Record Nr. UNINA9910141298103321 Biomimetic, bioresponsive, and bioactive materials: an introduction to **Titolo** integrating materials with tissues / / edited by Matteo Santin, Gary **Phillips** Hoboken, N.J., : Wiley, c2012 Pubbl/distr/stampa **ISBN** 1-280-58945-0 9786613619280 1-118-12989-X 1-118-12990-3 1-118-12987-3 Edizione [1st ed.] Descrizione fisica 1 online resource (249 p.) Classificazione SCI007000 Altri autori (Persone) SantinMatteo **PhillipsGary** Disciplina 660.6 Soggetti Biomimetic polymers **Biomimetics** Tissues - Mechanical properties Lingua di pubblicazione Inglese **Formato** Materiale a stampa Monografia Livello bibliografico Description based upon print version of record. Note generali Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Biomimetic, Bioresponsive, and Bioactive Materials; CONTENTS; PREFACE: CONTRIBUTORS: 1: HISTORY OF BIOMIMETIC, BIOACTIVE, AND BIORESPONSIVE BIOMATERIALS; 1.1 THE FIRST GENERATION OF BIOMATERIALS: THE SEARCH FOR "THE BIOINERT"; 1.1.1 Bioinert: Myth, Reality, or Utopia?; 1.2 THE SECOND GENERATION OF BIOMATERIALS: BIOMIMETIC, BIORESPONSIVE, BIOACTIVE: 1.2.1 Hydroxyapatite (HA) and Bioglass®: Cell Adhesion and Stimulation; 1.2.2 Collagen, Fibrin Glue, and Hyaluronic Acid Hydrogels: Presenting the ECM; 1.2.3 Chitosan and Alginate: Replacing the ECM 1.2.4 Poly(Lactic/Glycolic) Acid Copolymers: Encouraging Tissue Remodeling by Safe Biodegradation 1.2.5 Porous Metals: Favoring Mechanical Integration: 1.3 THE THIRD-GENERATION BIOMATERIALS: BIOMIMICKING NATURAL BIOACTIVE AND BIORESPONSIVE PROCESSES; 1.3.1 Principal Phases of Tissue Regeneration; 1.3.1.1 Cell Adhesion:

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## Sommario/riassunto

"This comprehensive introduction to biomaterials discusses how materials are selected, designed, and modified for integration with living tissue. Biomaterials have applications in tissue engineering, medical devices, orthopedics, and other areas. This guide examines the physico-chemical properties of widely used biomaterials and cites examples of their uses in different clinical applications. Topics covered include soft and hard tissue replacement; biointeractive metals, polymers, and ceramics; and in vitro, in vivo, and ex vivo biocompatibility tests and clinical trials. This text is for students as well as professionals new to the field"--