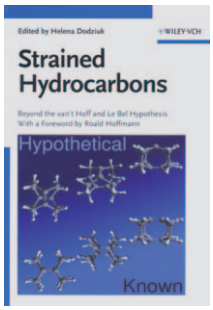


**Strained Hydrocarbons**
Beyond the van't Hoff and Le Bel Hypothesis.
Edited by Helena Dodziuk.
Wiley-VCH, Weinheim 2009.
471 pp., hardcover
€ 159.00.—ISBN 978-3527317677

Other subjects covered in this book that may likewise escape discovery by scientists who would find them informative and useful include the chapters on molecules with labile bonds (Chapter 8), on graph-theoretically nonplanar molecules (Chapter 9), and on short-lived species stabilized in molecular or supramolecular flasks (Chapter 10).

The book suffers from several unfortunate shortcomings. An author index would have been useful, but there is none. More serious is the paucity of recent literature citations. Of the approximately 2600 references cited, more than 98% were published in 2006 or earlier. The preface is dated 2009, and the copyright date for the book is 2009, so I was disappointed to find only 61 references from 2007 and only 4 from 2008 in the entire book. This suggests a relatively long delay between the time when most authors submitted their contributions and the time when the book finally went to press. Some sections of the book cite a number of "http://www…" references, which will remain useful only as long as the individual web sites are maintained. The unusually large number of typographical errors and linguistic irregularities is also distracting and unexpected for a Wiley-VCH monograph.

Despite its shortcomings, this book is still full of good chemistry. It represents the first book-length update on the subject of strained organic compounds since the publication of the six volume series *Strain in Organic Chemistry* edited by Brian Halton from 1991–1996. Any student or professional chemist who is interested in the concept and consequences of strain in organic molecules will find this book engaging, and all major research universities should have a copy in their library.

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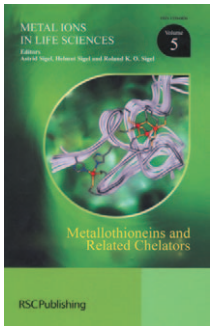


**Metallothioneins and Related Chelators**
Metal Ions in Life Sciences Vol. 5. Edited by Astrid Sigel, Helmut Sigel and Roland K. O. Sigel. Royal Society of Chemistry, Cambridge 2009. 514 pp., hardcover
$ 299.00.—ISBN 978-1847558992

## Metallothioneins and Related Chelators

Metallothioneins (MTs) are cysteine-rich proteins that were first discovered more than 50 years ago by Margoshes and Vallee in equine renal cortexes as an usual cadmium-binding protein. Since that initial discovery, interest in this unique and somewhat enigmatic protein has grown exponentially and today generates significant attention in the arenas of inorganic biochemistry, environmental toxicology, pharmacology, physiology, cancer biology, neurochemistry, and medicine. The ubiquitous expression of related members of the metallothionein family across species ranging from bacteria, to yeast, to plants, and finally to mammals lends credence to the importance of these proteins despite the fact that metallothionein gene-knockout animals are viable. MT has been implicated in various cellular functions, including toxic metal sequestration, essential metal metabolism and trafficking, and free radical scavenging.

The book "Metallothioneins and Related Chelators" edited by A. Sigel, H. Sigel, and R. K. O. Sigel discusses in eloquent detail the different facets of metallothionein research focusing primarily on the differences and similarities between related metallothionein proteins from different organisms. Examining the structural and functional properties of metallothionein species, spanning evolutionarily related and divergent organisms, presents an interesting perspective on metallothionein's role in the cellular biology.

The book is organized into 15 chapters written by 30 experts in their respective sub-field of metallothionein research. Since each chapter is individually authored there is some degree of repetition, however this allows each chapter to be independent of the others if a reader should be interested in only a single topic within the book. Chapter 1 opens with a comprehensive historical summary of metallothionein research over the last 50 years which includes structure, function, gene expression, role in disease and methods for quantification as an introduction to the more focused chapters that follow. This chapter provides a lot of detail which is sure to be of interest to those working directly in the metallothionein field, but may be a bit overwhelming to a reader whose first introduction to metallothionein is this book. Chapter 2 discusses the topic of transcriptional regulation of metallothionein gene expression which includes a nice summary on the metal-response element binding transcription factor (MTF-1) and how it compares across species ranging from insects to mammals. The bulk of the book is devoted to species comparison of MT. Each chapter from Chapters 3–10 reviews the respective metallothionein protein from a specific organism including bacteria, yeast, fungi, plants, diptera, earthworm and nematode, aquatic organisms, fresh water animals, and vertebrates. The general format of these chapters is to review the literature regarding the structure, function, and gene organization/regulation of the species-specific MT with comparison to the most well-studied mammalian MTs as a point of reference. Chapters 11–13 wrap up the metallothionein portion of the book with the focused topics of brain-specific mammalian isoform MT-3, the function of metallothionein in metal -ion

  

trafficking and cellular protection and in inorganic carcinogenesis as extensions of the vertebrate MT chapter. Finally, the book concludes with two chapters that discuss other metal-ion chelators, namely thioredoxins, glutaredoxins, and phytochelatins.

In summary, this book is a compilation of an incredible amount of research in the field of metallothionein chemistry and adeptly highlights the vast progress that has been made over the last 50 years. This book is a must for all those in the field of biological inorganic chemistry, and will be a useful reference for graduate students and senior undergraduate students.

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