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perimental tool and therapeutic interventions based on RNAi and RNAi-like pathways are rapidly being developed.

RNA Interference and Viruses highlights the role of RNAi and related pathways in basic and applied virology in 11 chapters, written by experts in each field. Three chapters review RNAi as an antiviral defense system in insects and plants (Chapters 1 and 2) and potential roles of RNAi and related pathways in vertebrates (Chapter 4). One chapter each examines virally encoded microRNAs (Chapter 3) and the role of the cellular microRNA-122 in hepatitis C virus replication (Chapter 5). The remaining six chapters discuss therapeutic approaches based on RNAi, including the RNAi-based inhibition of virus replication and viral escape from this inhibition (Chapter 6), the development of RNAi-based interventions against human immunodeficiency virus (Chapter 7), chronic hepatitis B virus infection (Chapter 8), hepatitis C virus (Chapter 9), respiratory virus infections (Chapter 10), and strategies for the design of viral vectors for RNAi (Chapter 11).

Overall, this book provides a timely and useful review of topics relevant to the interface of small RNA biology and virology. Chapters were written to stand alone and are therefore best read individually. In my view, this volume may have benefitted from an introductory overview of the different small RNA pathways in different organisms and how these matter to viruses. This information is presented partially and differently in each chapter, but does not come together in a unified picture and may, therefore, be confusing to anyone new to the field of regulatory RNAs. Because many of the topics presented in this book have also been covered by excellent review articles elsewhere, this fairly expensive volume probably makes a good addition to institutional libraries, but is not an indispensable acquisition for individual scientists or laboratories in the field.

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MOLECULAR BIOLOGY OF THE SARS-CORONAVIRUS.

Edited by Sunil K. Lal. Berlin (Germany) and New York: Springer. \$199.00. xiii + 328 p.; ill.; index. ISBN: 978-3-642-03682-8. 2010.

Severe acute respiratory syndrome (SARS) is a classic textbook example of a zoonotic infection. The virus responsible, which is now known as the SARS-related coronavirus (SARSr-CoV), belongs to a family that has been mainly associated with relatively mild respiratory diseases in humans. Consequently, there has been particular interest in two aspects of SARSr-CoV biology: the adaptation of the virus during transmission to humans and the specific features of the virus that lead to its unique pathogenesis. This emphasis is

reflected in this volume, with three chapters on virus entry and ten chapters on accessory proteins, viral pathogenesis, and the host immune response. The remaining chapters deal with RNA structures and proteins involved in replication. Overall, this volume provides a useful portal for postgraduate students and researchers into selected aspects of SARSr-CoV molecular biology.

The chapters on virus entry provide a succinct but accurate review of the SARSr-CoV surface protein and its receptor, ACE2. The chapters on virus replication describe, at the molecular level, the structure-function relationships of the viral RNA and replicative proteins and include comprehensive articles written by leaders in the field. Perhaps the most stimulating chapters are those that deal with virus-host interactions as they relate to pathogenesis. An excellent chapter on pathogenesis and therapeutic treatment design by Sheahan and Baric is complemented by chapters that describe the diversity of viral strategies to subvert the innate and adaptive immune responses of the host.

Overall, this volume would be most useful to postgraduate students entering the field of SARSr-CoV research. However, as with all publications that address a fast-moving and dynamic area of research, the information needs to be supplemented with more recent reviews and original research articles.

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OXYGEN AND THE EVOLUTION OF LIFE.

By Heinz Decker and Kensal E. van Holde. Heidelberg (Germany) and New York: Springer. \$79.95. xi + 172 p.; ill.; index. ISBN: 978-3-642-13178-3 (hc); 978-3-642-13179-0 (eb). 2011.

Oxygen, Earth's second most abundant element, resides mainly in silicate minerals of the crust and mantle. Most of the remainder is bound into water, but a little bit has leaked through time into the atmosphere, dramatically changing biological and environmental evolution on our planet. Decker and van Holde have assembled a rough guide to this most remarkable element, exploring its cosmological origins; its generation, use, and avoidance by organisms; and its consequences for biological and environmental history. The book begins with a primer on chemistry, which the authors, somewhat defensively, suggest that readers can skip. That would be a mistake, as this compact introduction admirably summarizes the fundamental reactions that govern oxygen's interactions with Earth and life. The chapter also provides a clear and concise guide to the three oxygen compounds that define habitable environments—O₂, H₂O, and CO₂—setting the stage for much of what follows.

Decker and van Holde are at their best in outlining the chemical interplay between oxygen and