

Fish Development And Genetics The Zebrafish And Medaka Models

Fish Development and Genetics Zhiyuan Gong 2004 The zebrafish is the most important fish model in developmental and genetic analyses. This book contains 19 review articles covering a broad spectrum of topics, from development to genetic tools. The contents range from early development, the role of maternal factors and gastrulation, to tissue differentiation and organogenesis, such as development of the organizer, notochord, floor plate, nervous system, somites, muscle, skeleton and endoderm

Fish as Model Organism for Skeletal Diseases Erika Kague 2023-11-30

Genetics, Genomics and Fish Phenomics 2016-08-05 Genetics, Genomics and Fish Phenomics provides the latest information on the rapidly evolving field of genetics, presenting new medical breakthroughs that are occurring as a result of advances in our knowledge of genetics. The book continually publishes important reviews of the broadest interest to geneticists and their colleagues in affiliated disciplines, critically analyzing future directions, with this volume focusing on genetics, genomics, and phenomics of fish. Includes a critical analysis of future directions for the study of clinical genetics Written and edited by recognized leaders in the field Presents new medical breakthroughs that are occurring as a result of advances in our knowledge of genetics

The Laboratory Fish Gary Ostrander 2000-08-29 Provides interested readers with a current understanding of the biology of fishes as it relates to their utility in the laboratory.

Brain Atlas of the Medakafish Ralf H. Anken 1998

The Diversity of Fishes Douglas E. Facey 2022-10-14 THE DIVERSITY OF FISHES The third edition of The Diversity of Fishes is a major revision of the widely adopted ichthyology textbook, incorporating the latest advances in the biology of fishes and covering taxonomy, anatomy, physiology, biogeography, ecology, and behavior. Key information on the evolution of various fishes is also presented, providing expansive and conclusive coverage on all key topics pertaining to the field. To aid in reader comprehension, each chapter begins with a summary that provides a broad overview of the content of that chapter, which may be particularly useful for those using the text for a course who don't intend to address every chapter in detail. Detailed color photographs throughout the book demonstrate just some of the diversity and beauty of fishes that attract many to the field. A companion website provides related videos selected by the authors, instructor resources, and additional references and websites for further reading. Sample topics covered and learning resources included in The Diversity of Fishes are as follows: How molecular genetics has transformed many aspects of ichthyology The close relationship between structure and function, including adaptations to special environments Many physical and behavioral adaptations reflecting the fact that many fishes are both predators and prey Fish interactions with other species within fish assemblages and broader communities, plus their impacts on ecosystems Global maps that more accurately represent the comparative sizes of oceans and land masses than maps used in prior editions For students, instructors, and individuals with an interest in ichthyology, The Diversity of Fishes is an all-in-one introductory resource to the field, presenting vast opportunities for learning, many additional resources to aid in information retention, and helpful recommendations on where to go to explore specific topics further.

Epigenetics in Aquaculture Francesc Piferrer 2023-10-02 EPIGENETICS IN AQUACULTURE This essential guide will allow you to understand how new developments in our knowledge of epigenetic mechanisms and epigenetic inheritance can be applied to improve aquaculture production and aquatic resource management and conservation. Epigenetics is the study of heritable changes in gene expression that are independent of alterations in the nucleotide sequence. It integrates genomic and environmental influences to shape the phenotype. Epigenetics is a field with particular relevance to aquaculture and aquatic organisms, since it underpins acclimatory responses to diverse and changing environments and inheritance of desired phenotypes. Epigenetics in Aquaculture provides a comprehensive introduction to epigenetics, epigenetic mechanisms, epigenetic inheritance, and research methods. It also provides the current state of the art on research and development on epigenetics in the major functions of aquatic

organisms in the framework of aquaculture production. The fact that aquaculture is the fastest-growing sector of food production makes the book especially timely. Readers will also find: Detailed treatment of subjects including aquatic faunal reproduction, sex determination, growth regulation, nutritional programming, disease resistance, stress response and much more Survey of current research lacunae and the projected future of the discipline An authorial team of internationally renowned experts Epigenetics in Aquaculture is a valuable reference for researchers, biologists and advanced students in any area of marine science, oceanography, aquaculture, environmental science, and food production.

