Table of Contents

I. Introduction

- 1. History of Zebrafish Research
- 2. Taxonomy/Phylogeny
- 3. Zebrafish Genetics
- 4. Geographic Range and Natural Distribution
- 5. Behavior of Wild Populations

II. Biology

Appearance, Development, Anatomy, Physiology

- 6. Zebrafish in Biomedical Research: Head and Body: Anatomy
- 7. Establishing the Body Plan: The First 24 Hours of Zebrafish Development

Organ Systems: Development, Anatomy, Physiology

- 8. Zebrafish Integumentary System
- 9. Zebrafish Pigmentation
- Respiratory System
- 11. Skeletal System Morphophysiology
- 12. Zebrafish Myology
- 13. It Takes Guts: Development of the Embryonic and Juvenile Zebrafish Digestive System
- 14. The Zebrafish Cardiovascular System
- 15. Development of the Zebrafish Pronephric and Mesonephric Kidneys
- 16. Reproductive System
- 17. Endocrine Systems
- 18. Nervous Systems
- 19. Immunology

20. Physiology: Hematology and Clinical Chemistry, Gas Exchange, and Regulatory Osmolality

Tissues and Organs Associated with Special Senses

- 21. Zebrafish in Biomedical Research: The Retina and Vision
- 22. The Mechanosensory Lateral Line System
- 23. Inner Ear and Hearing

Husbandry

- 24. Introduction to Zebrafish Husbandry
- 25. Aquatic Facility Design Considerations: Incorporating Aquatics into an Animal Facility
- 26. Aquatic Housing
- 27. Cleaning and Disinfection of Life Systems
- 28. Zebrafish Aquatic Systems: Preventative Maintenance and Troubleshooting
- 29. Water Quality for Zebrafish Cultura
- 30. Recirculating Aquaculture Systems (RAS) for Zebrafish Culture
- 31. Zebrafish Breeding and Colony Management
- 32. Zebrafish Larviculture
- 33. Zebrafish Nutrition--Moving Forward
- 34. Anesthesia, Analgesia, and Euthanasia of the Laboratory Zebrafish
- 35. Health Xurveillance Programs
- 36. Importation and Quarantine
- 37. Export and Transportation of Zebrafish
- 38. Regulations, Policies and Guidelines Pertaining to the Use of Zebrafish in Biomedical Research

III. Diseases

39. Water Quality and Idiopathic Diseases of Laboratory Zebrafish

- 40. Important Parasites of Zebrafish in Research Facilities
- 41. Bacterial and Fungal Diseases of Zebrafish
- 42. Viral Diseases
- 43. Nonexperimentally Induced Neoplastic and Proliferative Lesions in Laboratory Zebrafish
- 44. Special Procedures for Zebrafish Diagnostics
- 45. Zebrafish as a Model to Understand Vertebrate Development
- 46. Zebrafish as a Model for Revealing the Neuronal Basis of Behavior
- 47. Zebrafish as a Model to Understand Human Genetic Diseases
- 48. Zebrafiish as a Model for Investigating
- 49. Targeted Editing of Zebrafish Genes to Understand Gene Function and Human Disease Pathology
- 50. Zebrafish as a Platform for Genetic Screening
- 51. Zebrafish as a Platform for Drug Screening