

1. Record Nr.	UNINA9910141500703321
Titolo	Metallofoldamers [[electronic resource]] : supramolecular architectures from helicates to biomimetics // edited by Galia Maayan and Markus Albrecht
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : John Wiley & Sons, Inc., 2013
ISBN	1-118-51741-5 1-299-18879-6 1-118-51742-3 1-118-51743-1
Descrizione fisica	1 online resource (463 p.)
Altri autori (Persone)	MaayanGalia G AlbrechtM (Markus)
Disciplina	547/.7
Soggetti	Metallofoldamers Oligomers Supramolecular chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Metallofoldamers: Supramolecular Architectures from Helicates to Biomimetics; Contents; List of Contributors; Foreword; Preface; 1 Metalloproteins and Metallopeptides - Natural Metallofoldamers; 1.1 Introduction; 1.2 Metalloproteins; 1.2.1 Metalloproteins are Nature's "Metallofoldamers!"; 1.2.2 Metal-Triggered Conformational Change of Proteins; 1.2.3 Conformational Change of Metalloproteins Caused by Ligand Binding; 1.2.4 Protein Misfolding: Causes and Implications - Cu, Zn-Superoxide Dismutase; 1.3 Metallopeptides; 1.3.1 Antibiotic Metallopeptides 1.3.2 Metallopeptides in Neurodegenerative Diseases1.3.3 Other Metallopeptides; 1.4 Conclusion and Perspectives; Acknowledgements; References; 2 Introduction to Unnatural Foldamers; 2.1 General Definition of Foldamers; 2.2 Biotic Foldamers; 2.2.1 Homogeneous Foldamers; 2.2.2 -Peptides; 2.2.3 -Peptides; 2.2.4 Hybrid Foldamers; 2.2.5 Aliphatic Urea Foldamers; 2.2.6 Foldamers of -Aminoxy Acids; 2.2.7 Foldamers Containing Amido Groups; 2.3 Abiotic Foldamers; 2.4

Organization Induced by External Agents; 2.4.1 Organization Induced by Solvents; 2.4.2 Organization Induced by Anions
2.5 Applications 2.6 Conclusions and Outlook; References; 3 Self-Assembly Principles of Helicates; 3.1 Introduction; 3.2 Thermodynamic Considerations in Self-Assembly; 3.2.1 Mononuclear Coordination Complexes; 3.2.2 Extension to Polynuclear Edifices; 3.3 Cooperativity in Self-Assembly; 3.3.1 Allosteric Cooperativity; 3.3.2 Chelate Cooperativity; 3.3.3 Interannular Cooperativity; 3.4 Kinetic Aspects of Multicomponent Organization; 3.5 Understanding Self-Assembly Processes; 3.5.1 Assessment of Cooperativity; 3.5.2 Thermodynamic Modelling; 3.5.3 Solvation Energies and Electrostatic Interactions
3.6 Secondary Structure and Stabilizing Interactions 3.7 Conclusions; References; 4 Structural Aspects of Helicates; 4.1 Introduction; 4.2 Structural Dynamics; 4.3 Template Effects; 4.4 Sequence Selectivity; 4.5 Self-Sorting Effects in Helicate Formation; 4.6 Diastereoselectivity I - "Meso"-Helicate versus Helicate Formation; 4.7 Diastereoselectivity II - Enantiomerically Pure Helicates from Chiral Ligands; 4.7.1 2,2'-Bipyridine Ligands; 4.7.2 2,2':6',2"-Terpyridine and 2,2':6',2":6",2-Quaterpyridine Ligands; 4.7.3 2-Pyridylimine Ligands; 4.7.4 Further Hexadentate N-Donor Ligands
4.7.5 Oxazoline Ligands 4.7.6 P-Donor Ligands; 4.7.7 Hydroxamic Acid Ligands; 4.7.8 -Diketonate Ligands; 4.7.9 Catecholate Ligands and Other Dianionic Ligand Units; 4.7.10 Non-Covalently Assembled Ligand Strands; 4.8 Summary and Outlook; References; 5 Helical Structures Featuring Thiolato Donors; 5.1 Introduction; 5.2 Coordination Chemistry of Bis- and Tris(Benzene-o-Dithiolato) Ligands; 5.2.1 Mononuclear Chelate Complexes; 5.2.2 Dinuclear Double-Stranded Complexes; 5.2.3 Dinuclear Triple-Stranded Complexes; 5.2.4 Coordination Chemistry of Tripodal Tris(Benzene-o-Dithiolato) Ligands
5.3 Coordination Chemistry of Mixed Bis(Benzene-o-Dithiol)/Catechol Ligands

Sommario/riassunto

Metallofoldamers are oligomers that fold into three-dimensional structures in a controlled manner upon coordination with metal ions. Molecules in this class have shown an impressive ability to form single-handed helical structures and other three-dimensional architectures. Several metallofoldamers have been applied as sensors due to their selective folding when binding to a specific metal ion, while others show promise for applications as responsive materials on the basis of their ability to fold and unfold upon changes in the oxidation state of the coordinated metal ion, and as novel catal