Cancer and Zebrafish David M. Langenau 2016-05-10 This volume focuses on defining the unique attributes of using the zebrafish cancer model for discovering important pathways and potential drug targets for the treatment of human cancers. Using the zebrafish model, the volume explores oncogene and tumor suppressor discovery, chemical genetic approaches, genomics, epigenetics, cancer imaging, and cell transplantation. Contributed chapters come from the most prominent laboratories working in this field, which provides a unique perspective on zebrafish models from a wide spectrum of the research community. In addition, the book offers a detailed analysis of the most current research in the area for specific zebrafish cancer models, including T cell leukemia, rhabdomyosarcoma, liver and pancreatic cancer, melanoma, neuroblastoma, germ cell tumors, and malignant peripheral sheath tumors. A chapter is also dedicated to the development and utilization of other piscine models of cancer. The compilation of chapters in the volume culminates into a comprehensive and definitive text on zebrafish and cancer, providing a much needed resource on the powerful attributes of the zebrafish model system.

Drosophila Models for Human Diseases Masamitsu Yamaguchi 2018-06-27 Most biological pathways, physical and neurological properties are highly conserved between humans and Drosophila and nearly 75% of human disease-causing genes have a functional homologue in Drosophila. This volume provides recent advances in Drosophila models for various human diseases, with each chapter providing a review of studies involving Drosophila models, as well as detailed protocols commonly used in laboratories. Starting with a review of Drosophila's value as a highly tractable model organism for studying human diseases, subsequent chapters present Drosophila models for specific human diseases. The book provides a useful resource for all scientists who are starting to use the Drosophila model in their studies, and for researchers working in the pharmaceutical industry and using new screening models to develop new medicines for various diseases.

The Diversity of Fishes Gene Helfman 2009-04-03 The second edition of The Diversity of Fishes represents a major revision of the world's most widely adopted ichthyology textbook. Expanded and updated, the second edition is illustrated throughout with striking color photographs depicting the spectacular evolutionary adaptations of the most ecologically and taxonomically diverse vertebrate group. The text incorporates the latest advances in the biology of fishes, covering taxonomy, anatomy, physiology, biogeography, ecology, and behavior. A new chapter on genetics and molecular ecology of fishes has been added, and conservation is emphasized throughout. Hundreds of new and redrawn illustrations augment readable text, and every chapter has been revised to reflect the discoveries and greater understanding achieved during the past decade. Written by a team of internationally-recognized authorities, the first edition of The Diversity of Fishes was received with enthusiasm and praise, and incorporated into ichthyology and fish biology classes around the globe, at both undergraduate and postgraduate levels. The second edition is a substantial update of an already classic reference and text. Companion resources site This book is accompanied by a resources site: www.wiley.com/go/helfman The site is being constantly updated by the author team and provides: · Related videos selected by the authors · Updates to the book since publication · Instructor resources · A chance to send in feedback

The Zebrafish in Biomedical Research Samuel Cartner 2019-11-22 The Zebrafish in Biomedical Research: Biology, Husbandry, Diseases, and Research Applications is a comprehensive work that fulfills a critical need for a thorough compilation of information on this species. The text provides significant updates for working vivarium professionals maintaining zebrafish colonies, veterinarians responsible for their care

and well-being, zoologists and ethologists studying the species, and investigators using the species to gain critical insights into human physiology and disease. As the zebrafish has become an important model organism for the study of vertebrate development and disease, organ function, behavior, toxicology, cancer, and drug discovery, this book presents an important resource for future research. Presents a complete view of the zebrafish, covering their biology, husbandry, diseases and research applications Includes the work of world-renowned authors Provides the first authoritative and comprehensive treatment of zebrafish in biomedical research as part of the ACLAM series

