

1. Record Nr.	UNINA9910787128203321
Titolo	Stem cell biology and tissue engineering in dental sciences // edited by Ajaykumar Vishwakarma [and three others] ; contributors, Samad Ahadian [and one hundred and ninety-seven others]
Pubbl/distr/stampa	London, [England] : , : Academic Press, , 2015 ©2015
ISBN	0-12-397778-9
Descrizione fisica	1 online resource (933 p.)
Disciplina	612.028
Soggetti	Tissue engineering Stem cells Dentistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Front Cover; Stem Cell Biology and Tissue Engineering in Dental Sciences; Copyright; Contents; List of Contributors; Foreword; Chapter 1: An Introduction to Stem Cell Biology and Tissue Engineering; 1.1. Introduction; 1.2. The emergence of Tissue Engineering and regenerative medicine; 1.3. Research themes underlying Tissue Engineering technology; 1.3.1. Cells; 1.3.2. Biomaterial Scaffolds; 1.3.3. Tissue-Inducing Factors; 1.3.4. Devices and Systems; 1.4. Stem cell-based therapy; 1.4.1. Pure Stem Cell Therapy; 1.4.2. Scaffold-Based Stem Cell Therapy; 1.5. Translational Tissue Engineering 1.6. ConclusionReferences; Part I: Developmental Biology: A Blueprint for Tissue Engineering; Chapter 2: Developmentally Inspired Regenerative Organ Engineering: Tooth as a Model ; 2.1. Introduction; 2.2. Understanding generation for regeneration strategies: a tooth model; 2.3. Epithelial-mesenchymal interactions during odontogenesis; 2.4. ECM and mechanical forces as regulators of organogenesis; 2.5. Engineering approaches for tooth organ regeneration; 2.6. Conclusion; References; Chapter 3: Extracellular Matrix Molecules; 3.1. Introduction; 3.1.1. Overview 3.1.2. Extracellular Matrix Proteins3.1.3. Crosslinking; 3.2. Collagens;

3.2.1. Collagen Biosynthesis and Processing; 3.2.2. Fibril-Forming Collagens; 3.2.2.1. Biomineralization; 3.2.3. Fibril-Associated Collagens (FACITs); 3.2.4. Network-Forming Collagens; 3.2.5. Anchoring Fibrils; 3.2.6. Other Collagens; 3.2.7. Collagenopathies; 3.2.7.1. Osteogenesis Imperfecta (OI); 3.2.7.2. Ehlers-Danlos Syndrome; 3.2.7.3. Skeletal Dysplasias and Chondrodysplasias; 3.2.7.4. Other Collagenopathies; 3.3. Glycoproteins; 3.3.1. Fibronectin; 3.3.2. Fibrillins and Latent TGF- β -Binding Proteins (LTBPs) 3.3.2.1. Structural and Functional Properties of Fibrillins and LTBPs 3.3.2.2. Fibrillinopathies; 3.3.3. Fibulins; 3.3.4. Other Glycoproteins; 3.3.4.1. Tenascin; 3.3.4.2. The Small Integrin-Binding Ligand N-Linked Glycoproteins (SIBLINGs); 3.3.4.3. Thrombospondins; 3.4. Elastin and Elastic Fibers; 3.4.1. Elastic Fiber Assembly; 3.4.2. Elastin-Associated Pathologies; 3.5. Basement Membranes; 3.5.1. Laminins; 3.5.2. Collagen Type IV; 3.5.3. Basement Membrane Proteoglycans; 3.5.4. Basement Membrane-Associated Pathologies; 3.6. Proteoglycans and Glycosaminoglycans; 3.6.1. Glycosaminoglycans 3.6.2. Proteoglycans 3.6.2.1. Cell Surface Proteoglycans; 3.6.2.2. Modular Proteoglycans; 3.6.2.3. Small Leucine Rich Proteoglycans (SLRPs); 3.7. Concluding Remarks; Acknowledgments; Abbreviations; References; Chapter 4: Cell-Matrix Interactions and Signal Transduction; 4.1. Introduction; 4.1.1. The First Evidence that Matrices Change Cell Behavior; 4.1.2. Integrin and Non-Integrin Receptor Discovery; 4.2. Receptors; 4.2.1. Integrins: Mediators of Cell-Matrix Interactions; 4.2.1.1. Integrin α Subunits; 4.2.1.2. Integrin β Subunits; 4.2.2. Non-Integrin Receptors for ECM Molecules 4.2.2.1. Syndecans

Sommario/riassunto

Stem Cell Biology and Tissue Engineering in Dental Sciences bridges the gap left by many tissue engineering and stem cell biology titles to highlight the importance of research in this field in the dental sciences. It compiles basic embryology and developmental biology with keen focus on stem cells, basic cell and matrix biology with relevance to tissue regeneration and repair, biomaterials (including nanotechnology) and current applications in various disciplines of dental science. Tissue engineering is an interdisciplinary field of biomedical research-which combines life, engineering, and ma
