

Bats and Viruses

Current Research and Future Trends

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Viruses

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Bats act as reservoirs for over 200 viruses, many of which cause severe, often life-threatening, diseases in humans, livestock and wildlife. Examples include rabies virus, SARS and MERS coronaviruses and Ebola virus. Surprisingly many of these viruses cause asymptomatic infections in bats. In fact it has been postulated that these viral infections may even confer a benefit (as yet unknown) to the bat host. Research into the molecular and cellular biology of the virus-host interaction and studies on the immune systems of the bat hosts are providing new insights into these fascinating viruses and are essential first steps for the development of novel strategies for the prevention of bat-borne zoonotic infections.

In this multi-authored volume, international experts review the current hot-topics in this field. Chapters have extensive reference sections that should encourage readers to pursue each subject in greater detail. The book opens with an introductory chapter that is followed by six chapters (chapters 2-7) reviewing different important families of bat-borne viruses. The following two chapters (chapters 8-9) focus on the bat immune system. Chapters 9-12 cover in vitro isolation, in vivo models and metagenomics for viral discovery in bats. The book closes with a fascinating look at the special ability of bats to act as reservoirs for so many different types of viruses.

This book is an invaluable reference source of timely information for students, virologists, immunologists, medical and veterinary professionals, and scientists working on bat-borne diseases. It is also highly recommended for all university libraries.

Chapter 1. Bats and Viruses: Introduction (*Eugenia Corrales-Aguilar and Martin Schwemmler*)

Chapter 2. Bats and Flaviviruses (*Andres Moreira-Soto and Eugenia Corrales-Aguilar*)

Chapter 3. Alphavirus and Its Vertebrate Hosts (*Jean-Paul Carrera*)

Chapter 4. Bat Influenza A-like Viruses (*Gert Zimmer, Veronika Götz, Kevin Ciminski, Sebastian Giese and Martin Schwemmler*)

Chapter 5. Bats and Coronaviruses (*Susanna K.P. Lau, Antonio C.P. Wong, Hayes K.H. Luk and Patrick C.Y. Woo*)

Chapter 6. Genetic Diversity and Geographic Distribution of Bat-borne Hantaviruses (*Satoru Arai and Richard Yanagihara*)

Chapter 7. Bat Polyomaviruses: A Challenge to the Strict Host-Restriction Paradigm within the Mammalian Polyomaviridae (*Michael J. Carr, Gabriel Gonzalez, Emma C. Teeling and Hirofumi Sawa*)

Chapter 8. Innate Immunity in Bats (*Christopher F. Basler*)

Chapter 9. Immune (Adaptive) Response in Bats (*Peng Zhou*)

Chapter 10. In Vitro Isolation of Bat Viruses Using Commercial and Bat-derived Cell Lines (*M. Geldenhuys, J. Coertse, M. Mortlock and Wanda Markotter*)

Chapter 11. In Vivo Models of Infection (*Tony Schountz*)

Chapter 12. Metagenomics for Viral Discovery in Bats (*M. Geldenhuys and Wanda Markotter*)

Chapter 13. Are Bats 'Special'? (*Aaron T. Irving and Lin-Fa Wang*)

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