Genome Mapping and Genomics in Fishes and Aquatic Animals Thomas D. Kocher 2008-06-07

Mapping of animal genomes has generated huge databases and several new concepts and strategies, which are useful to elucidate origin, evolution and phylogeny. Genetic and physical maps of genomes further provide precise details on chromosomal location, function, expression and regulation of academically and economically important genes. The series Genome Mapping and Genomics in Animals provides comprehensive and up-to-date reviews on genomic research on a large variety of selected animal systems, contributed by leading scientists from around the world. This volume summarizes the first era of genomic studies of aquaculture species, in which the tools and resources necessary to support whole-genome sequencing were developed. These tools will enhance efforts toward selective breeding of aquaculture species. Included in this volume are summaries of work on salmonids, cyprinids, catfish, tilapias, European sea bass, Japanese flounder, shrimps and oysters.

The Zebrafish: Disease Models and Chemical Screens 2017-01-25 The Zebrafish: Disease Models and Chemical Screens

Essential Zebrafish Methods: Genetics and Genomics H. William Detrich, III 2009-09-05 Due to its prolific reproduction and the external development of the transparent embryo, the zebrafish is the prime model for genetic and developmental studies, as well as research in genomics. While genetically distant from humans, nonetheless the vertebrate zebrafish has comparable organs and tissues that make it the model organism for study of vertebrate development. This book, one of two new volumes in the Reliable Lab Solutions series dealing with zebrafish, brings together a robust and up-to-date collection of time-tested methods presented by the world's leading scientists. Culled from previously published chapters in *Methods in Cell Biology* and updated by the original authors where relevant, it provides a comprehensive collection of protocols describing the most widely used techniques relevant to the study of zebrafish genetics and genomics. The methods in this volume were hand-selected by the editors, whose goal was to provide a handy and cost-effective collection of fail-safe methods, tips, and "tricks of the trade" to both experienced researchers and more junior members in the lab. * Provides busy researchers a quick reference for time-tested methods and protocols that really work, updated where possible by the original authors * Gives pragmatic wisdom to the non-specialist from experts in the field with years of experience with trial and error

Advances in Molecular Toxicology James C. Fishbein 2012-08 *Advances in Molecular Toxicology* features the latest advances in all of the subspecialties of the broad area of molecular toxicology. Toxicology is the study of poisons, and this series details the study of the molecular basis by which a vast array of agents encountered in the human environment and produced by the human body itself manifest themselves as toxins. Not strictly limited to documenting these examples, the series is also concerned with the complex web of chemical and biological events that give rise to toxin-induced symptoms and disease. The new technologies that are being harnessed to analyze and understand these events will also be reviewed by leading workers in the field. *Advances in Molecular Toxicology* will report progress in all aspects of these rapidly evolving molecular aspects of toxicology with a view toward detailed elucidation of both progress on the molecular level and on advances in technological approaches employed. Cutting-edge reviews by leading workers in the discipline In-depth dissection of molecular aspects of interest to a broad range of scientists, physicians and any student in the allied disciplines Leading edge applications of technological innovations in chemistry, biochemistry and molecular medicine

Behavioral and Neural Genetics of Zebrafish Robert T. Gerlai 2020-04-03 *Behavioral and Neural Genetics of Zebrafish* assembles the state-of-the-art methodologies and current concepts pertinent to their neurobehavioral genetics. Discussing their natural behavior, motor function, learning and memory, this

book focuses on the fry and adult zebrafish, featuring a comprehensive account of modern genetic and neural methods adapted to, or specifically developed for, *Danio rerio*. Numerous examples of how these behavioral methods may be utilized for disease models using the zebrafish are presented, as is a section on bioinformatics and "big-data" related questions. Provides the most comprehensive snapshot of the fast-evolving zebrafish neurobehavior genetics field Describes behavioral, genetic and neural methods and concepts for use in adult and larval zebrafish Features examples of zebrafish models of human central nervous system disorders Discusses bioinformatics questions pertinent to zebrafish neurobehavioral genetics

