**Uncovering the Role of Vp16PDF in the Viral Weaponry of Bacteriophages: Implications for Vibrio parahaemolyticus Pathogen Infectivity**

Climate change is causing significant disruptions in the marine environment, affecting various aspects such as temperature, salinity, and nutrient availability. These changes have profound implications for marine ecosystems, including the interactions between pathogenic bacteria and their phages. Vibrio parahaemolyticus, a marine pathogen responsible for foodborne illnesses, has seen increased growth and infections worldwide due to rising ocean temperatures. The misuse and overuse of antibiotics have further contributed to antibiotic resistance, posing a significant threat to public health.

In this Master2 project, we aim to investigate the significance of a specific phage protein called Vp16PDF in the infectivity of bacteriophages derived from Vibrio parahaemolyticus.

Peptides deformylases (PDFs) are enzymes involved in an essential process called N-terminal methionine excision (NME), which plays a role in protein biogenesis at the ribosome level. PDFs remove the formyl group from N-formyl-methionine, the initial amino acid in prokaryotic proteins. While PDFs have been extensively studied in bacteria, their presence in viruses, including phages, remains intriguing and poorly understood. However, a number of unpublished results strongly suggested that Vp16PDF might be important for the phage infectivity. Therefore, the main objective of this project will be to characterize the role of this viral PDF and determine its involvement in host infectivity and lysis. The student will explore this concept by producing Vp16PDF KO phage by Homologous recombination and the impact of the absence of this Vp16PDF in the phage genome in the bacterial infection will be investigated. This study aims to confirm the lethality induced by Vp16PDF and shed light on its potential implications in host lysis.

The findings from this research project will contribute to our understanding of the fascinating relationship between phages and their hosts. Moreover, it has the potential to explore the therapeutic use of viral Vp16PDF properties in phage therapy, which utilizes bacterial viruses to treat bacterial infections.

Join our international research team and become a part of this exciting project that investigates the intriguing world of bacteriophages and their impact on Vibrio parahaemolyticus pathogens. This Master2 project offers an excellent opportunity to gain practical experience, contribute to cutting-edge research, and explore potential applications in the field of phage therapy.