School of Molecular Sciences
Arizona State University

SMS Fall 2021 Seminar Series

Friday Sept 10 | 2:30pm | Biodesign Auditorium*

Something Old, Something New, Something Borrowed, Copper II

Copper is broadly toxic to bacteria and has been exploited since antiquity for food storage and to prevent spoilage. Copper is used in hospital tools and as a surface material because of its ability to significantly reduce the spread of bacteria, regardless of their ability to resist antibiotics, as compared to stainless steel. Even our bodies use copper, via innate immune cells, to kill pathogenic bacteria. Underscoring the necessity to purge intracellular copper, bacteria have evolved highly conserved copper export systems consisting of an operon repressor, a copper chaperone, and a copper exporter. Here, I detail copper mechanisms of toxicity, how the bacteria overcome these mechanisms, and copper-based therapeutic strategies against pathogenic organisms.

Michael D. L. Johnson, PhD

Assistant Professor, University of Arizona

Dr. Michael D. L. Johnson received an A.B. in Music from Duke University and his Ph.D. in Biochemistry and Biophysics at the University of North Carolina at Chapel Hill. After completing his dissertation in bacterial motility and attachment, he went to St. Jude Children's Research Hospital in the Department of Infectious Disease to study how bacteria process nutrients, specifically metals, during bacterial infections. He then worked in the Department of Immunology studying newly discovered ways of how the body eliminates harmful pathogens. During his postdoctoral fellowship, he also founded Science Sound Bites, a science podcast for kids.

Currently, Dr. Johnson is an Assistant Professor at the University of Arizona in the Department of Immunobiology where he studies mechanisms of metal toxicity in bacteria. He is active in science outreach through events like founding the National Summer Undergraduate Research Project and The BIO5 Postdoctoral Fellowship Program, in minority scientific affairs through the American Society for Microbiology, and online through twitter @blacksciblog.

**ZOOM option available: https://asu.zoom.us/j/87081218152*