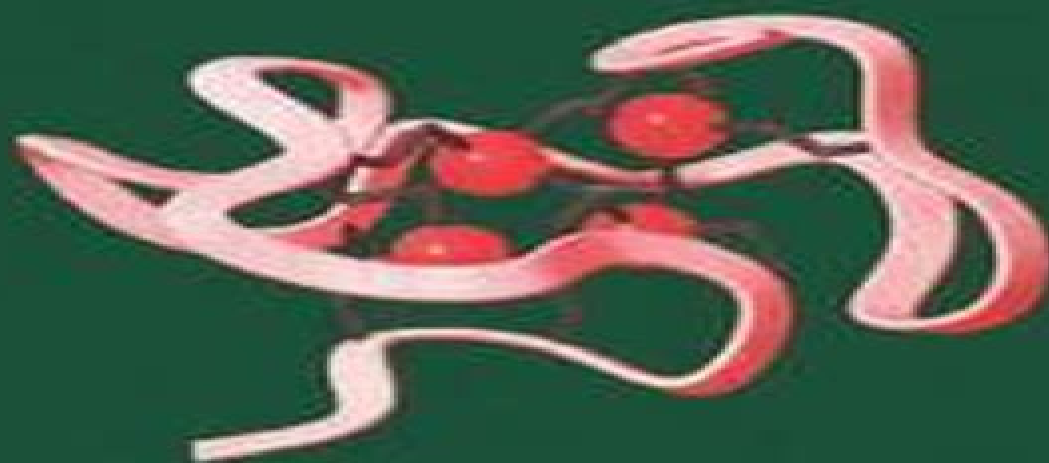


# Handbook on **METALLOPROTEINS**



edited by  
**Ivano Bertini**  
**Astrid Sigel**  
**Helmut Sigel**

# Handbook On Metalloproteins

**Albrecht Messerschmidt**



## **Handbook On Metalloproteins:**

*Handbook on Metalloproteins* Ivano Bertini, Astrid Sigel, 2001-06-29 This Handbook on Metalloproteins focuses on the available structural information of proteins and their metal ion coordination spheres. It centers on the metal ions indispensable for life but also considers metal ions used as substitution probes in studies of metalloproteins. Emphasizing the structure-function relationship, the book covers the common and distinct characteristics of metalloenzymes, proteins, and amino acids bonded to copper, zinc, iron, and more.

**Handbook on Metalloproteins** Ivano Bertini, Astrid Sigel, 2001-06-29 This Handbook on Metalloproteins focuses on the available structural information of proteins and their metal ion coordination spheres. It centers on the metal ions indispensable for life but also considers metal ions used as substitution probes in studies of metalloproteins. Emphasizing the structure-function relationship, the book covers the common

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**Metal-Carbon Bonds in Enzymes and Cofactors** Astrid Sigel, Helmut Sigel, Roland K.O. Sigel, 2015-07-24 The occurrence of a wide variety of metal carbon bonds in living organisms ranging from bacteria to humans is only recently recognized Of course the historical examples are the B12 coenzymes containing cobalt carbon bonds but now such bonds are also known for nickel iron copper and other transition metal ions There is no other comparable book MILS 6 written by 17 experts summarizes the most recent insights into this fascinating topic

**Biological Inorganic Chemistry** Ivano Bertini, 2007 Part A Overviews of biological inorganic chemistry 1 Bioinorganic chemistry and the biogeochemical cycles 2 Metal ions and proteins binding stability and folding 3 Special cofactors and metal clusters 4 Transport and storage of metal ions in biology 5 Biominerals and biomineralization 6 Metals in medicine Part B Metal ion containing biological systems 1 Metal ion transport and storage 2 Hydrolytic chemistry 3 Electron transfer respiration and photosynthesis 4 Oxygen metabolism 5 Hydrogen carbon and sulfur metabolism 6 Metalloenzymes with radical intermediates 7 Metal ion receptors and signaling Cell biology biochemistry and evolution Tutorial I Fundamentals of coordination chemistry Tutorial II

*Comprehensive Coordination Chemistry II* J. A. McCleverty, T.J. Meyer, 2003-12-03 Comprehensive Coordination Chemistry II CCC II is the sequel to what has become a classic in the field Comprehensive Coordination Chemistry published in 1987 CCC II builds on the first and surveys new developments authoritatively in over 200 newly commissioned chapters with an emphasis on current trends in biology materials science and other areas of contemporary scientific interest

