

# RNA Interference and Viruses

## Current Innovations and Future Trends

Edited by: **Miguel Angel Martínez**

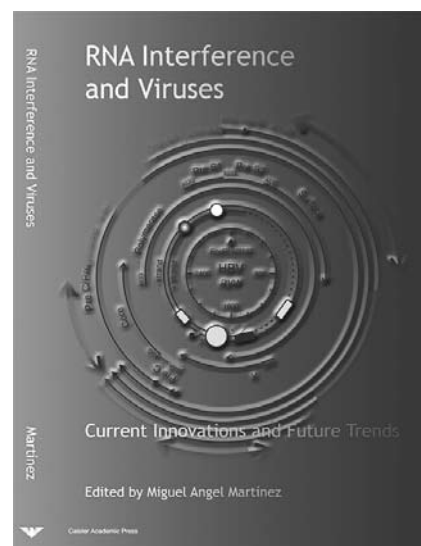
Fundacio irsiCaixa, Hospital Universitari Germans Trias i Pujol, Badalona, Spain

x + 252 pp, February 2010

ISBN: 978-1-904455-56-1, \$319/£159

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.



### Table of Contents

• 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. Pagar* • 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* • Chapter 11: RNAi With Viral Vectors That Deliver Small Interference RNAs. *Jovanna González-Rojas, Xabier Abad and Puri Fortes*

Further Details on this and all our books at

**WWW.CAISTER.COM**

#### Order from:

• ISBS, Inc., 920 NE 58th Avenue, Suite 300, Portland, OR 97213-3786, **USA** Tel: 503 287-3093; Fax: 503 280-8832 <http://usa.caister.com>  
• Book Systems Plus, BSP Hse, Station Road, Linton, Cambs, CB21 4NW, **UK** Tel: 01223 894870; Fax: 01223 894871 <http://uk.caister.com>

Quantity	Title	ISBN	Cost
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Name \_\_\_\_\_

Address \_\_\_\_\_

E-mail \_\_\_\_\_

Tel. \_\_\_\_\_ Fax. \_\_\_\_\_

Exp. date     Security number

Cardholder \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Visa  Mastercard  Bill me

Add carriage per copy:  
UK £5; USA \$5.50; Rest of World please call \_\_\_\_\_

**Total** \_\_\_\_\_

## Two-Component Systems in Bacteria

Edited by: R Gross, D Beier  
c. 410 pp, August 2012

ISBN: 978-1-908230-08-9, \$360/£180

Latest research on structure-function analysis, sensing mechanisms, atypical two-component systems, stress responses, developmental processes, virulence and symbiosis.

## Foodborne & Waterborne Bacterial Pathogens

Epidemiology, Evolution and Molecular Biology

Edited by: SM Faruque  
c. 330 pp, July 2012

ISBN: 978-1-908230-06-5, \$319/£159

Review topics such as pathogenic properties, population genetics, virulence genes, evolution, drug resistance, epidemiology, detection, identification and control strategies.

## Yersinia

Systems Biology and Control

Edited by: E Carniel, BJ Hinnebusch  
c. 240 pp, July 2012

ISBN: 978-1-908230-05-8, \$319/£159

Leading *Yersinia* researchers review the hot topics in the systems biology and control of these important bacteria.

## Stress Response in Microbiology

Edited by: JM Requena  
c. 500 pp, June 2012

ISBN: 978-1-908230-04-1, \$360/£180

Expert authors from around the world summarise the current knowledge on microbial stress response and comprehensively review the recent findings that have greatly advanced the understanding of stress response systems.

## Bacterial Regulatory Networks

Edited by: AAM Filloux  
c. 400 pp, June 2012

ISBN: 978-1-908230-03-4, \$360/£180

Authoritative, up-to-date reviews of the current research and theories on regulatory networks in bacteria. Critical reviews written by the leading research scientists in the field.

