How seafood-borne pathogens vanquish beneficial gut bacteria

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Video Byte

Keywords: Microbiome, *Vibrio vulnificus*, Cyclo-Phe-Pro, gut microbiota, seafood, food-borne pathogens, *Bacteroides vulgatus*, membrane disruption, ObgE

Posted Date: October 13th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-967282/v1>

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Abstract

Vibrio vulnificus are pathogenic bacteria commonly found in raw or undercooked seafood. In humans, members of this bacterial species can cause vomiting, diarrhea, and abdominal pain, but how *V. vulnificus* makes it past the gut's defenses has remained unclear. To find out, researchers examined fecal samples from mice that died of *V. vulnificus* infection. These mice showed a notable decrease in the abundance of *Bacteroides vulgatus*, beneficial gut bacteria that normally help block disease. When cultured together, *V. vulnificus* led to a decrease in the survival of *B. vulgatus*. This antagonistic effect was found to be mediated by the compound cFP, secreted by *V. vulnificus*. Direct treatment with cFP collapsed the cellular structure of *B. vulgatus*, and mice fed cFP showed significantly lower levels of *B. vulgatus* and an increased susceptibility to infection by *V. vulnificus*. These effects were traced to the interaction between cFP and the OgbE protein found in *B. vulgatus*. Isolating the role of OgbE could help scientists understand how *V. vulnificus* primes the gut for invasion.