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Nota di contenuto	Chemical modification of porous scaffolds using plasma polymers / Paul Roach, Daniel Howard, John J.A. Barry, Keven M. Shakesheff, Steven M. Howdle, and Morgan R. Alexander -- Three-dimensional cultures in soft self-assembling nanofibers / Nuria Mari-Buye, Maria Teresa Fernandez Muianos, and Carlos E. Semino -- 3D fibrin matrices as scaffolds for depot and release of bioactive molecules / Heike Hall -- Designer self-assembling peptide scaffolds for 3D tissue cell cultures / Fabrizio Gelain, Xiumei Wang, Akihiro Horii, Angus Hucknall, Sotirios Koutsopoulos, and Shuguang Zhang -- Chip-based tissue engineering in microbioreactors / Brigitte Altmann, Stefan Giselbrecht, Matthias Rieke, Alexander Welle, Tim Scharnweber, Karl-Friedrich Weibezahn, and Eric Gottwald -- Affinity-binding alginate scaffolds for the controlled delivery of multiple heparin-binding proteins / Sigalit Amitay-Shaprut, Inbar Freeman, and Smader Cohen -- Self-assembly of cell-laden hydrogels on the liquid-air interface / Benham Zamanian, Nezamoddin N. Kachouie, Mahdokht Masaali, Jason W. Nichol, and Ali Khademhosseini -- 3D encapsulation of cells in hydrogels using radical and addition cross-linking / Sudhir Khetan, Vyas Ramanan, and Jason A. Burdick -- Micromolded nonadhesive hydrogels for the self-

assembly of scaffold-free 3D cellular microtissues / Jacquelyn Youssef, Brian Bao, Toni-Marie Ferruccio and Jeffrey R. Morgan -- On-demand 3D freeform fabrication of tissue structures using bioprinting / Seung-Schik Yoo, Wonhye Lee, Je-Kyun Park -- Three-dimensional neuronal cultures / Michelle C. LaPlaca, Varadraj N. Vernekar, James T. Shoemaker, and D. Kacy Cullen -- Engineering cartilage tissue with zonal properties / June E. Jeon, Jos Malda, Karsten Schrobback, Daisy Irawan, Koichi Masuda, Robert L. Sah, Dietmar W. Hutmacher, and Travis J. Klein -- Cartilage and synovial joint regeneration by cell homing in bioprinted, anatomically correct 3D scaffolds / Chang Hun Lee and Jeremy J. Mao -- Integration of experimental and computational microfluids in 3D tissue engineering / Manuela T. Raimondi, Devin T. Bridgen, Matteo Lagana, Beatrice Tonnarelli, Margherita Cioffi, Federica Boschetti, and David Wendt.

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### Sommario/riassunto

This practical book is part of the new Artech House Methods in Bioengineering series - volumes designed to offer detailed guidance on authoritative methods for addressing specific bioengineering challenges. Written and edited by recognized experts in the field, each book provides research engineers, scientists, and students with step-by-step procedures, clear examples, and effective ways to overcome problems that may be encountered. Tissue engineering is an emerging field that involves the combination of materials, cells, and other signals or growth factors to generate new tissue that can be used to repair or replace damaged tissues due to injury or disease. This groundbreaking volume presents the latest methods and protocols for systematically building tissues in 3D configuration outside the body, as well as providing techniques that modulate repair and regeneration processes that occur "in situ" (in their natural or original place). -- Publisher's description.

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