1. Record Nr. UNINA9910817867803321

Titolo	Bioinspired catalysis : metal-sulfur complexes / / edited by Wolfgang Weigand and Philippe Schollhammer ; contributors Ulf-Peter Apfel [and thirty three others]
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH, , 2015 ©2015
ISBN	3-527-66418-1 3-527-66416-5 3-527-66419-X
Descrizione fisica	1 online resource (438 p.)
Disciplina	541.2242
Soggetti	Metal complexes
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 at the end of each chapters and index.
Nota di contenuto	Bioinspired Catalysis; Contents; List of Contributors; Preface; Part I Primordial Metal-Sulfur-Mediated Reactions; Chapter 1 From Chemical Invariance to Genetic Variability; 1.1 Heuristic of Biochemical Retrodiction; 1.2 Retrodicting the Elements of Life; 1.3 Retrodicting Pioneer Catalysis; 1.4 Retrodicting Metabolic Reproduction and Evolution; 1.5 Retrodicting Pioneer-Metabolic Reactions; 1.6 Early Evolution in a Spatiotemporal Flow Context; Acknowledgments; References; Chapter 2 Fe-S Clusters: Biogenesis and Redox, Catalytic, and Regulatory Properties; 2.1 Introduction 2.2 Fe-S Cluster Biogenesis and Trafficking2.3 Redox Properties of Fe-S Clusters; 2.4 Fe-S Clusters and Catalysis; 2.4.1 Redox Catalysis; 2.4.2 Nonredox Fe-S Cluster-Based Catalysis; 2.5 Fe-S Clusters and Oxidative Stress; 2.6 Regulation of Protein Expression by Fe-S Clusters; 2.6.1 Eukaryotic Iron Regulatory Protein 1 (IRP1); 2.6.1.1 IRP1 and Fe-S Cluster Biogenesis; 2.6.1.2 Reactive Oxygen Species and IRP1 Fe-S Cluster Stability; 2.6.1.3 X-Ray Structural Studies of IRP1-IRE Complexes; 2.6.2 Bacterial Fumarate Nitrate Reduction Regulator (FNR); 2.6.3 The ISC Assembly Machinery Regulator IscR 2.7 ConclusionReferences; Part II Model Complexes of the Active Site of

Hydrogenases - Proton and Dihydrogen Activation; Chapter 3 [NiFe] Hydrogenases; 3.1 Introduction; 3.2 Introduction to [NiFe] Hydrogenases; 3.3 Nickel Thiolate Complexes as Analogs of [NiFe] Hydrogenase; 3.4 [NiFe] Hydrogenase Model Complexes; 3.4.1 Amine [N2Ni(-S2)Fe] Complexes; 3.4.2 Phosphine [P2Ni(-S2)Fe] Complexes; 3.4.3 Thiolate [SxNi(-Sy)Fe] Complexes; 3.4.4 Polymetallic [Ni(-S) zFey] Complexes; 3.5 Analogs of [NiFe] Hydrogenase Incorporating Proton Relays; 3.5.1 Nickel Complexes Incorporating Protonation Sites 3.5.2 [NiFe] Complexes Incorporating Protonation Sites3.6 Perspectives and Future Challenges; Acknowledgments; References; Chapter 4 [FeFe] Hydrogenase Models: an Overview; 4.1 Introduction; 4.2 Synthetic Strategies toward [FeFe] Hydrogenase Model Complexes; 4.3 Properties of Model Complexes; 4.3.1 Biomimetic Models of the ""Rotated State""; 4.3.2 Electron Transfer in [FeFe] Hydrogenase Models; 4.3.3 Protonation Chemistry of [FeFe] Hydrogenase Models; 4.3.3.1 Hydride Formation; 4.3.3.2 Ligand Protonation and Proton Relays; 4.3.4 Water-Soluble Hydrogenase Mimics; 4.4 Conclusion; References
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6.2 QM Studies of Hydrogenases

Sommario/riassunto

This book provides an overview of bioinspired metal-sulfur catalysis by covering structures, activities and model complexes of enzymes exhibiting metal sulphur moieties in their active center.