1. Record Nr. UNINA9910874670703321

Autore	Maia F. Raquel
Titolo	Handbook of the Extracellular Matrix : Biologically-Derived Materials / / edited by F. Raquel Maia, J. Miguel Oliveira, Rui L. Reis
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2024
ISBN	9783031563638 3031563638
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (1322 pages)
Collana	Biomedical and Life Sciences Series
Altri autori (Persone)	OliveiraJ. Miguel ReisRui L
Disciplina	620.19
Soggetti	Biomaterials Cells Biomedical engineering Proteins Biomaterials-Cells Biomedical Engineering and Bioengineering Biomaterials-Proteins Biomedical Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Extracellular matrix composition -- The role of fibrous networks on the extracellular matrix mechanical properties -- Extracellular matrix structural features -- Extracellular matrix bioactive molecules and cell behavior modeling -- Mechanotransduction role at gene expression levels -- Extracellular matrix structure regulates local cell-matrix biomechanics -- Extracellular matrix isolation: sources and methods -- Extracellular matrix and its involvement in tissue generation -- Strategies for mimicking extracellular matrix -- Extracellular matrix remodeling on cancer progression.
Sommario/riassunto	This book comprises of 6 sections covering the fundamentals of the extracellular matrix, as well as the development and challenges of using biologically-derived materials, and its advanced biomedical

applications. The first section is dedicated to the extracellular matrix, while the other 5 sections are each dedicated to a particular type of material. This book reports the fundamentals of the extracellular matrix and its impact in the development of innovative materials; provides an overview of the advanced methodologies to develop biologically-derived materials; and describes the challenges of the synthesis and processing of the different materials. Furthermore, it presents the biological activities, structural and physicochemical properties of such materials, and the modification methods pursued to improve their inherent properties. The wide range of advanced applications are covered as well, including the combination with emerging technologies, underlyingtissue-engineered scaffolding, drug delivery systems, 3D in vitro tissue and cancer models, 3D bioprinted models, bioinks, and more. This reference work serves as a core reference for multidisciplinary students (undergraduates and Ph.D. students) and a wide range of established researchers and professionals working in the medical field, e.g., orthopaedics, radiology, dentistry, and cancer.