1. Record Nr. UNINA9910349265303321

Titolo	3D Printing and Biofabrication / / edited by Aleksandr Ovsianikov, James Yoo, Vladimir Mironov
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-319-40498-9
Collana	Tissue Engineering and Regeneration
Disciplina	612.028 571.538
Soggetti	Regenerative medicine Tissue engineering Biomedical materials Biomedical engineering Biomathematics Regenerative Medicine/Tissue Engineering Biomaterials Biomedical Engineering and Bioengineering Biomedical Engineering/Biotechnology Physiological, Cellular and Medical Topics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I: 3D Printing: Introduction -- Medical Imaging, Data Retrieval for 3D CAD Models -- Additive Manufacturing Technologies for Fabrication of Scaffolds -- Materials, Methods and Current Progress of 3D Printing for TE Applications -- Characterization of 3D Printed Structures -- Vascularization of 3D Printed and Engineered Tissues -- Computational Methods for the Predictive Design of Tissue Engineering Materials -- Use of Ceramics in Musculoskeletal Regenerative Medicine -- Mathematical Modelling of 3D Tissue Engineering Constructs -- Trends in Additive Manufacturing for TE Applications. Part II: Biofabrication: Introduction -- Extrusion-based Biofabrication in Tissue Engineering and Regenerative Medicine -- Laser-based Cell Printing -- Inkjet etc. (Piezo, Thermo, Surface Wave) -- Scaffold-free Biofabrication --

Commercially Available Bioprinters -- Development of Nanocellulose Bioinks for 3D Bioprinting of Soft Tissue -- Fabrication and Printing of Multi-Material Hydrogels -- Photopolymerizable Materials for Cell Encapsulation -- Bioprinting - The Intellectual Property Landscape -- Translation and Applications of Biofabrication -- Challenges and Perspectives of Biofabrication -- .

Sommario/riassunto

This volume provides an in-depth introduction to 3D printing and biofabrication and covers the recent advances in additive manufacturing for tissue engineering. The book is divided into two parts, the first part on 3D printing discusses conventional approaches in additive manufacturing aimed at fabrication of structures, which are seeded with cells in a subsequent step. The second part on biofabrication presents processes which integrate living cells into the fabrication process. .