

Virulence investigations in *Vibrio parahaemolyticus* and *Vibrio vulnificus*

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Vibrio species are the leading cause of bacterial illness (*V. parahaemolyticus*) and mortality (*V. vulnificus*) associated with seafood consumption in the United States. Pathogenicity of these organisms is not fully understood, likely due to the involvement of multiple factors. Some virulence determinants have been identified for these organisms; however, no one virulence determinant, or set of determinants, has been shown to be required to cause illness. Additionally, isolates from patients with disease can lack any known virulence markers. In other instances, areas of the country with the greatest incidence of illness have lower levels of strains with identified virulence determinants in environmental samples. Taken together, these data highlight the necessity for identification of more robust virulence determinants in *V. parahaemolyticus* and *V. vulnificus*. Our laboratory has undertaken the quest for identification of new virulence biomarkers in these two pathogens using well characterized sets of clinical (presumed virulent) and environmental (presumed mostly avirulent) isolates. Using these strain panels, multiple approaches are being used to identify distinguishing features of the virulent (clinical) strains. Methods currently being employed include molecular subtyping, proteomics, and whole genome sequencing. A brief history of the understanding of *vibrio* virulence will be presented, followed by the detailed approach for identification of new biomarkers undertaken in our laboratory and resultant findings.

Biography

Jessica L. Jones is a Research Microbiologist at the Gulf Coast Seafood Laboratory of the United States Food and Drug Administration (US FDA). She has published widely in peer-reviewed journals as well as in several book chapters, mainly on pathogenic *vibrio* species. She is also an editorial board member for respected journals in her field. She obtained her B.Sc. in Marine Biology from Troy University, Alabama, USA and Ph.D. in Basic Medical Sciences from the University of South Alabama, USA.

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