**Metalloprotein Active Site Assembly** Michael K. Johnson, Robert A. Scott, 2017-08-30 Summarizes the essential biosynthetic pathways for assembly of metal cofactor sites in functional metalloproteins Metalloprotein Active Site Assembly focuses on the processes that have evolved to orchestrate the assembly of metal cofactor sites in functional metalloproteins It goes beyond the simple incorporation of single metal ions in a protein framework and includes metal cluster assembly metal cofactor biosynthesis and insertion and metal based post translational modifications of the protein environments that are necessary for function Several examples of each of these areas have now been identified and studied the current volume provides the current state of the art understanding of the processes involved An excellent companion to the earlier book in this series Metals in Cells which discussed both the positive and negative effects of cellular interactions with metals this comprehensive book provides a diverse sampling of what is known about metalloprotein active site assembly processes It covers all major biological transition metal components Mn Fe Co Ni Mo as well as the other inorganic components metal binding organic cofactors e g heme siroheme cobalamin molybdopterin and post translationally modified metal binding sites that make up the patchwork of evolved biological catalytic sites The book compares and contrasts the biosynthetic assembly of active sites involving all biological metals This has never been done before since it is a relatively new fast developing area of research Metalloprotein Active Site Assembly is an ideal text for practitioners of inorganic biochemistry who are studying the biosynthetic pathways and gene clusters

involved in active site assembly and for inorganic chemists who want to apply the concepts learned to potential synthetic pathways to active site mimics

*Progress in Inorganic Chemistry* Kenneth D. Karlin, 2005-06-14 The cutting edge of scientific reporting PROGRESS in Inorganic Chemistry Nowhere is creative scientific talent busier than in the world of inorganic chemistry experimentation Progress in Inorganic Chemistry continues in its tradition of being the most respected avenue for exchanging innovative research This series provides inorganic chemists and materials scientists with a forum for critical authoritative evaluations of advances in every area of the discipline With contributions from internationally renowned chemists this latest volume offers an in depth far ranging examination of the changing face of the field providing a tantalizing glimpse of the emerging state of the science This series is distinguished not only by its scope and breadth but also by the depth and quality of the reviews Journal of the American Chemical Society This series has won a deservedly honored place on the bookshelf of the chemist attempting to keep afloat in the torrent of original papers on inorganic chemistry

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The Chemistry of Organocopper Compounds Zvi Rappoport, Ilan Marek, 2009-12-21 Copper in organic synthesis has seen a tremendous development over the past ten years This text represents the most comprehensive survey on the use of Copper and Cuprates in organic synthesis The first time that the Patai Series touches on Copper compounds it contains contributions by leading experts and delivers the quality expected from the Patai Series

**Biology of the Nitrogen Cycle** Hermann Bothe, Stuart Ferguson, William Edward Newton, 2007

*Ionic Interactions in Natural and Synthetic Macromolecules* Alberto Ciferri, Angelo Perico, 2012-01-04 This book is a comprehensive study of the subject of ionic interactions in macromolecules The first parts of the book review and analyze the conventional treatments of fixed charges e g in polyelectrolytes and polyampholytes including screening and condensation by mobile ions The interaction of ions with less polar sites on the macromolecule e g amide bonds and the origin of the lyotropic effects focusing on binding versus condensation will also be extensively addressed The book also explores complex micellar organizations involving charged macromolecules e g DNA and low molecular weight ampholytes and strong protein associations The resulting structures are relevant to a variety of functional biological systems and synthetic analogs The contribution of electrostatic and hydrophobic interaction to the stability of



proteins and other supramolecular structures will also be analyzed There are chapters on applications such as deionization and cosmetic formulation This 21 chapter book is divided into three sections Fundamentals Mixed Interactions Functions and Applications     *Amino Acids, Peptides and Proteins* G C Barrett,J S Davies,2007-10-31 In an ever increasing domain of activity Amino Acids Peptides and Proteins provides an annual compilation of the world s research effort into this important area of biological chemistry Volume 33 provides a review of literature published during 2000 Comprising a comprehensive review of significant developments at this biology chemistry interface each volume opens with an overview of amino acids and their applications Work on peptides is reviewed over several chapters ranging from current trends in their synthesis and conformational and structural analysis to peptidomimetics and the discovery of peptide related molecules in nature The application of advanced techniques in structural elucidation is incorporated into all chapters whilst periodic chapters on metal complexes of amino acids peptides and beta lactams extend the scope of coverage Efficient searching of specialist topics is facilitated by the sub division of chapters into discrete subject areas allowing annual trends to be monitored All researchers in the pharmaceutical and allied industries and at the biology chemistry interface in academia will find this an indispensable reference source

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