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Book Review

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Concepts and Models in Bioinorganic Chemistry

Wiley-VCH, 2006

443 pp; price 55 Euro

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Editors Kraatz and Metzler-Nolte have made a unique contribution to the bioinorganic literature with their new volume "Concepts and Models in Bioinorganic Chemistry." This compendium of chapters by well known experts in the field on the concepts and synthetic models that underlie the current conventional wisdom about metals in biology will prove to be a valuable resource to students and researchers in the field of bioinorganic chemistry.

What sets this book apart from other edited volumes in the field is that it brings to light new concepts and generalizations. Take for example, the first chapter on the "Biodistribution of Metal Ions" by R. J. P. Williams. Many text books try to cover this topic in an organized fashion but Williams brings out to the reader the underlying physical chemistry that governs their distribution. Thus concepts such as electron affinity, rates of exchange and the limitations of water as solvent are often discussed in the context of inorganic chemistry, but their relationship to biological function has never been brought out with such clarity and completeness as in this valuable chapter by one of the pioneers of physical bioinorganic chemistry.

Similarly, the short chapter on metal toxicology brings to light the relatively new and to date, controversial topic of toxic metal antagonism in biological organisms with specific reference to the interactions of arsenic and mercury with selenium. This idea has also been put forward with regard to copper and arsenic

elsewhere, but is not even mentioned in the standard inorganic and bioinorganic text books.

Chapters 5 and 6 co-authored by the editors each with a well respected colleague are fairly general in nature and lay an excellent foundation for the more detailed treatments of models for metalloenzymes in chapters 9–15 which are at the heart of modern bioinorganic research. The general nature of these early chapters would be of great use to a first time instructor, student or researcher in the area. Chapters 9–15 rival more lengthy reviews with regard to completeness and timeliness on their respective subjects yet maintain the conceptual spirit of the book with closing sections summarising the chapter concepts and/or drawing the readers attention to "open questions."

This reviewer really enjoyed the research timelines at the beginning of each chapter and the table of metalloenzymes at the start of each of the more specialized chapters. These features will be great use in bioinorganic pedagogy and for a researcher beginning a new bioinorganic project. The illustrations although in black and white are sufficiently clear and are more complete in their representations of the model systems than any bioinorganic text this reviewer has encountered.

Overall the editors have encapsulated an enormous amount of useful information into a relatively short and easy to use format. It is not meant to be a textbook but will prove to be an invaluable supplement and research resource for novitiates and experienced practitioners of bioinorganic chemistry.

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