

Advanced Book Information

Study of biocompatible and biological materials

Can they be influenced by external factors?

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Handbook

The book gives an overview on biomineralization, biological, biocompatible and biomimetic materials. It reveals the use of biomaterials alone or in composites, how their performance can be improved by tailoring their surface properties by external factors and how standard surface modification techniques can be applied in the area of biomaterials to beneficially influence their growth on surfaces.

Keyword: Biomaterials, Biomineralization, Biomimetics, Biocompatible Layers, Dental Plaque, Hydroxyapatite, Nanoparticles, Bacterial Films, Oral Health, Plaque Cleaning

ISBN 13: 978-1-945291-24-1

Publication Date: 2017 (5/5/2017)

Direct URL: <http://www.mrforum.com/product/study-biocompatible-biological-materials>

220 pages, color print, paperback, USD 125.00

Materials Research Foundations Vol. 11

BISAC Subject Classification code: TEC021000, TEC059000, TEC027000

BIC/Thema Subject Classification code: TGM, TGML

Imprint: Materials Research Forum LLC, publisher's sales rights are Worldwide

Product Form: bc

Summary:

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Important in studying of biomineralization is the study of the surface and chapter 2 explores typical techniques for surface characterization and shows how these techniques can be modified to serve specific needs in the study of biomaterials. Chapters 3 and 4 reveal factors that can be used to influence the growth of the biomaterial hydroxyapatite (the main inorganic constituent in mammal bones and teeth), namely laser energy, organic matrix and incorporation of minor amount of nanoparticles into the hydroxyapatite matrix. Proteins are also used to modulate the cellular interactions with the hydroxyapatite.

The following three chapters (5, 6 and 7) are devoted to an example of the pathological mineralization, namely the formation of bacterial films on teeth and soft tissues in the mouth and how they can be removed to achieve better oral health.

