

## Special Issue

# Molecular Genetics Applied to Aquaculture: From Breeding Stock Selection to Biotechnological Innovations

### Message from the Guest Editors

Sustainable aquaculture is crucial to increasing production efficiency, competitiveness, and product quality. To achieve these goals, improvements in feeding practices, breeding conditions, disease control, and genetics are essential. Genetic management of breeding stocks, supported by pedigree programs, can produce animals with higher growth rates, fertility, and disease resistance. Advances in molecular genetics now allow precise monitoring of genetic diversity using molecular markers, which aids in the selection of superior breeding stocks. Forensic tools also allow the detection of commercial fraud, safeguarding the integrity of aquaculture practices. Next-generation sequencing has revolutionized the field, providing vast data that fuels biotechnological innovations. In addition, genetic manipulation techniques, such as the production of monosex populations, have become practical solutions for many aquatic species. This Special Issue aims to present research on molecular genetic tools to advance aquaculture. Our aim is to discuss and develop strategies that not only improve production efficiency and competitiveness but also ensure that aquaculture is sustainable.

### Guest Editors

Dr. Cristiana Ramalho Maciel

Prof. Dr. Fernando Araújo Abrunhosa

Dr. Vanessa Paes da Cruz

Dr. Ítalo Antônio de Freitas Lutz

### Deadline for manuscript submissions

closed (25 July 2025)

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## Genes

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### Message from the Editor-in-Chief

*Genes* is central to our understanding of biology, and modern advances such as genomics and genome editing have maintained genetics as a vibrant, diverse and fast-moving field. There is a need for good quality, open access journals in this area, and the *Genes* team aims to provide expert manuscript handling, serious peer review, and rapid publication across the whole discipline of genetics. Starting in 2010, the journal is now well established and recognised. Why not consider *Genes* for your next genetics paper?

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### Editor-in-Chief

Prof. Dr. Selvarangan Ponnazhagan  
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