Special Issue

Unraveling the Mysteries of Gut Microbiota to Advance Sustainable Aquaculture

Message from the Guest Editor

With the intensification of aquaculture practices, the pivotal role of intestinal microbiota in the nutritional metabolism and immune regulation of aquatic animals has become increasingly prominent. As the "second genome," gut microbiota profoundly influences the growth performance and health of aquatic organisms by participating in host energy metabolism, vitamin synthesis, and pathogen defense. Recent breakthroughs in high-throughput sequencing and metabolomics have provided novel insights into host–microbe interactions. However, compared to terrestrial animals, research on aquatic gut microbiota still faces critical challenges, including unclear mechanistic pathways and limited regulatory strategies. This Special Issue focuses on the interdisciplinary frontier of gut microbiota and aquatic animal nutrition and immunity, aiming to consolidate cutting-edge advances in aquatic nutrition, microbiology, and immunology.

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"Microorganism" merges the idea of the very small with the idea of the evolving reproducing organism is a unifying principle for the discipline of microbiology. Our journal recognizes the broadly diverse yet connected nature of microorganisms and provides an advanced publishing forum for original articles from scientists involved in high-quality basic and applied research on any prokaryotic or eukaryotic microorganism, and for research on the ecology, genomics and evolution of microbial communities as well as that exploring cultured microorganisms in the laboratory.

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