

Preface

This is an interesting time in fish and marine biology. Following the publication of the whole genome sequence of the first fish species, *Fugu ubripes*, in 2002, now the genome sequencing projects are near completion for the two popular experimental fish models, the zebrafish (*Danio rerio*) and medaka (*Oryzias latipes*). Both models, particularly the zebrafish model, have been well established as experimental systems in developmental and genetic analyses, as well as increasingly in medical research. In the past few years, we have witnessed an explosion of information from these researches. In order to keep track of the rapid development of this active field, we have devoted the entirety of volume two of the *Molecular Aspects of Fish and Marine Biology* series to the two small aquarium fish models. Thus, the name of this volume, *Fish Development and Genetics, The Zebrafish and Medaka Models*.

In this volume, there are 19 chapters. We have a broad coverage of zebrafish development from early embryogenesis to organogenesis. The topics include maternal factors (Chapter 1), gastrulation (Chapter 2), organizer and notochord (Chapter 3), floor plate (Chapter 4), central nervous system (Chapters 5 and 6), olfactory sensory system (Chapter 7), somites and segmentation (Chapters 8 and 9), muscle development (Chapter 10), skeletogenesis (Chapter 11) and endoderm formation (Chapter 12). We also have a few chapters on popular genetic tools in developmental analyses, including morpholino gene knockdown (Chapter 13), transgenic technology (Chapter 14), fish cloning (Chapter 15), transposons (Chapter 16), and evolution of the zebrafish

genome (Chapter 17). In addition, two chapters focus on medaka genome mapping (Chapter 18) and medaka embryonic stem cells (Chapter 19).

These chapters summarize the current state-of-the-arts studies in the two fish models (particularly in the zebrafish) and focus in particular on the molecular aspects of development. We hope that this book will be a valuable reference for students to learn basic aspects of the two fish models as well as for researchers to look for resources in zebrafish and medaka research.

Finally, we wish to thank all contributors for their time and efforts to make the volume successful. We would also like to thank Ms. Serene Ong, editor of World Scientific, for her hard works and efficient efforts to ensure that this book to be published in the shortest possible time, despite the delay of submission of a few of the chapters.

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