International Journal of Genomics

Special Issue on

Application of Functional Genomics in Aquacultured Fish and Shellfish

CALL FOR PAPERS

Genomic studies in aquacultured species have progressively evolved from the traditional reductionist single-gene approaches to high throughput genomic methodologies, revolutionizing our ability to read genome sequences, entire transcriptomes, and epigenomes of living organisms. These advances enabled functional genomics studies to elucidate complex relationships between genotypes and phenotypes on a global genome-wide scale. These advances include metagenomics studies that link the assemblage of microorganisms to host physiology as well as enhancing the discovery of novel pathogens in order to pave the road for the timely design of rational disease control strategies. Consequently, this has led to genomics studies being transformed into functional applications used for the identification of genomic traits linked to growth, disease resistance, and host defense mechanisms against pathogens. In parallel, there has been an increase in the number of studies aimed at identification of genes and mechanisms controlling growth in aquaculture conditions and disease resistance against common pathogens. In vaccine development, functional genomics studies are also being used, for example, to find genomic markers that correlate with protective immunity. In therapeutics, genomics studies are being used to identify antimicrobial peptides and remedial genes able to enhance tissue regeneration after pathology induced by microbial invasion while nutrigenomics have shown that active immune surveillance is crucial for protecting the intestine of aquatic organisms. Overall, these advances show that genomics studies are being transformed into functional applications able to enhance aquaculture production while making it safer, more sustainable, and environmentally friendly.

However, to fully understand where we are and to determine the level of achievements attained so far, we invite investigators to contribute articles that seek to bring into perspective different studies aimed at improving the growth traits of aquacultured fish and shellfish as well as enhancing disease control strategies using functional genomics applications in aquaculture.

Potential topics include but are not limited to the following:

- Use of metagenomics and its application in disease control
- Application of functional genomics in antimicrobial peptides (AMPs) and therapeutic drug discovery
- Nutrigenomics, regulation of food intake, and hormones
- Transcriptome analyses of significant physiological states
- Advancements in genome editing technologies
- Application of functional genomics in vaccine development

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/ijg/afg/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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