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Chapter 4: Prospects and Pitfalls of Clonal Fishes in the Postgenomic Era; BACKGROUND; CLONAL LINES: A REPEATABLE EXPERIMENTAL SYSTEM; GENETIC ANALYSES USING CLONE CROSSES; UTILIZATION OF DNA OR RNA FROM CLONES; CASE EXAMPLES OF POTENTIAL FOR UTILIZING CLONES IN AQUACULTURE-RELATED RESEARCH; CONCLUSION; Part 2: Molecular Cytogenetics; Chapter 5: Application of Fluorescence In Situ Hybridization (FISH) to Aquaculture-Related Research; INTRODUCTION; LOCALIZATION OF REPETITIVE SEQUENCES, TRANSPOSONS, AND TRANSGENES; IDENTIFICATION AND CHARACTERIZATION OF SEX CHROMOSOMES; CHARACTERIZATION OF INTERSPECIFIC HYBRIDS AND CHROMOSOME SET MANIPULATION; ASSIGNMENT OF GENETIC LINKAGE GROUPS TO SPECIFIC CHROMOSOMES (GENOME MAPPING); IDENTIFICATION OF PATHOGENS IN CULTURED SHELLFISH, FISH, AND WASTEWATER GENERATED BY AQUACULTURE; FUTURE APPLICATIONS; Part 3: Fish Health; Chapter 6: The Application of Genomics, Proteomics, and Metabolomics to Studies of Fish Health; INTRODUCTION; STUDIES OF PATHOGEN BIOLOGY; HOST-PATHOGEN INTERACTIONS; APPLICATIONS OF GENOMICS AND PROTEOMICS TO VACCINE DEVELOPMENT; CONCLUDING REMARKS; Chapter 7: Antimicrobial Peptides and Their Potential as Therapeutics in Aquaculture; OVERVIEW; PHYSICAL PROPERTIES OF ANTIMICROBIAL PEPTIDES; DISTRIBUTION OF ANTIMICROBIAL PEPTIDES; EXPRESSION OF ANTIMICROBIAL PEPTIDES; ACTIVITIES OF ANTIMICROBIAL PEPTIDES; THERAPEUTIC POTENTIAL OF ANTIMICROBIAL PEPTIDES; FUTURE DEVELOPMENTS; ACKNOWLEDGMENTS; Chapter 8: Adaptive Immunity in Finfish: A Physiological Perspective; INTRODUCTION; THE IMMUNE SYSTEM AS A WHOLE INTEGRATIVE DEFENCE MECHANISM; MHC RECEPTORS; ANTIGEN PRESENTATION IN THE ADAPTIVE IMMUNE RESPONSE; MHC SEQUENCES AND THEIR APPLICATIONS; CYTOKINES AND CHEMOKINES AS MEASURES OF IMMUNE RESPONSES

Sommario/riassunto

This important book looks at a broad spectrum of biotech research efforts and their applications to the aquaculture industry. Aquaculture Biotechnology provides key reviews that look at the application of genetic, cellular, and molecular technologies to enable fish farmers to produce a more abundant, resilient, and healthier supply of seafood. Aquaculture Biotechnology is divided into seven sections and nineteen chapters that cover topics ranging from broodstock improvement to fish health and gene transfer. With chapters provided by leading researchers and skillfully edited by to