Emerging research organisms in regenerative biology Igor Schneider 2023-04-18

Medaka Masato Kinoshita 2009-09-15 *Medaka: Biology, Management, and Experimental Protocols*, written by experienced researchers and reviewed by international leaders in the medaka field will provide details on how to set up and maintain medaka colonies in animal facilities, how to troubleshoot systems, how to handle the fish when applied to experimental methods, and most importantly it will introduce the researcher to cutting edge research in basic and applied biology using medaka as a model animal. The book will include well-written descriptions of experimental methods and protocols designed to educate the reader how to understand and handle medaka effectively. *Medaka: Biology, Management, and Experimental Protocols* will serve as the definitive reference on the species providing essential information on medaka biology, genetics, and genomics, practical guidance to maintenance of fish stocks, and valuable experimental protocols all in a single volume. This book will be a must have addition to the library of fish researchers and those using medaka as a model organism within their laboratories.

Medaka Kenji Murata 2019-10-07 Explains the advantages of using medaka in experimental designs, to facilitate research, and to stimulate progress by adopting medaka as a model animal The second volume of *Medaka: Biology, Management, and Experimental Protocols*, together with the first volume, helps to familiarize scientists with the advantages of using medaka in experimental designs, to facilitate research using medaka, and to stimulate progress by adopting medaka as a model animal. The second edition expands on the first by providing additional information and current protocols that have been recently developed, or modified, to successfully raise medaka fish under stable culture conditions in the laboratory. This volume explores new technologies developed after 2009, using the fish as a molecular tool in the fields of life science, evolution, ecology, and toxicology. The authors—noted experts in the field—provide the latest information that spans the varied research disciplines and addresses the value to science of medaka's adoption as a model animal. This important book: Explores the advantages of using medaka in experimental designs, to facilitate research Details the most recent protocols to successfully raise medaka fish under stable conditions in the laboratory Explores the most recent developments in the field Provides step-by step specifics for each protocol, allowing researchers to adapt them for use in their own work Written for students and researchers in fish biology and aquaculture, *Medaka: Biology, Management, and Experimental Protocols, Volume 2* introduces the cutting edge research in basic and applied biology using medaka as a model animal as well as descriptions of experimental methods and protocols.

Transgenic Fish Choy Leong Hew 1992-06-16 Studies on transgenic fish, in contrast to mammals, are still in their infancy. However, it is evident that such fish will not only be of considerable economic benefit to aquaculture but will enable scientists to make quantum leaps in their understanding of the physiological and biochemical mechanisms unique to fish, and of the developmental biology of vertebrates in general. The potential of transgenic fish for research and industrial development is beginning to be widely recognized. This timely volume encompasses the full spectrum of current research on transgenic fish. It will be valuable to many scientists who intend to explore the merits of the technology for the first time.

Zebrafish in Development and Disease Gokhan Dalgin 2019-12-06 There are only a few vertebrate systems that can be used to model human diseases for biomedical discovery. The zebrafish model provides key advantages over existing models. Their externally developing embryos provide high-throughput non-invasive imaging, chemical screening, forward and reverse genetics, and their regeneration capacity make zebrafish a valuable system for novel discovery. Developmental studies using zebrafish has influenced discoveries in many human health-related conditions. This Research Topic covers all aspects of zebrafish studies, providing developmental mechanisms to human health conditions. The aim of the Research Topic

was to foster a platform to bring all levels of zebrafish research including but not limited to development, disease, regeneration, drug screening, bioinformatics and Omics studies.

