

*metabolism in
biological systems*

volume 19

metabolism and drug compounds

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Metal Ions In Biological Systems Vol 19 Antibiotics And Their Complexes

**Astrid Sigel, Helmut Sigel, Roland K.O.
Sigel**



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biogeochemistry of metals and their transport in the environment and availability to living systems offers 9 timely and authoritative chapters on these fascinating topics by 19 internationally recognized experts **Metal Ions in Biological Systems, Volume 43 - Biogeochemical Cycles of Elements** Helmut Sigel, Roland Sigel, 2005-02-28 Metal Ions in Biological Systems is devoted to increasing our understanding of the relationship between the chemistry of metals and life processes The volumes reflect the interdisciplinary nature of bioinorganic chemistry and coordinate the efforts of researchers in the fields of biochemistry inorganic chemistry coordination chemistry [Metals Ions in Biological System](#) Astrid Sigel, Helmut Sigel, 2002-03-06 Volume 39 Molybdenum and Tungsten Their Roles in Biological Processes is devoted solely to the vital research area on molybdenum and tungsten and their role in biology It offers a comprehensive and timely account of this fascinating topic by 40 distinguished international authorities Topics include transport homeostasis regulation and binding of molybdate and tungstate to proteins crystallographic characterization coordination of complexes and biosynthesis

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the unique character of sulfur metal bonding The new volume in prestigious Metal Ions in Life Sciences explores different transition metal complexes with sulfur their biosynthesis and biological functions in regulation of gene expression catalysis of important metabolic reactions and protein structure arrangement Metals, Microbes, and Minerals - The Biogeochemical Side of Life Peter Kroneck, Martha Sosa Torres, 2021-01-18 One of the biggest questions in today's biochemistry is how biological molecules became essential for the processes that occur within living cells This new book from outstanding Metal Ions in Life Science series gives an overview about biochemical evolution of organic molecules and metabolic pathways in living systems and outlines the vital biochemical processes in microbial cells in which metals are involved

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this book written by 39 internationally recognized experts from 10 nations from the US via Europe to China and Australia The impact of this vibrant research area is manifested by more than 2700 references nearly 150 illustrations more than half in color and several comprehensive tables *Metallo Drugs Development and Action of Anticancer Agents* is an essential resource for scientists working in the wide range from enzymology material sciences analytical organic and inorganic biochemistry all the way through to medicine including the clinic not forgetting that it also provides excellent information for teaching

The Metal-Driven Biogeochemistry of Gaseous Compounds in the Environment Peter M.H. Kroneck, Martha E. Sosa Torres, 2014-11-22 MILS 14 provides a most up to date view of the exciting biogeochemistry of gases in our environment as driven mostly by microorganisms These employ a machinery of sophisticated metalloenzymes where especially transition metals such as Fe Ni Cu Mo W play a fundamental role that is in the activation transformation and syntheses of gases like dihydrogen methane carbon monoxide acetylene and those of the biological nitrogen and sulfur cycles The Metal Driven Biogeochemistry of Gaseous Compounds in the Environment is a vibrant research area based mainly on structural and microbial biology inorganic biological chemistry and environmental biochemistry All this is covered in an authoritative manner in 11 stimulating chapters written by 26 internationally recognized experts and supported by nearly 1200 references informative tables and about 100 illustrations two thirds in color MILS 14 also provides excellent information for teaching Peter M H Kroneck is a bioinorganic chemist who is exploring the role of transition metals in biology with a focus on functional and structural aspects of microbial iron copper and molybdenum enzymes and their impact on the biogeochemical cycles of nitrogen and sulfur Martha E Sosa Torres is an inorganic chemist with special interests in magnetic properties of newly synthesized transition metal complexes and their reactivity towards molecular oxygen applying kinetic electrochemical and spectroscopic techniques *Metallomics and the Cell* Lucia Banci, 2013-04-18 Metallomics and the Cell provides in an authoritative and timely manner in 16 stimulating chapters written by 37 internationally recognized experts from 9 nations and supported by more than 3000 references several tables and 110 illustrations mostly in color a most up to date view of the metallomes which as defined in the omics world describe the entire set of biomolecules that interact with or are affected by each metal ion The most relevant tools for visualizing metal ions in the cell and the most suitable bioinformatic tools for browsing genomes to identify metal binding proteins are also presented Thus MILS 12 is of relevance for structural and systems biology inorganic biological chemistry genetics medicine diagnostics as well as teaching etc Interrelations between Essential Metal Ions and Human Diseases Astrid Sigel, Helmut Sigel, Roland K.O. Sigel, 2014-01-27 MILS 13 provides an up to date review on the relationships between essential metals and human diseases covering 13 metals and 3 metalloids The bulk metals sodium potassium magnesium and calcium plus the trace elements manganese iron cobalt copper zinc molybdenum and selenium all of which are essential for life Also covered are chromium vanadium nickel silicon and arsenic which have been proposed as being essential for humans in the 2nd half of the last century However if at all they are needed

