

Contents

Foreword VII

Preface XI

List of Contributors XV

Part One Bioinformatics 1

- 1 Computational Analysis of Apicomplexan Kinomes 3**
*Eric Talevich, Natarajan Kannan, and Diego Miranda-Saavedra**
- 2 Phosphatomes of Unicellular Eukaryotic Parasites 37**
Alexandra V. Andreeva and Mikhail A. Kutuzov**

Part Two Functional Analysis of Parasite Kinomes and Phosphatomes 61

- 3 Trypanosomatid Phosphoproteomics 63**
*Michael D. Urbaniak**
- 4 Trypanosomatid Cell Division Kinases 79**
*Corinna Benz, Elizabeth Thomas, and Tansy C. Hammarton**
- 5 Kinetoplastid AGC Kinases 99**
*Sabine Bachmaier and Michael Boshart**
- 6 Plasmodium eIF2 α Kinases 123**
Daniel E. Goldberg, Min Zhang, and Victor Nussenzweig**
- 7 Protein Kinases of the Parasitic Protist *Entamoeba histolytica* 131**
*Somlata, Mrigya Babuta, Sudha Bhattacharya, and Alok Bhattachary**
- 8 Protein Phosphatases in Trypanosome Growth and Development 155**
Balázs Szőőr and Keith R. Matthews*

Part Three Role of Host Cell Kinomes and Phosphatomes in Parasitic Infections 179

- 9 Hijacking of Host Cell Signaling by *Theileria* 181**
Kerry Woods, Conrad von Schubert, and Dirk Dobbelaere*

- 10 The Role of Host- and Parasite-Encoded Kinases in *Toxoplasma*–Host Interactions 199**
Ira J. Blader, Gustavo Arrizabalaga, and William J. Sullivan Jr*

- 11 Macrophage Kinases in Leishmaniasis 217**
*Mahesh Kumar Padwal, Uddipan Sarma, Raki Sudan, and Bhaskar Saha**

Part Four Drug Discovery 235

- 12 Selective Inhibition of Parasite Protein Kinases 237**
*Jennifer D. Artz, Amy K. Wernimont, Linda Y. Lin, Merhnaz Amani, Mirela Neculai, Tanya Hills, and Raymond Hui**

- 13 Kinase Inhibitors Among Hits from Malaria Cellular Screens 261**
*James R. Brown, David Drewry, Francisco-Javier Gamo, and Jose F. Garcia-Bustos**

- 14 Calcium-Dependent Protein Kinases of Apicomplexan Parasites as Drug Targets 293**
*Kayode K. Ojo, Ethan A. Merritt, Dustin J. Maly, and Wesley C. Van Voorhis**

- 15 Protein Kinases as Suitable Targets for Combating *Eimeria* spp. 317**
*Richard J. Marhöfer, Jeremy C. Mottram, and Paul M. Selzer**

- 16 Receptor Tyrosine Kinase Signaling and Drug Targeting in Schistosomes 337**
Colette Dissous, Mathieu Vanderstraete, Svenja Beckmann, Nadège Gouignard, Silke Leutner, Christin Buro, and Christoph G. Grevelding*

- 17 Protein Kinases as Drug Targets in the Treatment of Alveolar Echinococcosis 357**
*Klaus Brehm**

- 18 Collaborative Drug Design of *Plasmodium* Kinase Inhibitors 375**
Barry Hardy, Roman Affentranger, Alessandro Contini, Hugo Gutierrez de Teran, Jeff Spitzner, Ruben Papoian, William L. Seibel, Sandra Nelson, Jeffrey Wiseman, Sharon D. Bryant, Isabelle Lucet, and Christian Doerig*