The Zebrafish: Genetics, Genomics and Informatics 2004-12-30 This volume of *Methods in Cell Biology*, the second of two parts on the subject of zebrafish, provides a comprehensive compendia of laboratory protocols and reviews covering all the new methods developed since 1999. This second volume covers advances in forward and reverse genetic techniques, provides an update on the zebrafish genome and gene/mutant mapping technologies, examines the new systems for efficient transgenesis in the zebrafish, provides an in-depth view of informatics and the emerging field of comparative genomics, and considers the extensive infrastructure now available to the zebrafish community. * Details state-of-the art zebrafish protocols, delineating critical steps in the procedures as well as potential pitfalls * Illustrates many techniques in full-color * Summarizes the Zebrafish Genome Project

Laboratory Fish in Biomedical Research Livia D'Angelo 2021-08-28 Fish, and particularly zebrafish, have become the fastest-growing segment of the research population. They offer several advantages, in terms of biology and technologies to apply, and thus are employed in numerous research fields. *Laboratory Fish in Biomedical Research: Biology, Husbandry and Research Applications for Zebrafish, Medaka, Killifish, Swordtail Fish, Cavefish, Stickleback, Goldfish and Danionella Translucida* addresses the relevant and increasing need to collect cutting-edge knowledge on husbandry, maintenance, welfare and experimental protocols of the most common freshwater species under standard laboratory conditions. Provides husbandry and management protocols, devices and water systems Shows strength and weakness of breeding Explores potential scientific applications and experimental protocols. with regards to the most used freshwater fish used for scientific purposes

Aquaculture Biotechnology Garth L. Fletcher 2012-02-01 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 top scientists in the field, this will be a valuable tool to researchers, producers, and students interested in better understanding this dynamic field of aquaculture.

The Zebrafish: Disease Models and Chemical Screens H. William Detrich 2011-09-23 This volume of *Methods in Cell Biology* is the 3e, and provides comprehensive compendia of laboratory protocols and reviews covering all the new methods developed since 2004. This new volume on *Disease Models and Chemical Screens*, covers two rapidly emerging and compelling applications of the zebrafish. Details state-of-the art zebrafish protocols, delineating critical steps in the procedures as well as potential pitfalls This volume concentrates on *Disease Models and Chemical Screens*

Regenerative Nephrology Michael S. Goligorsky 2010-11-26 Progression of chronic diseases in general and chronic kidney disease in particular has been traditionally viewed in the light of various contributors to development of glomerulosclerosis and tubulointerstitial scarring culminating in renal fibrosis. Indeed, this dogma prevailed for decades underscoring experimental attempts to halt fibrotic processes. Breakthrough investigations of the past few years on stem/progenitor cell involvement in organ regeneration caused a conceptual shift in tackling the mechanisms of nephrosclerosis. It has become clear that the rate of progression of chronic kidney disease is the net sum of the opposing trends: degenerative fibrotic processes and regenerative repair mechanisms. The latter part of this equation has been by and large ignored for years and only recently attracted investigative attention. This book revisits the problem of kidney disease by focusing on regenerative mechanisms in renal repair and on the ways these regenerative processes can become subverted by an intrinsic disease process eventuating in its progression. Cutting-edge investigations are summarized by the most experienced international team of experts. Presents a comprehensive, translational source for all aspects of renal stem cells, tissue regeneration, and stem cell therapies for renal diseases in one reference work. This will ultimately result in time savings for academic, medical and pharma researchers Experts in the renal stem cell system in kidney repair and regeneration take readers from the bench research to new therapeutic approaches, providing a common language for

nephrology researchers, fellows and other stem cell researchers. This enables the discussion of development of stem cells and their use in the repair and regeneration of the kidney

