galactosidase assay, transformation, transduction, protein purification

PROFESSIONAL AFFILIATIONS

2021-present **American Society for Microbiology**, Arizona and Southern Nevada Branch

2024-present **Certified Data Carpentry instructor**, The Carpentries initiative

REFERENCES

Rajeev Misra, Ph.D.
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Professor, School of Life Sciences
Graduate Research Advisor
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Arizona State University
Assistant Teaching Professor, School of Life Sciences
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