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Titolo	3D Printing and Biofabrication // edited by Aleksandr Ovsianikov, James Yoo, Vladimir Mironov
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ISBN	3-319-45444-7
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (164 illus., 107 illus. in color. eReference.)
Collana	Tissue Engineering and Regeneration
Disciplina	621.988
Soggetti	Regenerative medicine Tissue engineering Biomaterials Biomedical engineering Biomathematics Regenerative Medicine/Tissue Engineering Biomedical Engineering and Bioengineering Biomedical Engineering/Biotechnology Physiological, Cellular and Medical Topics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index. With 164 figures and 34 tables.
Nota di contenuto	Part I (3D Printing) -- 3D Printing: Introduction -- Additive Manufacturing Technologies for Fabrication of Scaffolds -- Characterization of Additive Manufactured Scaffolds -- Computational Methods for the Predictive Design of Tissue Engineering Materials -- Materials, Methods and Current Progress of 3D Printing for TE Applications -- Mathematical Modelling of 3D Tissue Engineering Constructs -- Medical Imaging for 3D CAD Models -- Trends in Additive Manufacturing for TE Applications -- Use of Ceramics in Musculoskeletal Regenerative Medicine -- Vascularization of 3D Printed and Engineered Tissues. Part II (Biofabrication) -- Biofabrication: Introduction -- Bioprinting - The Intellectual Property Landscape -- Challenges and Perspectives of Biofabrication -- Commercially Available Bioprinters -- Development of Nanocellulose Bioinks for 3D

Bioprinting of Soft Tissue -- Fabrication and Printing of Multi-Material Hydrogels -- Extrusion-based Biofabrication in Tissue Engineering and Regenerative Medicine -- Laser-based Cell Printing -- Inkjet etc. (Piezo, Thermo, Surface Wave) -- Photopolymerizable Materials for Cell Encapsulation -- Scaffold-free Biofabrication -- Translation and Applications 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.