The Toxicology of Fishes Richard T. Di Giulio 2008-02-25 When looking for a book on fish toxicology, you might find one that discusses the biochemical and molecular aspects, or one that focuses aquatic toxicology in general. You can find resources that cover human and animal toxicology or ecotoxicology in general, but no up-to-date, comprehensive monograph devoted to the effects of chemical pollution on these organisms has been widely available, until now. Filling this void, *The Toxicology of Fishes*, written by recognized experts, covers toxic responses ranging from reduced reproduction and/or abnormal development, growth, and differentiation. **General Principles** — Discusses fundamental topics such as the bioavailability of chemicals present in the aquatic environment to fishes, processes governing chemical distribution within these organisms, how fish metabolize organic chemicals, and fundamental mechanisms of chemical toxicity **Key Target Systems and Organismal Effects** — Describes key target organ systems for chemical impacts in fish, how chemicals produce cancer in these animals, and how fishes can develop resistance to chemical toxicity **Methodologies and Applications** — Dovers methods for the assessment of chemical effects on fish such as toxicity tests, biomarkers, simulated ecosystems, and modeling approaches and the use of data from such studies in ecological risk assessments **Case Studies** — Provides examples of how the principles and approaches presented in earlier units are actually deployed in studies Illustrated by case studies of actual, large-scale field investigations, the book reviews the tools used to assess unwanted effects in laboratory model- and wild fish in detail. With 238 illustrations, 70 tables, and 50 equations, this comprehensive monograph presents detailed information on the bioavailability of chemical pollutants, their distribution, metabolism, and excretion in the host fish and mechanisms and sites of toxic responses.

Neuroendocrine Control of Energy Homeostasis in Non-mammalian Vertebrates and Invertebrates Suraj Unniappan 2020-07-31 This eBook is a collection of articles from a *Frontiers Research Topic*. *Frontiers Research Topics* are very popular trademarks of the *Frontiers Journals Series*: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from *Original Research* to *Review Articles*, *Frontiers Research Topics* unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own *Frontiers Research Topic* or contribute to one as an author by contacting the *Frontiers Editorial Office*: frontiersin.org/about/contact.

Zebrafish, Medaka, and Other Small Fishes Hiromi Hirata 2018-10-10 This book provides cutting-edge studies and technologies using small fishes, including zebrafish, medaka, and other fishes as new model animals for molecular biology, developmental biology, and medicine. It also introduces eccentric fish models that are pioneering new frontiers of biology. Zebrafish and medaka have been developed as lower vertebrate model organisms because these small fish are easy to raise in the laboratory and are useful for the live imaging of the morphology and activity of cells and tissues in intact animals. By virtue of those specific advantages, fish studies have demonstrated the common features of vertebrates and raised further questions toward understanding the mystery of life. The book consists of four parts: "Development and Cell Biology", "Homeostasis and Reproduction", "Clinical Models", and "Eccentric Fish". Together they describes the core area of small fish study - often considered mere zoology but which is actually proving to be the universal basis of life. Written by leading scientists, the book helps readers to understand small fishes, inspires scientists to utilize small fishes in their studies, and encourages anyone who wants to participate in the large and fantastic world of small fish.

Insights from Veterinary Medicine Rita Payan-Carreira 2013-02-27 Under the title "Insights from Veterinary Medicine", this book presents original research results and reviews flashing several distinctive aspects of the *Veterinary Medicine Sciences*, in which the knowledge has continuously increased over the past decades. *Veterinary and Human Medicine* have been developed in close association, in part as a reflection of the intertwined relationship found between animals and humans since the establishment of first civilizations. Humans and animals share common mechanisms of disease, thus serving as spontaneous models for the study of particular disorders, such as tumors and cardiac diseases. Furthermore, concerns on the deleterious side-effects of contaminants, in particular over the endocrine axis regulating different body functions and fertility, are on the table, as animals may serve as sentinels for environmental quality. In

addition, the quality of the animal life with regards to both health and welfare also contribute to the quality of human life, and food-animal health and safety are safeguards against the disruption of the food chain. The Veterinary Medicine field has broadened its scope of action, and nowadays it encompasses much more than the veterinary medical practice. Similarly, a wide field of knowledge was covered in this book. Even so, it was our goal to provide you with current advanced resources in different veterinary science disciplines.

