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| Titolo | Tissue engineering : principles, protocols, and practical exercises / / Narine Sarvazyan, editor |
| Pubbl/distr/stampa | Cham : , : Springer, , [2020] |
| ISBN | 3-030-39698-3 |
| Descrizione fisica | 1 online resource (XXIV, 154 pages, 80 illustrations, 77 illustrations in color) |
| Collana | Learning materials in biosciences |
| Disciplina | 610.28 |
| Soggetti | Biomedical engineering<br>Regenerative medicine<br>Tissue engineering<br>Enginyeria de teixits<br>Medicina regenerativa<br>Llibres electrònics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Reference search, image & data analysis -- Organ structure & vascularization -- Extracellular matrix & adhesion molecules -- Isolating cells from tissue -- Functional assays & toxicity screening -- Culturing cells in 2D & 3D -- Imaging, staining & markers -- Stems cells & basics of immunology -- Natural & artificial Scaffolds -- Casting & 3D bioprinting -- Bioreactors -- Reporting results -- Index. . |
| Sommario/riassunto | Tissue engineering and regenerative medicine is a new, interdisciplinary branch of science that combines knowledge from numerous scientific fields including biology, biochemistry, physics, chemistry, applied engineering, and medicine. It aims to restore damaged parts of the human body by rebuilding them in vitro using individual building blocks of biological tissues such as cells and the extracellular matrix that surrounds them. The authors hope to spark students' interest in this exciting new field of science as well as give them a basic knowledge of its terminology. This book is based on a hands-on practical course in tissue engineering conducted by the Fulbright US Scholar recipient, Dr. Narine Sarvazyan (George |

Washington University, Washington USA). It provides an overview of the core topics of the tissue engineering field, including stem cell differentiation, the role of extracellular matrix and attachment proteins, scaffolds, and culturing of engineered tissues. Each chapter is accompanied by hands-on demonstrations and self-check questions. The text is easily readable for students of all backgrounds and the described protocols can be conducted using common lab equipment. This textbook is also useful for developing undergraduate and graduate courses that teach basic methods and approaches in this promising and rapidly developing field. .