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| Autore | Calandrelli Luigi |
| Titolo | Biodegradable composites for bone regeneration / / Luigi Calandrelli, Paola Laurienzo, and Adriana Oliva |
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| ISBN | 1-61209-855-X |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (82 p.) |
| Collana | Biomaterials--properties, production and devices series |
| Altri autori (Persone) | LaurienzoPaola<br>OlivaAdriana |
| Disciplina | 617.4/710592 |
| Soggetti | Bone substitutes<br>Bone regeneration<br>Composite materials |
| 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 (p. [52]-64) and index. |
| Nota di contenuto | Principles of tissue engineering --- Biocompatibility testing of medical devices: "tests for in vitro cytotoxicity (EN ISO 10993-5)" -- Principles of synthetic bone substitutes -- Polymers for bone tissue engineering -- Silica-based materials and nanoparticles for bone regeneration -- The use of calcium sulphate in bone regeneration -- Realization and performance analysis of PCL/silica nanocomposites for bone regeneration -- Mechanical alloys (chemical physical and mechanical properties) -- Chemical modification and characterization of nanocomposites -- Morphologic analysis (SEM) : biological evaluation -- Experimental materials -- Preparation of silica nanoparticles -- Preparation of nanocomposites -- Differential thermal analysis (DSC) -- Preparation and characterization of bone marrow MSCs -- Novel injectable alginate/n-succinylchitosan/calcium sulphate composites as bone-defects : biological evaluation. |
| Sommario/riassunto | In the present book, after briefly summarizing recent literature concerning modification and applications of these materials, several recent developments of bio-composites containing silica nanoparticles or calcium sulphate intended for bone regeneration are reported. The composites are characterized with respect to their chemical-physical and mechanical properties. Their bio-compatibility and capacity to |

induce the osteoblastic phenotype in human bone marrow mesenchymal stem cells have been assessed. The authors focus on two particular systems based on either natural or synthetic bio-polymers with different biofillers: alginate/chitosan blends with calcium sulphate and poly(-caprolactone) with silica nanoparticles.