

Contents

List of Contributors ix

Foreword xv

Preface xix

Part I Human and Animal Filariae and Their Diseases 1

- 1 Breaking the Silos – Obstacles and Opportunities for One Health in Filariases 3**
Ronald Kaminsky and Timothy G. Geary**
- 2 Filariae as Organisms 17**
*Pascal Mäser**
- 3 Human Filarial Infections: Reflections on the Current Understanding of Their Importance, Pathobiology, and Management 33**
*Charles D. Mackenzie**
- 4 Canine Filariasis (Heartworm) – Disease and Current Gaps 75**
Dwight D. Bowman and Timothy K. Wu*
- 5 Diagnosis and Assessment of Human Filarial Infections: Current Status and Challenges 97**
Charles D. Mackenzie, Ashley Souza, and Timothy G. Geary*
- 6 Veterinary Diagnosis of Filarial Infection 125**
*Christopher Evans, Nils Pilotte, Steven Williams, and Andrew Moorhead**
- 7 Antifilarial Chemotherapy: Current Options for Humans 161**
Sabine Specht, Joseph Kamgno, and Timothy G. Geary*

- 8 **Antifilarial Chemotherapy: Current Options in Veterinary Medicine** 191
*Jennifer Ketzis and Christian Epe**

- 9 **Heartworm Disease – Intervention and Industry Perspective** 215
*Sandra Noack, John Harrington, Douglas S. Carithers, Ronald Kaminsky, and Paul M. Selzer**

- 10 **Current Antifilarial Drugs – Mechanisms of Action** 249
Timothy G. Geary, Alan Long, and Lucienne Tritten*

- 11 **Drug Resistance in Filariae** 283
*Roger Prichard**

- 12 **Elimination and Eradication of Human Filariases** 307
Boakye A. Boatin, Frank O. Richards Jr, Kapa D. Ramaiah, and John O. Gyapong*

- Part II Drug Discovery for Novel Antifilarials** 329

- 13 **Global Economics of Heartworm Disease** 331
Darrell Klug and Jason Drake*

- 14 **Product Profiles for New Drugs Against Human and Animal Filariasis** 345
Sabine Specht and Ronald Kaminsky**

- 15 **Discovery and Development of New Antifilarial Drugs (*In Vitro* Assays)** 367
Lucien Rufener, Alexandre Vernudachi, Ronald Kaminsky, and Thomas Duguet*

- 16 ***In Vivo* Models for the Discovery of New Antifilarial Drugs** 391
Sandra Schorderet-Weber and Sabine Specht*

- 17 ***In Vivo* Assays – Discovery and Development of New Antifilarial Drugs in Companion Animals** 459
Heinz Sager, Regina Lizundia, and William H. White*

- 18 **The Antifilarial Drug Pipeline** 481
*Natalie A. Hawryluk**

Part III New Frontiers for Control of Antifilarial Diseases 493

- 19 **The Host–Helminth Interface as a Rich Resource for Novel Drug Targets 495**
*Thomas B. Duguet and Lucienne Tritten**

- 20 **Functional Genomics of Filariae 517**
Eileen Devaney and Collette Britton**

- 21 **Development of a Vaccine Against *Onchocerca volvulus* 531**
*David Abraham, Ben Makepeace, and Sara Lustigman**

- 22 **Vector Control Approaches to Interrupt Transmission of Human Filarial Parasites 545**
*Lyric Bartholomay**

- 23 **Vector Control Approaches for Canine Filariasis 565**
Sofija Todorovic, Tanja McKay, and Phillip Kaufman*

- 24 ***Wolbachia* Endosymbionts as Treatment Targets for Filarial Diseases 589**
Marc P. Hübner, Kenneth Pfarr, and Achim Hoerauf*

- Index 615**