only in ultra trace amounts and because of their prevalence in the environment it has been difficult to prove whether or not they are required In any case all these elements are toxic in higher concentrations and therefore transport and cellular concentrations of at least the essential ones are tightly controlled hence their homeostasis and role for life including deficiency or overload and their links to illnesses including cancer and neurological disorders are thoroughly discussed Indeed it is an old wisdom that metals are indispensable for life Therefore Volume 13 provides in an authoritative and timely manner in 16 stimulating chapters written by 29 internationally recognized experts from 7 nations and supported by more than 2750 references and over 20 tables and 80 illustrations many in color a most up to date view on the vibrant research area of the Interrelations between Essential Metal Ions and Human Diseases *Metallothioneins and Related Chelators* Astrid Sigel, Helmut Sigel, Roland K.O. Sigel, 2015-07-24 These sulfur rich chelators being important in metal ion homeostasis find increasing attention MILS 5 written by 30 internationally recognized experts focuses on this hot topic The reader is supported by about 20 tables more than 80 illustrations and nearly 2000 references This book is an essential resource for scientists working in a wide range of disciplines from environmental toxicology and inorganic biochemistry all the way through to physiology and medicine **Cadmium: From Toxicity to Essentiality** Astrid Sigel, Helmut Sigel, Roland K.O. Sigel, 2013-02-26 Volume 11 provides in an authoritative and timely manner in 16 stimulating chapters written by 40 internationally recognized experts from 11 nations and supported by more than 2600 references 35 tables and over 100 illustrations many in color a most up to date view on the role of cadmium for life presently a vibrant research area MILS 11 covers the bioinorganic chemistry of Cd II its biogeochemistry anthropogenic release into the environment and speciation in the atmosphere waters soils and sediments The analytical tools for Cd determination its imaging in cells and the use of ^{113}Cd NMR to probe Zn II and Ca II proteins are summarized as are Cd II interactions with nucleotides nucleic acids amino acids and proteins including metallothioneins The phytoremediation by Cd II accumulating plants etc the toxicology of Cd II its damage to mammalian organs and its role as a carcinogen for humans are highlighted **Sustaining Life on Planet Earth: Metalloenzymes Mastering Dioxygen and Other Chewy Gases** Peter M. H Kroneck, Martha E. Sosa Torres, 2015-02-23 MILS 15 provides an up to date review of the metalloenzymes involved in the activation production and conversion of molecular oxygen as well as the functionalization of the chemically inert gases methane and ammonia Found either in aerobes humans animals plants microorganisms or in anaerobes so called impossible bacteria these enzymes employ preferentially iron and copper at their active sites in order to conserve energy by redox driven proton pumps to convert methane to methanol or ammonia to hydroxylamine or other compounds When it comes to the light driven production of molecular oxygen the tetranuclear manganese cluster of photosystem II must be regarded as the key player However dioxygen can also be produced in the dark by heme iron dependent dismutation of oxyanions Metalloenzymes Mastering Dioxygen and Other Chewy Gases is a vibrant research area based mainly on structural and microbial biology inorganic

biological chemistry and environmental biochemistry All this is covered in an authoritative manner in 7 stimulating chapters written by 21 internationally recognized experts and supported by nearly 1100 references informative tables and over 140 illustrations many in color MILS 15 provides excellent information for teaching it is also closely related to MILS 14 The Metal Driven Biogeochemistry of Gaseous Compounds in the Environment Peter M H Kroneck is a bioinorganic chemist who is exploring the role of transition metals in biology with a focus on functional and structural aspects of microbial iron copper and molybdenum enzymes and their impact on the biogeochemical cycles of nitrogen and sulfur Martha E Sosa Torres is an inorganic chemist with special interests in magnetic properties of newly synthesized transition metal complexes and their reactivity towards molecular oxygen applying kinetic electrochemical and spectroscopic techniques Interplay between Metal Ions and Nucleic Acids Astrid Sigel, Helmut Sigel, Roland KO Sigel, 2012-01-02 Interplay between Metal Ions and Nucleic Acids provides in an authoritative and timely manner in 12 stimulating chapters written by 24 internationally recognized experts from 8 nations and supported by nearly 1500 references about 20 tables and 125 illustrations many in color a most up to date view on metal ion nucleic acid interactions the characterization of which is covered in solution and in the solid state The volume concentrates on modern developments encompassing topics in the wide range from G quadruplexes via DNazymes catalysis at the DNA scaffold and metal mediated base pairs to peptide nucleic acids PNAs being thus of relevance e g for chemistry and nanotechnology but also for molecular biology and genetic diagnostics

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