

1. Record Nr.	UNINA9910143965803321
Titolo	Biom mineralization [[electronic resource]] : progress in biology, molecular biology and application / / Edmund Bauerlein (ed.)
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, 2004
ISBN	1-280-51990-8 9786610519903 3-527-60413-8 3-527-60461-8
Edizione	[2nd completely rev. and extended ed.]
Descrizione fisica	1 online resource (363 p.)
Altri autori (Persone)	BaeuerleinEdmund
Disciplina	572.51
Soggetti	Biom mineralization Mineral cycle (Biogeochemistry) Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Previous ed.: 2000.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Biom mineralization Second, Completely Revised and Extended Edition; Foreword; Contents; Preface; List of Contributors; Abbreviations; 1 Peptides, Pre-biotic Selection and Pre-biotic Vesicles; 1.1 Peptides as Templates for Inorganic Nanoparticles: From Functional Groups to "Peptide Group Selectivity"; 1.1.1 A Phage Display Peptide Library in "Regular Panning" for Mineral Binding and Synthesizing Peptides; 1.1.2 A Phage Display Peptide Library in "PCR Panning" for Mineral Binding and Synthesizing Peptides; 1.2 Hypothesis of "Pre-biotic Peptide Synthesis and Selection on Minerals" 1.2.1 Pre-biotic Vesicles for Protection and Mobility1.2.2 How do Pores Originate?; References; Magnetite (Fe(3)O(4)) and Greigite (Fe(3)S(4)); 2 Magnetic Iron Oxide and Iron Sulfide Minerals within Microorganisms: Potential Biomarkers; 2.1 Introduction; 2.2 Diversity of Magnetotactic Bacteria; 2.3 Ecology of Magnetotactic Bacteria; 2.4 Magnetite Magnetosomes; 2.5 Greigite Magnetosomes; 2.6 Arrangement of Magnetosomes in Cells; 2.7 Role of Magnetosomes and Magnetosome Chains in Magnetotaxis; 2.8 Chemistry of Magnetosome Formation; 2.9 Other Intracellular Iron Oxides and Sulfides in Bacteria

2.10 Magnetic Iron Oxides and Sulfides in Microorganisms other than Bacteria
2.11 Biogenic Iron Oxides and Sulfides in Modern and Ancient Environments, their Presence in Higher Organisms, and their Use as Biomarkers;
2.11.1 Magnetosomes as Biomarkers for Life on Ancient Mars;
2.11.2 The Biogenic Hypothesis;
2.11.3 The Non-biogenic Hypothesis;
2.11.4 Iron Isotopic Fractionation; Acknowledgments; References;
3 Phylogeny and In Situ Identification of Magnetotactic Bacteria;
3.1 Microbial Diversity and the Problem of Culturability;
3.2 The rRNA Approach to Microbial Ecology and Evolution
3.3 Application of the rRNA Approach to Magnetotactic Bacteria
3.4 The Genus *Magnetospirillum* Encompassing Culturable Magnetotactic Bacteria;
3.5 Phylogenetic Diversity and In Situ Identification of Uncultured Magnetotactic Cocci from Lake Chiemsee;
3.6 The Magnetotactic Bacteria are Polyphyletic with Respect to their 16S rRNA;
3.7 "*Magnetobacterium bavaricum*";
3.8 Further Diversity of Magnetotactic Bacteria;
3.9 A Current View of the Phylogeny of Magnetotactic Bacteria; Acknowledgments; References
4 Biochemical and Genetic Analysis of the Magnetosome Membrane in *Magnetospirillum gryphiswaldense*
4.1 Introduction;
4.2 The Biomineralization of Magnetite in MTB;
4.3 The MM is a Unique Structure in MTB;
4.4 Biochemical Analysis of the MM in *M. gryphiswaldense*;
4.5 Proteomic Analysis of Magnetosomes;
4.5.1 Tetratricopeptide Repeat (TPR) Proteins;
4.5.2 Cation Diffusion Facilitator (CDF) Proteins;
4.5.3 HtrA-like Serine Proteases;
4.5.4 MTB-specific Protein Families;
4.6 Genetic Organization of Magnetosome Genes;
4.7 Conclusions and Outlook; Acknowledgments; References
5 Enzymes for Magnetite Synthesis in *Magnetospirillum magnetotacticum*

Sommario/riassunto

Now over 50 % new contents. Incorporating the surprisingly rapid advances in this field since the publication of the successful first edition, this intensively updated and expanded new edition covers all the background as well as the latest results. Now organized according to the main biominerals, the book reflects the increasingly important biochemical aspects and medicinal applications, with four new chapters on biomineralization in mammals, including humans. The whole is rounded off with an entire chapter dedicated to modern methods, especially physical ones that have advanced the field o
