



## Fish Pathology and Immunity

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### Message from the Guest Editors

Viruses, bacteria, fungi, and parasites cause serious infectious diseases not only in human but also fish and shellfish. Until now, researchers in microbiology have investigated the outbreak mechanisms of infectious diseases mostly from the viewpoint of pathogenicity of pathogens. However, it is still difficult to accurately account for the causes of many infectious diseases because of the complex factors deciding the pathogenicity of pathogens and immune state of host organisms. Therefore, elucidation of the outbreak mechanisms of infectious diseases from viewpoints of both pathogenicity of pathogens and environmental changes is important, because such changes are known to be able to induce stressors in host organisms resulting in suppressing their immune systems. Specially, physical, chemical and biological impacts in aquatic ecosystems, e.g., hypoxia, pollutants, and red tide, would be stressors for aquatic organisms.

This Special Issue “Fish Pathology and Immunity” will cover research topics and outbreak mechanisms of fish diseases related to environmental changes.





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