## Systems Microbiology

Current Topics and Applications

Edited by: BD Robertson, BW Wren  
c. 200 pp, June 2012

ISBN: 978-1-908230-02-7, \$319/£159

Cutting-edge reviews by world-leading experts on the systems biology of microorganisms. Includes theoretical approaches, mathematical modelling, case studies on microbial species and the systems analysis of microbial phenomena.

## Quantitative Real-time PCR in Applied Microbiology

Edited by: M Filion

c. 280 pp, May 2012

ISBN: 978-1-908230-01-0, \$319/£159

Aimed specifically at microbiologists, this volume describes and explains the most important aspects of current real-time quantitative PCR (qPCR) strategies, instrumentation and software.

## Bacterial Spores

Current Research and Applications

Edited by: E Abel-Santos

c. 300 pp, April 2012

ISBN: 978-1-908230-00-3, \$319/£159

Comprehensive, up-to-date reviews on the current state of our knowledge of bacterial endospores. Essential text for everyone involved in spore research, the expression of recombinant proteins and pathogen detection.

## Small DNA Tumour Viruses

Edited by: K Gaston

x + 324 pp, March 2012

ISBN: 978-1-904455-99-8, \$319/£159

Leading scientists from around the world review current hot-topics on small DNA tumour virus research providing a fascinating overview of their molecular biology and interactions with the host.

## Extremophiles

Microbiology and Biotechnology

Edited by: RP Anitori

xiv + 300 (colour figures) pp, January 2012

ISBN: 978-1-904455-98-1, \$319/£159

Current and topical areas of extremophile research. The latest insights into the mechanisms these fascinating organisms use to survive and the most recent and novel biotechnological uses of extremophiles.

## Bacillus

Cellular and Molecular Biology (2e)

Edited by: P Graumann

xii + 398 pp, February 2012

ISBN: 978-1-904455-97-4, \$360/£180

A valuable reference work providing a comprehensive and up-to-date analysis. Critical reviews on the most recent and topical research.

## Microbial Biofilms

Current Research and Applications

Edited by: G Lear, GD Lewis

x + 228 pp, February 2012

ISBN: 978-1-904455-96-7, \$319/£159

An up-to-date review of the latest scientific research on microbial communities and a discussion of future trends and growth areas in biofilm-related research.

## Bacterial Glycomics

Current Research, Technology and Applications

Edited by: CW Reid, SM Twine, AN Reid  
x + 270 pp, February 2012

ISBN: 978-1-904455-95-0, \$319/£159

Up-to-date overview of our current understanding of bacterial glycomes, the main analytical methods and recent and novel applications.

## Non-coding RNAs and Epigenetic Regulation of Gene Expression

Drivers of Natural Selection

Edited by: KV Morris

x + 216 pp, February 2012

ISBN: 978-1-904455-94-3, \$319/£159

An important and up-to-date overview of the modulation of gene transcription by non-coding RNAs. An essential reference book and a major information resource for those working in the area.

## Brucella

Molecular Microbiology and

Genomics

Edited by: I López-Goñi, D O'Callaghan

x + 262 pp, February 2012

ISBN: 978-1-904455-93-6, \$319/£159

Highly acclaimed *Brucella* scientists comprehensively review the most important advances in the field. Topics include: genetic diversity, proteomic analysis, transcriptomic analysis, and much more.

## Molecular Virology and Control of Flaviviruses

Edited by: P-Y Shi

x + 358 pp, January 2012

ISBN: 978-1-904455-92-9, \$360/£180

An up-to-date and cutting-edge anthology from the leading experts in the flavivirus field. Essential reading for flavivirus researchers at the graduate level and beyond.

*"a valuable resource" (Doodys)*

## Bacterial Pathogenesis

Molecular and Cellular Mechanisms

Edited by: C Locht, M Simonet

x + 370 pp, January 2012

ISBN: 978-1-904455-91-2, \$360/£180

Distinguished scientists comprehensively describe the most relevant and up-to-date information on pathogenic features across the bacterial world.

*"useful to those in many areas of research" (Doodys)*