

1. Record Nr.	UNINA9910140705003321
Titolo	Ideas in chemistry and molecular sciences Where chemistry meets life [[electronic resource] /] / edited by Bruno Pignataro
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, 2010
ISBN	1-283-14048-9 9786613140487 3-527-63051-1 3-527-63052-X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (359 p.)
Altri autori (Persone)	PignataroBruno
Disciplina	541.22
Soggetti	Molecular theory Chemistry - Social aspects
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	Ideas in Chemistry and Molecular Sciences; Contents; 5.2.6.1 Streptavidin-Biotin; Preface; List of Contributors; Part I Biochemical Studies; 1 The Role of Copper Ion and the Ubiquitin System in Neurodegenerative Disorders; 1.1 Introduction; 1.2 Metal Ions in the Brain; 1.3 Brain Copper Homeostasis; 1.4 Brain Copper and Neurodegenerative Disorders; 1.5 The Role of Ubiquitin in Protein Degradation; 1.6 Failure of the Ubiquitin System in Neurodegenerative Disorders; 1.7 Interaction of Ubiquitin with Metal Ions; 1.7.1 Thermal Stability of Ubiquitin 1.7.2 Spectroscopic Characterization of Cull Binding1.7.3 Possible Implications for the Polyubiquitination Process; 1.7.4 Cull-Induced Self-Oligomerization of Ub; 1.7.5 Cooperativity between Cull-Binding and Solvent Polarity; 1.7.6 Comparison with Other Metal Ions; 1.8 Biological Implications; 1.8.1 The Redox State of Cellular Copper; 1.8.2 Ubiquitin and Phospholipids; 1.9 Conclusions and Perspectives; Acknowledgments; References; 2 The Bioinorganic and Organometallic Chemistry of Copper(III); 2.1 Introduction; 2.2 Bioinorganic Implications of Copper(III) 2.2.1 Dinuclear Type-3 Copper Enzymes2.2.2 Particulate Methano

Monooxygenase (pMMO); 2.2.3 Mononuclear Monooxygenating  
 Copper-based Enzymes; 2.2.4 Trinuclear Copper Models for Laccase;  
 2.3 Organometallic Cu(II) Species in Organic Transformations; 2.3.1 C-C  
 Bond Formation in Organocuprate(I) Catalysis; 2.3.1.1 Conjugate  
 Addition to  $\alpha$ -Enones; 2.3.1.2 Acetylene Carbocupration; 2.3.1.3  $S_N2$   
 and  $S_N2$  Alkylations; 2.3.2 Aryl-Heteroatom Bond Formation in Cu-  
 mediated Cross-coupling Processes; 2.3.3 Aromatic and Aliphatic C-H  
 Bond Organometallic Functionalizations; 2.3.3.1 Catalytic Systems  
 2.3.3.2 Stoichiometric Systems 2.4 Miscellany: Cuprate Superconducting  
 Materials; 2.5 Overview and Future Targets; References; 3 Chemical  
 Protein Modification; 3.1 Introducing Diversity by Posttranslational  
 Modification; 3.2 Chemistry: A Route to Modified Proteins; 3.3  
 Challenges in Chemical Protein Modification; 3.4 Traditional Methods  
 for Protein Modification; 3.4.1 Lysine Modification; 3.4.1.1 Activated  
 Esters; 3.4.1.2 Isocyanates and Isothiocyanates; 3.4.1.3 Reductive  
 Alkylation; 3.4.1.4 IME Reagents; 3.4.2 Glutamic and Aspartic Acid  
 Modification; 3.4.3 Cysteine; 3.4.3.1 Alkylation  
 3.4.3.2 Disulfides 3.4.3.3 Desulfurization at Cysteine; 3.5 Recent  
 Innovations in Site-Selective Protein Modification; 3.5.1  
 Dehydroalanine: A Useful Chemical Handle for Protein Conjugation;  
 3.5.2 Metal-Mediated Protein Modification; 3.5.2.1 Modification at  
 Natural Residues; 3.5.2.2 Iridium-Catalyzed Reductive Alkylation of  
 Lysine; 3.5.2.3 Modification of Unnatural Residues; 3.5.2.4 Olefin  
 Metathesis at S-Allyl Cysteine; 3.5.3 Metal-Free Methods for Modifying  
 Unnatural Amino Acids; 3.5.3.1 Oxime Ligation at Aldehydes and  
 Ketones; 3.5.3.2 Azide and Alkyne Modification  
 3.5.3.3 Selective Modification of Tetrazole-Containing Proteins

---

#### Sommario/riassunto

Ideas in Chemistry and Molecular Sciences gives an account of the most  
 recent results of research in life sciences in Europe based on a selection  
 of leading young scientists participating in the 2008 European Young  
 Chemists Award competition. In addition to this, the authors provide  
 the state of the art of their field of research and the perspective or  
 preview of future directions.

---