

Preface

In recent years, the zebrafish (*Danio rerio*) has become one of the most important model organisms to study biological processes *in vivo*. This is due to a combination of advantages making it an ideal organism for researchers interested in many aspects of embryonic development, physiology and disease. As a vertebrate, it has many of the strengths of invertebrate model systems, such as a small size, a large number of offspring and a short generation time. Moreover, its very rapid and synchronous embryonic development greatly facilitates phenotypic analysis and large-scale experimental approaches. Its transparent, easily accessible embryos as well as their robustness make it ideally suited to micromanipulation and *in vivo* observations. Thus, the zebrafish allows using many if not most of the approaches and techniques used in other model organisms, bridging the gaps between them. The important role the zebrafish will play in the future of biomedical research is indicated by the many initiatives looking at gene function in vertebrates, which already have chosen the zebrafish as their model organism.

With the community of zebrafish researchers growing worldwide, new techniques and methodologies are becoming available at an ever-increasing rate. This book is intended to provide researchers with a background as well as an up-to-date and comprehensive set of tools for working with the zebrafish. It will allow those new to the field to establish zebrafish in their laboratory. It also gives a broad overview of commonly used methods and a complete collection of protocols describing the most powerful techniques for those already working with the zebrafish. The book includes a list of all published zebrafish mutants including brief phenotypic descriptions and references as well as chapters on morphological development necessary for the staging and analysis of embryos, juvenile and adult fish.

This book would not have been possible without the help of numerous people and the editors would like to thank all those who have contributed to this volume. In particular, we would like to thank all authors for their time and effort in preparing their chapters and for sharing their expertise to ensure that this volume will be an invaluable source of information for those working with zebrafish. We would also like to thank all members of the zebrafish group in Tübingen for proofreading texts at various stages of development, for very productive feedback and for sharing unpublished protocols and information with us. We are also grateful to the Graphics Department at our Institut for their help and advice in preparing the figures. Last but not least, we would like to thank all staff at Oxford University Press for their technical advice and help in preparing the manuscript.

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