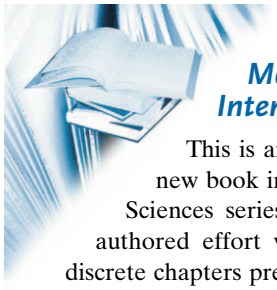

Nucleic Acid–Metal Ion Interactions

This is an interesting and topical new book in the RSC Biomolecular Sciences series. The book is a multi-authored effort with ten individual and discrete chapters presented from nine different teams. The prime focus of the book is on the interactions of DNA and RNA and their components with discrete individual metal ions: either naked metal ions or their aqua complexes. Understanding in this area has increased significantly in recent years, particularly because of the quantity of information available from X-ray crystallographic studies and advances in the level of resolution, and therefore this book is timely.

The book derives maximum benefit from its multi-author nature: the contributing teams are well respected and each individual chapter is knowledgeable and informative, as well as being well written and well presented. The selection and ordering of the topics that make up the ten chapters contributes to a nice concerted picture, although perhaps without a strong and continuous thread or message running through all the chapters, such as might be found in a single-author book. Given the focus on naked metal ions or their aqua complexes, there is a strong representation of RNA-based chapters in the book, covering the basics of metal ion binding as well as associated folding and/or catalysis. However, this is balanced by DNA-oriented chapters, which cover the basic binding modes, coordination of metals to the component DNA bases (an excellent chapter by Lippert), and stabilization of quadruplex structures by metal cations. It is only in DeRose's contribution on techniques used to study metal–nucleic acid interactions and in Schurr's chapter on theoretical modeling that attempts are made to take a holistic view of both the DNA and RNA fields. This is one slight disappointment, but that is tempered by the otherwise very high quality of the individual chapters.

The final chapter of the book, by Pizarro and Sadler, is something of a departure from the focus of the rest of the book. It is a thoughtful, scholarly, and articulate survey of how more sophisticated "designed" metal complexes interact with nucleic acid structures and can find applications in medicine. Since platinum drugs act by binding to DNA and are used in treating more than half of all cancer patients who receive chemotherapy, this is an important topic. However, this chapter goes far beyond cisplatin, by describing a variety of different DNA-recognition designs and metallodrug designs that are currently being explored and by explaining where the activity is or is not related to the DNA interactions.

The value of this book lies in the way that it pulls together in one place the current understanding of how naked metals and their aqua complexes bind to DNA and RNA. In achieving that, it carves a particular niche, when compared to the various other books on nucleic acid recognition that are available, and certainly researchers interested in the interactions of naked metal or aqua-complexed metal ions with DNA or (and perhaps more commonly) RNA will want to have a copy of this book on their shelves.

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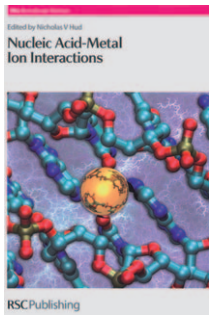

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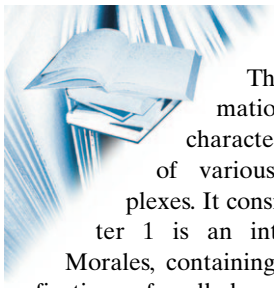

Palladacycles

This book provides information about the synthesis, characterization, and applications of various cyclopalladated complexes. It consists of 15 chapters. Chapter 1 is an introduction by Morales-Morales, containing a definition and classification of palladacycles. A palladacycle is defined as "any palladium compound containing one palladium–carbon bond intramolecularly stabilized by one or two neutral donor atoms". This is an important class of compounds which is of major significance in catalysis as well as in materials science and biological chemistry.

Unfortunately, palladacycles corresponding to the stricter organometallic definition—"a cyclic compound with at least one carbon atom replaced by a metal"—are not considered sufficiently throughout the book. These species are becoming more and more important in the catalysis of organic reactions and deserve appropriate treatment.

Chapter 2, by Albrecht, covers C–H bond activation for the synthesis of palladacycles, although it is limited to the heteroatom-assisted case. It is complemented in the third chapter, by Urriolabeitia, which deals with oxidative addition and transmetalation as tools for the synthesis of metallacycles, and in the fourth chapter, by Meneghetti, where other synthetic methods, involving the in situ formation of the ligand, are considered. Chapter 5, by Vila and Pereira, deals with simple transformations of cyclometalated compounds containing donor atoms.

Catalytic aspects are examined in Chapter 8, by Nàjera and Alonso, for Heck and Sonogashira