

Metallothioneins and Related Chelators

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About this Book

Volume 5 focuses on the vibrant research area centering around *Metallothioneins* and related sulfur-containing chelators and their role in Nature. With close to **2000** references, about **20** tables, and over **80** illustrations, one third of these in color, this book is an essential resource for scientists working in the wide range from environmental toxicology and inorganic biochemistry all the way through to physiology and medicine.

In **15** stimulating chapters, written by **30** internationally recognized experts, *Metallothioneins and Related Chelators* highlights critically the interrelations between metallothioneins, the homeostasis of essential metal ions, and heavy metal toxicology. It examines the interdependency between metallothionein regulation and gene expression and the role of metallothioneins in metal-induced carcinogenesis. It deals with metallothioneins in bacteria, yeast and fungi, plants, diptera, earthworms and nematodes, echinoderms, crustaceans, molluscs, and fish; and the structure and function of vertebrate, including mammalian, metallothioneins. Finally, the volume considers thioredoxins, glutaredoxins, phytochelators, and related ligands in biology.

About the Series

Metal Ions in Life Sciences links coordination chemistry and biochemistry in their widest sense and thus increases our understanding of the relationship between the chemistry of metals and life processes. The series reflects the interdisciplinary nature of *Biological Inorganic Chemistry* and coordinates the efforts of scientists in fields like biochemistry, inorganic chemistry, coordination chemistry, molecular and structural biology, enzymology, environmental chemistry, physiology, toxicology, biophysics, pharmacy, and medicine. Consequently, the volumes are an essential source for researchers active in these and related fields as well as teachers preparing courses, e.g., in *Bioinorganic Chemistry*.

About the Editors

Astrid Sigel has studied languages and was an editor of the *Metal Ions in Biological Systems* series (until Volume 44) and also of the *Handbooks on Toxicity of Inorganic Compounds* (1988), on *Metals in Clinical and Analytical Chemistry* (1994; both with H. G. Seiler) and on *Metalloproteins* (2001; with Ivano Bertini).

Helmut Sigel is Emeritus Professor (2003) of Inorganic Chemistry at the University of Basel, Switzerland, and a previous editor of the *MIBS* series until Volume 44. He serves on various editorial and advisory boards, published over 300 articles on metal ion complexes of nucleotides, coenzymes, and other ligands of biological relevance, and lectured worldwide. He was named *Protagonist in Chemistry* (2002) by *ICA* (issue 339); among further honors are the *P. Ray Award* (Indian Chemical Society, of which he is also an Honorary Fellow), the *Werner Award* (Swiss Chemical Society), a *Doctor of Science honoris causa* degree (Kalyani University, India), appointments as *Visiting Professor* (e.g., Austria, China, Japan, UK) and *Endowed Lectureships*.

Roland K. O. Sigel is Associate Professor (2009) of Inorganic Chemistry at the University of Zürich, Switzerland; from 2003 to 2008 he was endowed with a *Förderungsprofessur* of the Swiss National Science Foundation. He received his doctoral degree *summa cum laude* (1999) from the University of Dortmund, Germany, working with Bernhard Lippert. Thereafter he spent nearly three years at Columbia University, New York, USA, with Anna Marie Pyle (now Yale University). During the six years abroad he received several prestigious fellowships from various sources, and he was awarded the *EuroBIC Medal* in 2008. His research focuses on the structural and catalytic role of metal ions in ribozymes, especially group II introns, and on related topics. He was also an editor of Volumes 43 and 44 of the *MIBS* series.

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