

## Metallofoldamers

The book *Metallofoldamers* celebrates more than 25 years of intense research on helicate chemistry. Besides synthetic helicates in the realm of supramolecular chemistry, it covers metallo-DNA and metal-ion-induced folding of peptides and proteins, and describes a fascinatingly wide range of properties, ranging from structural aspects and photophysical properties to recent applications in many fields of chemistry.

The book is well organized. It is evident that the editors have carefully compiled the chapters in such a way that the book appears as if made from one piece—much more than one would generally expect from an edited multi-author volume. It begins with two introductory chapters, the first of which highlights metalloproteins as natural metallofoldamers. This point of view is refreshing and surprising, in that it puts the metal in the focus as a structure-mediating unit, whereas it is usually considered as merely a cofactor in an already folded protein. The second chapter broadens the view to discuss foldamers in general and how they are influenced by external agents.

Chapters 3–8 discuss virtually all aspects of synthetic helicates, and begin with a very enjoyable in-depth discussion of the thermodynamic and kinetic background to helicates. Most importantly, the reader is given a thorough introduction to the theories behind a description of multivalent binding and cooperativity—topics that are still often insufficiently understood. Chapters 4 and 5 focus on structural details, in particular on stereoselective self-assembly and self-sorting mediated by the simultaneous use of catecholate and dithiocatecholate ligands. These are followed by excellently written and concise chapters on the photophysical properties of helicates and their use as liquid crystals. The last of these chapters, on synthetic helicates, forms a bridge to the following sections of the book that are more biochemically orientated, and discusses the metal-assisted stabilization of peptide microstructures.

Chapters 9 and 10 deal expertly with metallo-DNA, which incorporates alternative base pairing systems held together by metal ions rather than by hydrogen bonding. While Chapter 9 focuses on the base pairing motifs, Chapter 10 describes the

metallo-duplexes and -triplexes that form with DNA, and also covers artificial analogues such as PNA, LNA, UNA, and GNA. Chapter 11 rounds off this topic by looking at biomimetic metallofoldamers. The last chapter is devoted explicitly to the applications of metallofoldamers, for example in molecular recognition, as sensors, or as dynamic materials.

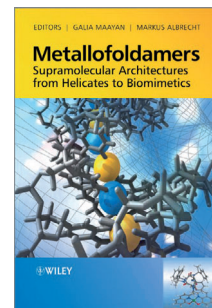
*Metallofoldamers* contains a wealth of highly illustrative graphics. A particular highlight is the use of stereo-images in Chapter 1 to visualize the complicated biopolymer structures. Also, the many color images add greatly to the ease of reading the book. A detailed table of contents and a rich index make it easy to navigate around the book, also for those readers just wishing to look up some specific details. All the chapters provide a broad selection of references for further reading, and most cite the original literature with the titles included, so that the reader can quickly identify references that might be what he or she is looking for. Unfortunately, the references in the last two chapters do not include titles, but that is only a very minor drawback in this otherwise absolutely convincing book.

Overall, the book provides a fresh view of the mature field of research on helicates and metallofoldamers. By providing a multifaceted, but nevertheless well-balanced and well-focused overview of the field, it enables the reader to quickly get into the topic and to identify the questions that have already been answered and—more importantly—those that still remain to be answered. The book is a must for any researcher entering the field. It is written in a style that allows its use as an introduction to the field, for example for postgraduate students new to the area, and also as a compendium for the experienced supramolecular chemist. As several chapters—such as the excellent thermochemical analysis in Chapter 3 and the detailed discussion of the photochemical and photophysical properties in Chapter 6—go far beyond helicates and foldamers, and may find use in other fields of supramolecular chemistry, the book should also be interesting for researchers with a general interest in supramolecular and bioorganic or bioinorganic chemistry.

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DOI: 10.1002/anie.201307710



**Metallofoldamers**  
Supramolecular Architectures from Helicates to Biomimetics. Edited by Galia Maayan and Markus Albrecht. John Wiley and Sons, Hoboken, 2013. 462 pp., hardcover, € 126.40.—ISBN 978-0470973233