

Hepatitis C

Antiviral Drug Discovery and Development



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The hepatitis C virus (HCV) is a significant public health problem of international importance. HCV is capable of establishing chronic infections resulting in progressive liver damage and other problems. Current drug therapies are ineffective highlighting the need for better antiviral drugs. Recent research in HCV genetics and molecular biology have led to significant advances in our understanding of the life cycle of this important pathogen and may ultimately lead to better antiviral strategies.

The editors of this book have recruited experts from around the world to produce a timely and well-compiled review of current HCV research with an emphasis on antiviral drug development. The chapters provide in-depth reviews of the most critical areas of research. Topics covered include: the HCV life cycle, HCV assays, HCV resources, HCV databases, HCV infection systems, models of hepatitis C infections, overview of the drug pipeline, clinical trial design, clinical virology and drug development, NS3 protease inhibitors, NS3-NS4A complex inhibitors, NS3 helicase inhibitors, NS4B targets and inhibitors, NS5A inhibitors, nucleoside inhibitors, NS5B polymerase inhibitors, glycoprotein-dependent entry, host cell targets and inhibitors, and innate immunity for HCV antiviral therapy.

An essential book for scientists involved with HCV and anyone interested in antiviral drug development. A recommended text for all virology libraries.

Chapter 1. An Overview of the Hepatitis C Virus Life Cycle. *Timothy L. Tellinghuisen*

Chapter 2. Hepatitis C Virus Related Assays. *Zhuhui Huang, Zhaohui Cai and Michael G. Murray*

Chapter 3. Public HCV Resources. *Deborah R. Taylor*

Chapter 4. HCV Databases. *Carla Kuiken and Richard Scheuermann*

Chapter 5. HCV Infection Systems. *Takaji Wakita*

Chapter 6. The Chimpanzee Model of Hepatitis C Infections and Small Animal Surrogates. *Robert E. Lanford, Stanley M. Lemon and Christopher Walker*

Chapter 7. Hepatitis C Virus Drug Pipeline Overview and Clinical Trial Design. *Jean-Michel Pawlotsky*

Chapter 8. Clinical Virology Support for HCV Drug Development. *Yupeng He, Liangjun Lu and Akhteruzzaman Molla*

Chapter 9. NS3 Protease Covalent Inhibitors. *Kevin X. Chen and F. George Njoroge*

Chapter 10. NS3 Protease Non-covalent Inhibitors. *Brad O. Buckman, Karl Kossen, John B. Nicholas and Scott D. Seiwert*

Chapter 11. Discovery of Hepatitis C Virus NS3-NS4A Complex Inhibitors. *Mingjun Huang, Kathe Stauber, Atul Agarwal, Milind Deshpande and Avinash Phadke*

Chapter 12. Hepatitis C Virus NS3 Helicase Inhibitors. *Craig A. Belon and David N. Frick*

Chapter 13. NS4B Targets and Inhibitors. *Menashe Elazar and Jeffrey S. Glenn*

Chapter 14. NS5A Inhibitors. *Pilar Najarro, Neil Mathews and Stuart Cockerill*

Chapter 15. Nucleoside inhibitors of Hepatitis C Virus. *Klaus Klumpp and Mark Smith*

Chapter 16. NS5B Polymerase Non-Nucleoside Inhibitors. *Martijn Fenaux and Hongmei Mo*

Chapter 17. Hepatitis C Virus Glycoprotein-dependent Entry. *H.E. Drummer and J.A. McKeating*

Chapter 18. A Perspective on Host Cell Targets and Inhibitors. *Kai Lin*

Chapter 19. Targeting Innate Immunity for HCV Antiviral Therapy. *Michael Gale, Jr.*

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