Glycoscience: Basic Science to Applications Naoyuki Taniguchi 2019-09-12 This book presents the state of the art in glycoscience and proposes a road map for the coming decade, focusing on the potential of glycoscience research to shed light on important basic science issues and give rise to exciting new applications, especially in the field of diagnosis and therapeutics. Individual sections offer in-depth coverage of various topics relating to glycans and biopharmaceuticals, glycans in medical science and medicine, glycan technologies, glycans in food and nutrients, and glycan-related materials and their uses. In addition, the book presents an exemplary training course on glycomics and highlights educational and analytical web resources, and also includes glossaries and boxes summarizing key facts to ensure ease of understanding for non-expert readers and students. Written by more than 150 active participants in the Japan Consortium for Glycobiology and Glycotechnology (JCGG), whose goal is to promote the development of interdisciplinary glycoscience and establish a global network in the field, it is a valuable resource for students, postdocs, and researchers in the life sciences as well as for stakeholders and professionals in government, funding agencies and industry.

Frontiers in Aquaculture Biotechnology W.S. Lakra 2022-11-26 Frontiers in Aquaculture Biotechnology presents a broad-spectrum of topics, covering different key aspects of aquaculture. With the rising importance of aquaculture research, evidence-based information is integral in advancing this field. This book provides a solid resource of information on DNA barcoding for fish species authentication and seafood labelling and cell culture, including stem cell culture, in vitro research using fish cell lines such as in vitro fish meat, reproductive biotechnology, including surrogate technology, gene editing and genetically modified aquaculture species, biofloc technology, and omic technologies such as proteomics, artificial intelligence and biobanking. This book will be a valuable resource to students, researchers and entrepreneurs interested in a better understanding of this emerging field of aquaculture. Presents hot topic information such as cell line repositories for the conservation of important fish genetic resources Includes information on climate resilient production systems to improve fish production Provides the latest research on genome editing in aquaculture species

Drug Efficacy, Safety, and Biologics Discovery Sean Ekins 2009-01-28 Drug Efficacy, Safety, and Biologics Discovery: Emerging Technologies and Tools covers key emerging technologies in pharmaceutical R & D and how they have substantially impacted (or are currently impacting) drug discovery. The cross-disciplinary collaborations implicit in integrating these technologies with drug discovery operations will fuel the engine for future innovations. This book cuts across the multiple areas of drug discovery, each chapter authored by pioneers in that field, making for a broad appeal to the chemical and biological scientists and technologists involved in drug discovery and development.

Encyclopedia of Fish Physiology 2011-06-01 Fish form an extremely diverse group of vertebrates. At a conservative estimate at least 40% of the world's vertebrates are fish. On the one hand they are united by their adaptations to an aquatic environment and on the other they show a variety of adaptations to differing environmental conditions - often to extremes of temperature, salinity, oxygen level and water chemistry. They exhibit an array of behavioural and reproductive systems. Interesting in their own right, this suite of adaptive physiologies provides many model systems for both comparative vertebrate and human physiologists. This four volume encyclopedia covers the diversity of fish physiology in over 300 articles and provides entry level information for students and summary overviews for researchers alike. Broadly organised into four themes, articles cover Functional, Thematic, and Phylogenetic Physiology, and Fish Genomics. Functional articles address the traditional aspects of fish physiology that are common to all areas of vertebrate physiology including: Reproduction, Respiration, Neural (Sensory, Central, Effector), Endocrinology, Renal, Cardiovascular, Acid-base Balance, Osmoregulation, Ionoregulation, Digestion, Metabolism, Locomotion, and so on. Thematic Physiology articles are carefully selected and fewer in

number. They provide a level of integration that goes beyond the coverage in the Functional Physiology topics and include discussions of Toxicology, Air-breathing, Migrations, Temperature, Endothermy, etc. Phylogenetic Physiology articles bring together information that bridges the physiology of certain groupings of fishes where the knowledge base has a sufficient depth and breadth and include articles on Ancient Fishes, Tunas, Sharks, etc. Genomics articles describe the underlying genetic component of fish physiology and highlight their suitability and use as model organisms for the study of disease, stress and physiological adaptations and reactions to external conditions. Winner of a 2011 PROSE Award Honorable Mention for Multivolume Science Reference from the Association of American Publishers The definitive encyclopedia for the field of fish physiology Three volumes which comprehensively cover the entire field in over 300 entries written by experts Detailed coverage of basic functional physiology of fishes, physiological themes in fish biology and comparative physiology amongst taxonomic Groups Describes the genomic bases of fish physiology and biology and the use of fish as model organisms in human physiological research Includes a glossary of terms

