Record Mr.	UNINA9910146105403321
Titolo	Biomineralization [[electronic resource]] : from nature to application / / edited by Astrid Sigel, Helmut Sigel, Roland K.O. Sigel
Pubbl/distr/stampa	Chichester, West Sussex, England, : John Wiley & Sons, Ltd., c2008
ISBN	0-470-98632-8 1-282-34968-6 9786612349683 0-470-98631-X
Descrizione fisica	1 online resource (701 p.)
Collana	Metal ions in life sciences, , 1559-0836 ; ; v.4
Altri autori (Persone)	SigelAstrid SigelHelmut SigelRoland K. O
Disciplina	572.51 660.284298
Soggetti	Biomineralization Minerals in the body Electronic books.
Lingua di pubblicazione	Inglese
Lingua di pubblicazione Formato	Inglese Materiale a stampa
Lingua di pubblicazione Formato Livello bibliografico	Inglese Materiale a stampa Monografia
Lingua di pubblicazione Formato Livello bibliografico Note generali	Inglese Materiale a stampa Monografia Description based upon print version of record.
Lingua di pubblicazione Formato Livello bibliografico Note generali Nota di bibliografia	Inglese Materiale a stampa Monografia Description based upon print version of record. Includes bibliographical references and index.

1.

	Acknowledgments; Abbreviations; References; 4 Metal-Bacteria Interactions at Both the Planktonic Cell and Biofilm Levels; Abstract; 1. Introduction; 2. Planktonic Bacterial Cells 3. Metal-Microbe Interactions4. Microbial Biofilm Communities; 5. Biofilm Microenvironments and Their Impact on Geochemical Interactions; 6. Concluding Remarks; Acknowledgments; Abbreviations and Definitions; References; 5 Biomineralization of Calcium Carbonate. The Interplay with Biosubstrates; Abstract; 1. Introduction; 2. Control in Biological Mineralization; 3. Recent Perspectives on Mineralization Strategies; 4. CaCO3 Growth in Confinement; 5. Crystal Assembly; 6. In Vitro Studies of CaCO3 Mineralization; 7. Calcium Carbonate Nucleation and Growth on Artificial Substrates 8. Summary and OutlookAcknowledgments; Abbreviations; References; 6 Sulfate-Containing Biominerals; Abstract; 1. Sulfate-Containing Biominerals: An Overview; 2. Gypsum and Bassanite (Calcium Sulfates); 3. Celestite (Strontium Sulfate); 4. Barite (Barium Sulfate); 5. Jarosite (Potassium Iron Hydroxide Sulfate); 6. Concluding Remarks; Acknowledgments; References; 7 Oxalate Biominerals; Abstract; 1. Introduction; 2. Metallic Oxalates: Physico-Chemical and Structural Properties; 3. Calcium Oxalates in Plants; 4. Calcium Oxalates in Other Forms of Life; 5. Other Oxalate Biominerals 6. Pathological Oxalates7. Oxalates in the Environment; 8. Oxalate Degrading Systems; 9. Conclusions and Perspectives; Acknowledgments; Abbreviations; References; 8 Molecular Processes of Biosilicification in Diatoms; Abstract; 1. Introduction; 2. Silicon Transport; 3. Silica Structure Formation; 4. Regulation of Structure Formation; 5. Manipulation of Diatom Silica Structure; 6. Concluding Remarks and Future Directions; Acknowledgments; Abbreviations; References; 9 Heavy Metals in the Jaws of Invertebrates; Abstract; 1. Introduction; 2. Iron Biomineralization in Chitons and Limpets 3. Copper and Zinc in Marine Worm Jaws
Sommario/riassunto	Biomineralization is a hot topic in the area of materials, and this volume in the Metals Ions in Life Sciences series takes a systematic approach, dealing with all aspects from the fundamentals to applications. Key biological features of biomineralization, such as gene directed growth and the role of enzymes are covered, as are new areas, including copper/zinc in the jaws of invertebrates or magnetic biomaterials that help birds with navigation