

Biological Inorganic Chemistry

Structure and Reactivity

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Preface

Life depends on the proper functioning of proteins and nucleic acids that very often are in combinations with metal ions. Elucidation of the structures and reactivities of metalloproteins and other metallobiomolecules is the central goal of biological inorganic chemistry.

One of the grand challenges of the 21st century is to deduce how a specific gene sequence codes for a metalloprotein. Such knowledge of genomic maps will contribute to the goal of understanding the molecular mechanisms of life. Specific annotations to a sequence often allude to the requirement of metals for protein function, but it is not yet possible to read that information from sequence alone. Work in biological inorganic chemistry is critically important in this context.

Our goal at the outset was to capture the full vibrancy of the field in a textbook. Our book is divided into Part A, “Overviews of Biological Inorganic Chemistry,” which sets forth the unifying principles of the field, and Part B, “Metal Ion Containing Biological Systems,” which treats specific systems in detail. Tutorials are included for those who wish to review the basics of biology and inorganic chemistry; and the Appendices provide useful information, as does “*Physical Methods in Bioinorganic Chemistry*” (see Appendix III), which we highly recommend.

Biological inorganic chemistry is a very hot area. It has been our good fortune to work with many exceptionally talented contributors in putting together a volume that we believe will be a valuable resource both for young investigators and for more senior scholars in the field.

—The Editors

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Edith Gralla, Aram Nersissian, and Bryan Shaw at UCLA, and Jim Roe at Loyola Marymount put together tutorials that have greatly enhanced the pedagogical value of the book. The book was class tested at Princeton and UCLA. We thank all the students who made helpful comments.

We lost three coauthors during the course of the project. Jerry Babcock, Jean LeGall, and Antonio Xavier were great scientists and dear friends. We miss them very much.

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