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| Sommario/riassunto | This book presents the tunable biological characteristics of nanobioceramics and focuses on some challenges in bone tissue engineering and regenerative medicine. Synthetic composite-based materials and scaffolds should be biodegradable, biocompatible and supply sufficient structural aid for cell migration, along with oxygen, |

waste, and nutrient carriage to accelerate bone regeneration process and remodeling in defects. These properties may be reached by functioning tunable physical features, including absorption rate, degradation rate, modulus, porosity, and swelling by adjustments with the addition of ceramic phases and copolymers as synthetic composite scaffolds. Synthetic bioceramics seek to imitate the natural hydroxyapatite (HA) crystal creation located in bone. These ceramics, particularly calcium phosphates, have exhibited great osteoinductivity, osteoconductivity, and biocompatibility. Lately, silicon-based glass-ceramics have been investigated as a substitution of calcium phosphates. Several members of this collection exhibit high bioactivity, have attractive mechanical strength, and are known to increase cell proliferation, adhesion, and mineralization of extracellular matrix. Moreover, antibacterial properties of some nanostructured bioceramics established significant interests in avoiding implants rejection in surgery and biomedicine.