Medical Microbiology and Immunology (MMI) Track

Department of Medical Microbiology & Immunology

COLLEGE OF MEDICINE AND LIFE SCIENCES
THE UNIVERSITY OF TOLEDO

THESIS COMMITTEE

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1872

THESIS PRESENTATION

by

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Exploring Potential inducers of the Psp Response in *Vibrio cholerae*

M.S. in Biomedical Sciences

PRESENTATIONS AND AWARDS

DeVanna, K., Matson, J.S. "Inducers of the Psp Response in *Vibrio cholerae*" Poster Presentation at Graduate Research Forum 2022

FUTURE PLANS

Kelli plans to find a job in Microbiology and apply to Ph.D. programs in the future.

ABSTRACT

Vibrio cholerae is the Gram-negative bacterium that causes epidemic cholera. The phage shock protein (Psp) response is an extracytoplasmic stress response. There has been very limited study on the Psp response in *V. cholerae*. Previous work found that the GspD secretin from the type II secretion system induces the *V. cholerae* Psp response. Due to the limited previous studies on this system in *V. cholerae*, we hypothesize that the *V. cholerae* phage shock protein response can be induced by other proteins and external factors that have yet to be identified. Potential inducers that were homologs of protein inducers of the Psp response in other bacteria were cloned into a reporter strain of *V. cholerae* to evaluate their ability to induce the Psp system. We also explored other factors that may induce the Psp response in *V. cholerae*. To identify additional protein inducers of the phage shock protein response in *V. cholerae*, we attempted a transposon mutagenesis screen to identify genes that, when overexpressed, induced the Psp response. A similar strategy was used to identify several unexpected protein inducers in *Yersinia enterocolitica*. Improved understanding of the *V. cholerae* Psp response can provide better insight into the pathogen's response to stress.

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