

# Lentiviruses and Macrophages

## Molecular and Cellular Interactions



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Lentiviruses comprise a genus of diverse viruses in the *Retroviridae* family which are united in their ability to infect and persist in macrophages. Infections are characterized by immune system dysfunctions following sometimes lengthy incubation periods. The viruses in this genus include primate lentiviruses such as HIV as well as animal lentiviruses including equine infectious anemia virus (EIAV). An intriguing feature of lentiviruses is their ability to hijack macrophages so that they are simultaneously involved in the dissemination and control of virus spread throughout the host, leading to disease induction and/or transmission to a new host. Macrophage biology is at an exciting stage with a wealth of new information being generated as their role in parasitic, viral and bacterial infections as well as in chronic inflammatory and autoimmune disease is dissected. Despite the devastating infections that lentiviruses cause, they also have enormous potential as research tools due to their ability to integrate into the host genome and are being exploited for use as delivery vehicles in gene therapy. Understanding the lentiviral-macrophage interaction is vital for developing novel antiviral strategies and will permit their use as research tools to be fully realised. Research in this area has never been more exciting!

In this timely book, top lentivirus and macrophage specialists comprehensively review cutting-edge topics in the molecular and cellular biology of the lentivirus-macrophage interaction. Topics include: lentivirus tropism and disease, macrophage biology, macrophage in HIV-1 infection and disease progression, post-entry restrictions to lentiviral replication, HIV-2 tropism and disease, SHIV model of disease, the feline immunodeficiency viruses, EIAV, small ruminant lentiviruses, bovine lentiviruses, coinfections and superinfections. Essential reading for every lentivirologist and retrovirologist, this is also a recommended text for all virology, immunology and molecular biology laboratories.

**Preface.** *Howard E. Gendelman*

**Chapter 1.** Lentivirus Tropism and Disease. *Jodi K. Craigo and Ronald C. Montelaro*

**Chapter 2.** A Bird's Eye View of Macrophage Biology. *Ian Ross*

**Chapter 3.** The Macrophage in HIV-1 Infection and Disease Progression. *Paul R. Gorry, Jasminka Sterjovski and Melissa J. Churchill*

**Chapter 4.** Post-entry Restrictions to Lentiviral Replication. *Jenny L Anderson and Gilda Tachedjian*

**Chapter 5.** HIV-2 Tropism and Disease. *Kelly Cheney and Áine McKnight*

**Chapter 6.** SHIV Model of Disease. *Tatsuhiko Igarashi*

**Chapter 7.** SIV Pathogenic and Nonpathogenic Infections. *Thaidra Gaufin Ivona Pandrea and Cristian Apetrei*

**Chapter 8.** The Feline Immunodeficiency Viruses: Viral Cell Tropism and the Pathogenesis of Feline AIDS.. *Brian J. Willett and Margaret J. Hosie*

**Chapter 9.** Equine Infectious Anemia Virus Pathogenesis and Replication. *Wendy Maury and J. Lindsay Oaks*

**Chapter 10.** Small Ruminant Lentiviruses and Cross Species Transmission. *Giuseppe Bertoni and Barbara Blacklaws*

**Chapter 11.** The Bovine Lentiviruses: Pathogenesis and Cell Tropism. *Moira Desport and Sandy McLachlan*

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