

Contents

Part I Powers of the Zebrafish Model

Uncharted Waters: Zebrafish Cancer Models Navigate a Course for Oncogene Discovery..... 3
Craig J. Ceol and Yariv Houvras

The Toolbox for Conditional Zebrafish Cancer Models..... 21
Marie Mayrhofer and Marina Mione

Approaches to Inactivate Genes in Zebrafish..... 61
John M. Parant and Jing-Ruey Joanna Yeh

Tumor Suppressors in Zebrafish: From TP53 to PTEN and Beyond 87
Jeroen den Hertog

Identifying Novel Cancer Therapies Using Chemical Genetics and Zebrafish..... 103
Michelle Dang, Rachel Fogley, and Leonard I. Zon

Genomic Approaches to Zebrafish Cancer..... 125
Richard M. White

Transcriptomic Analyses in Zebrafish Cancer Models for Global Gene Expression and Pathway Discovery 147
Xiaoqian Huang, Ira Agrawal, Zhen Li, Weiling Zheng, Qingsong Lin, and Zhiyuan Gong

Zebrafish Discoveries in Cancer Epigenetics 169
Yelena Chernyavskaya, Brandon Kent, and Kirsten C. Sadler

Lymphatics, Cancer and Zebrafish 199
Jonathan W. Astin and Philip S. Crosier

In Vivo Imaging of Cancer in Zebrafish 219
Myron S. Ignatius, Madeline Hayes, and David M. Langenau

Imaging Cancer Angiogenesis and Metastasis in a Zebrafish Embryo Model	239
C. Tulotta, S. He, W. van der Ent, L. Chen, A. Groenewoud, H.P. Spaink, and B.E. Snaar-Jagalska	
Allograft Cancer Cell Transplantation in Zebrafish	265
John C. Moore and David M. Langenau	
The Zebrafish Xenograft Platform: Evolution of a Novel Cancer Model and Preclinical Screening Tool	289
Jaime Wertman, Chansey J. Veinotte, Graham Dellaire, and Jason N. Berman	
Automation of Technology for Cancer Research	315
Wietske van der Ent, Wouter J. Veneman, Arwin Groenewoud, Lanpeng Chen, Claudia Tulotta, Pancras C.W. Hogendoorn, Herman. P. Spaink, and B. Ewa Snaar-Jagalska	
Part II Cancer Models in Fish	
Zebrafish Models of Human Leukemia: Technological Advances and Mechanistic Insights	335
Nicholas R. Harrison, Fabrice J.F. Laroche, Alejandro Gutierrez, and Hui Feng	
Zebrafish Rhabdomyosarcoma	371
Michael Phelps and Eleanor Chen	
Baiting for Cancer: Using the Zebrafish as a Model in Liver and Pancreatic Cancer	391
Katie L. Hwang and Wolfram Goessling	
Focusing the Spotlight on the Zebrafish Intestine to Illuminate Mechanisms of Colorectal Cancer	411
Viola H. Lobert, Dmitri Mouradov, and Joan K. Heath	
Zebrafish Melanoma	439
Charles K. Kaufman	
Neuroblastoma and Its Zebrafish Model	451
Shizhen Zhu and A. Thomas Look	
Zebrafish Germ Cell Tumors	479
Angelica Sanchez and James F. Amatruda	
Malignant Peripheral Nerve Sheath Tumors	495
Adam D. Durbin, Dong Hyuk Ki, Shuning He, and A. Thomas Look	
Xiphophorus and Medaka Cancer Models	531
Manfred Schartl and Ronald B. Walter	

Cancer and Zebrafish

Mechanisms, Techniques, and Models

Langenau, D.M. (Ed.)

2016, XII, 552 p. 85 illus. in color., Hardcover

ISBN: 978-3-319-30652-0