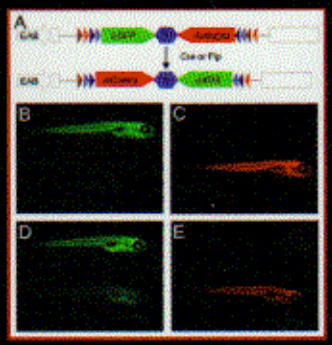
The Zebrafish: Genetics, Genomics and Informatics

THIRD EDITION



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Building on the foundation of the first and second editions of *Methods in Cell Biology: The Zebrafish*, contributors to the Third Edition present the latest technical advances pertinent to zebrafish biology. The theme that clearly emerges from this volume is that the zebrafish is the preeminent vertebrate model for *genetic, transgenic, and genomic* studies of developmental processes *in vivo*. *Genetics, Genomics, and Informatics* covers new technologies under five sections: Forward and Reverse Genetics, Transgenesis, The Zebrafish Genome and Mapping Technologies, Informatics and Comparative Genomics, and Infrastructure.

KEY FEATURES

- Advances in transposon-mediated transgenesis, gene trapping, and enhancer trapping in zebrafish are described.
- Reverse-genetic approaches employing target-selected gene inactivation and caged morpholino oligonucleotides are presented.
- New transgenic protocols for zebrafish that are based on Cre or phiC31 recombinases or on nuclear transfer are introduced.
- New genomic and mapping technologies in zebrafish are covered.
- Protocols for analysis of chromatin structure, DNA methylation, micro RNA function and epigenetic regulation during zebrafish development are outlined.
- ZFIN as a portal for data extraction, transformation, and dissemination is explored.
- Zebrafish facilities suitable for small or large laboratories are reviewed.

Cover image: Demonstration of FIEx using a dual reporter fish.
Credit: Lisette A. Maddison, Jianjun Lu and Wenbiao Chen (see Chapter 1).

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