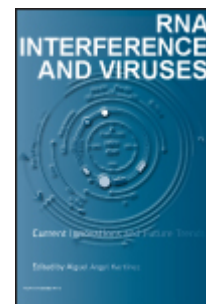


# RNA Interference and Viruses

## Current Innovations and Future Trends



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**Published:** February 2010. **Pages:** x + 252

**Hardback:** ISBN 978-1-904455-56-1 £159, \$319

**Published by:** Caister Academic Press [www.caister.com](http://www.caister.com)

Since its discovery in 1998, RNA interference (RNAi) has heralded the advent of novel tools for biological research and drug discovery. This exciting new technology is emerging as a powerful modality for battling some of the most notoriously challenging viral clinical targets such as hepatitis C virus (HCV) and human immunodeficiency virus (HIV). However, several critical issues associated with this novel technology must be resolved before it can progress to testing in human clinical trials, and these have been the target of intensive research in recent years.

In this book, expert RNAi specialists from around the world have teamed up to produce a timely and thought-provoking review of the area. The two central themes are: 1) the latest findings on RNAi-virus interactions and 2) progress in the development of RNAi-based antiviral therapeutics. A number of chapters explain general concepts concerned with the role of RNAi in natural antiviral defense mechanisms, other chapters discuss how to improve the efficacy and safety of RNAi-based antiviral drugs, while others describe how this technology is being developed as a new therapeutic tool for fighting specific viruses, including HIV, HCV and respiratory viruses. Authors also outline potential new avenues for research thus providing a stimulus for further research. Essential reading for researchers involved in RNAi or antiviral research and a recommended text for all virology laboratories.

**Chapter 1.** RNAi: An Antiviral Defense System in Insects. *Bertsy Goic and Maria-Carla Saleh*

**Chapter 2.** RNA Silencing in Plants and the Role of Viral Suppressors. *Ana Giner, Juan José López-Moya and Lorant Lakatos*

**Chapter 3.** The Properties and Roles of Virus-encoded MicroRNAs. *Mélanie Tanguy and Sébastien Pfeffer*

**Chapter 4.** Virus-encoded Suppressors of RNA Silencing and the Role of Cellular miRNAs in Mammalian Antiviral Immune Responses. *Joost Haasnoot and Ben Berkhout*

**Chapter 5.** HCV and the Interaction with miR-122 in the Liver. *Gabriele Fuchs and Cara T. Payer*

**Chapter 6.** Viral Escape From RNAi in Mammalian Cells. *Maria Nevot and Miguel Angel Martínez*

**Chapter 7.** RNAi Gene Therapy to Control HIV-1 Infection. *Ben Berkhout and Olivier ter Brake*

**Chapter 8.** Advances in the Use of RNAi to Treat Chronic Hepatitis B Virus Infection. *Abdullah Ely and Patrick Arbuthnot*

**Chapter 9.** Hepatitis C: New Insights and Therapeutics by RNAi. *Qiuwei Pan and Luc J.W. van der Laan*

**Chapter 10.** RNAi Applications to Defeat Respiratory Viral Infections. *Sailen Barik*

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