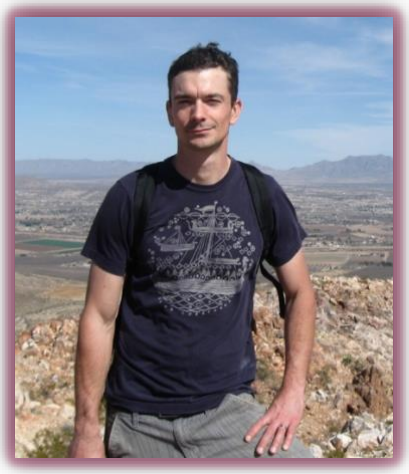
Biomedical Research Seminar Series

Speaker Announcement

Friday, September 14, 2018 @ 3:30 pm

Domenici Hall, Room 109

(Refreshments served at 3:00)



Erik Yukl, PhD

Assistant Professor
Department of Chemistry & Biochemistry
New Mexico State University

Structure and Function of bacterial zinc import proteins, a potential antimicrobial drug target

The emergence of “superbugs” that are resistant to all of our current frontline antibiotics has highlighted the need for the development of novel antimicrobial therapies. Current antibiotics target one of several essential bacterial processes such as cell wall biosynthesis, protein synthesis or DNA replication. Rapid bacterial evolution drives mutation of the targeted systems and subsequent resistance. Thus, there is a compelling need to identify and validate new bacterial targets. We are interested in the mechanisms by which bacteria acquire the essential metal zinc as one such target. Bacterial trace metal homeostasis is essential for virulence, requires extracellular components and shares no similarity with mammalian systems. We have determined the structures, functions, and molecular mechanisms of extracellular proteins involved in zinc acquisition in *Paracoccus denitrificans*. We use this non-pathogenic organism as a model for zinc homeostasis in a class of “superbugs” known as Carbapenem Resistant *Enterobacteraceae* (CRE) due to the high similarity of zinc homeostasis genes. It is hoped that our work will lead to the rational design of small molecule inhibitors of zinc homeostasis as effective antibiotics against resistant bacteria.

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The BMRS series is supported by the Office of the Provost, the College of Arts and Sciences, the Departments of Chemistry & Biochemistry, and the NM-INBRE program.

For more information or to meet with the speaker please contact Ryan Ashley at ryashley@nmsu.edu