Textbook of Animal Biotechnology B Singh 2005-01-01 Animal biotechnology is an integral component of agriculture. Supported with over 50 figures and more than 30 tables, this textbook is a must have for undergraduates and postgraduates of various agriculture and animal husbandry academia, teachers, professionals, and researchers in basic as well as applied animal sciences including biotechnology, nutrition, physiology and reproduction. The book covers various topics, including economically important livestock breeds, paradigm shifts in livestock production, biotechnology in animal nutrition and in livestock-assisted reproduction, and genomics and genetic engineering tools in livestock production and management.

Résolutions votées à la suite du congrès international de la documentation du bâtiment 1947

The Zebrafish: Genetics and Genomics 1998-12-03 This is the second volume of a two-volume, comprehensive treatment of the methodologies used in researching the zebrafish, an emerging vertebrate model system. The text includes discussions on development, genetic methodologies, and model applications. Key Features * Details state-of-the-art zebrafish protocols in a single-source reference * Presents methods and reagents in user-friendly format * Delineates critical steps and pitfalls of the procedures * Illustrates techniques with full-color plates * Summarizes many new and interesting developmental mutants * Includes appendices with strain information and a compendium of zebrafish World Wide Web sites * Relevant to clinicians interested in vertebrate models of human congenital diseases

Medaka Kiyoshi Naruse 2011-05-30 *Oryzias latipes*, known as medaka, is a model organism from East Asia. Breeding of this small, egg-laying freshwater teleost fish has long been popular among hobbyists in Japan. Now, as biological science has entered the genome era, the medaka provides significant advantages that make it one of the most valuable vertebrate models: a large collection of spontaneous mutants collected over a century, the presence of highly polymorphic inbred lines established over decades, and a recently completed genome sequence. This book is the first comprehensive monograph to cover a variety of medaka research. It opens with a historical view of medaka, followed by a series of research topics in the four major areas where the medaka is increasingly important: genomics, genetics, and resources; organogenesis and disease models; germ cells, sex determination, and reproduction; and evolution. Readers will find state-of-the-art information on medaka genetics and genomics such as the first isolation of active transposons in vertebrates, the influence of chromatin structure on sequence variation, fine QTL analysis, and versatile mutants as human disease models.

Molecular Basis of Epithelial Appendage Morphogenesis Cheng-Ming Chuong 1998 Reviews recent experimental findings and current thinking on epithelial appendage morphogenesis. Contains sections on overview, morphogenesis of epithelial appendages on the body surface and within the body, molecular mechanisms, models, and approaches. Specific subjects include early molecular events in feather morphogenesis, evolutionarily conserved gene interactions, and molecular biology of anhidrotic ectodermal dysplasia. Many chapters contain summary diagrams of the formative process of organs, with cellular and molecular explanations. Annotation copyrighted by Book News, Inc., Portland, OR

The Physiology of Fishes Suzanne Currie 2020-09-07 The fifth edition of *The Physiology of Fishes* represents a compendium of knowledge across fish physiology, collecting up-to-date research into an easy-

to-access single textbook. Written by the leaders in the field, it provides a comprehensive, accessible review of the core topics, integrating physiology with environmental science, ecology, evolution, and molecular cell biology. New chapters address Epigenetics, Biomechanics and Locomotion, and Behaviour and Learning. Each chapter contains an extensive bibliography, providing readers with the best sources from the primary literature. Almost three decades after the publication of the first edition, this book remains the only published single-volume work on fish physiology. The fifth edition provides an important reference for new students of fish biology, marine and freshwater biologists, ichthyologists, fisheries scientists, and comparative physiologists.

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