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Special Issue Reprint

Genetics and Breeding in Aquaculture

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This Reprint brings together ten original research articles that represent recent advances in genetics and breeding for aquaculture. Covering a broad range of topics, including sex differentiation, sex-biased gene expression, mutagenesis breeding, growth trait heritability, and immune response mechanisms, the studies highlight both fundamental biological insights and applied breeding strategies. Key model and non-model aquaculture species are featured, including tilapia, grass carp, bullfrog, and zig-zag eel, offering species-specific approaches to genetic improvement. Methodological innovations span from RNA interference and gene expression profiling to mutagenesis and quantitative trait analysis, reflecting the integration of molecular and quantitative tools in aquaculture breeding programs. This collection provides a comprehensive overview of how omics technologies and functional validation are being leveraged to enhance performance traits and disease resistance, paving the way for more precise, sustainable, and efficient aquaculture systems.



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