

1. Record Nr.	UNINA9910144562903321
Autore	Minuth W. W (Will W.)
Titolo	Tissue engineering [[electronic resource]] : essentials for daily laboratory work // W.W. Minuth, R. Strehl, K. Schumacher
Pubbl/distr/stampa	Weinheim ; ; [New York], : Wiley-VCH, c2005
ISBN	1-280-51985-1 9786610519859 3-527-60478-2 3-527-60456-1
Descrizione fisica	1 online resource (328 p.)
Altri autori (Persone)	StrehlR (Raimund) SchumacherK (Karl)
Disciplina	571.538
Soggetti	Tissue engineering Tissue culture Electronic books.
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 (p. 303-305) and index.
Nota di contenuto	Tissue Engineering; Preface; Contents; 1 Developmental processes; 2 Cells and Tissue; 2.1 The Cell; 2.1.1 The Cell as a Functional Unit; 2.1.2 Plasma Membrane; 2.1.3 Nucleus; 2.1.4 Mitochondria; 2.1.5 Endoplasmic Reticulum (ER); 2.1.6 Golgi Apparatus; 2.1.7 Endosomes, Lysosomes and Peroxisomes; 2.1.8 Cytoskeleton; 2.1.9 ECM; 2.1.10 Cell Cycle; 2.2 Tissue Types; 2.2.1 Epithelia; 2.2.1.1 Building Plans of Epithelia; 2.2.1.2 Glands; 2.2.1.3 Epithelia in Sensory Perception; 2.2.2 Connective Tissue; 2.2.2.1 Variety; 2.2.2.2 Fat Tissue as Storage; 2.2.2.3 Bone and Cartilage as Support Tissue 2.2.3 Muscle Tissue 2.2.3.1 Cell Movement; 2.2.3.2 Rhythmic Contraction; 2.2.3.3 Unconscious Contraction; 2.2.4 Nervous System Tissue; 2.2.4.1 Information Mediation; 2.2.4.2 Networks and Connections; 2.3 Relevance of the ECM; 2.3.1 Components of the ECM; 2.3.1.1 Functions of the ECM; 2.3.1.2 Synthesis of the Collagens; 2.3.1.3 Fibronectin; 2.3.1.4 Laminin; 2.3.1.5 Reticular and Elastic Fibers; 2.3.1.6 Collagens of the Basement Membrane; 2.3.1.7 FACIT Collagens; 2.3.1.8 Proteoglycans; 2.3.2 Interactions between the Cell

and the ECM; 2.3.2.1 Adhesion and the ECM
 2.3.2.2 Proliferation and the ECM
 2.3.2.3 Differentiation and the ECM;
 2.3.2.4 Apoptosis and the ECM; 2.3.3 Signal Transduction; 2.3.3.1
 Modulation of the Cell-Matrix Interaction; 2.3.3.2 The ECM and Cell
 Binding; 2.3.3.3 Signals to the Inner Cell; 2.3.3.4 The ECM and Long-
 term Contact; 2.3.4 Matricellular Proteins; 2.3.4.1 Thrombospondin;
 2.3.4.2 Tenascin C; 2.3.4.3 Osteopontin; 2.3.4.4 SPARC; 2.4 Emergence
 of Tissue; 2.4.1 Germ Layers and Ground Tissue; 2.4.1.1 Derivatives of
 the Ectoderm; 2.4.1.2 Derivatives of the Mesoderm; 2.4.1.3 Derivatives
 of the Entoderm
 2.4.2 Individual Cells, Social Interactions and Functional Tissue
 Development
 2.4.2.1 Differentiation from Individual Cells; 2.4.2.2
 Functional Exceptions; 2.4.2.3 Individual Cells and Social Interactions;
 2.4.2.4 Formation of tissue; 2.4.2.5 Individual Cell Cycles; 2.4.2.6
 Coordinated Growth; 2.4.2.7 Competence; 2.4.2.8 Morphogenic
 Factors; 2.4.2.9 Apoptosis; 2.4.2.10 Necrosis versus Apoptosis;
 2.4.2.11 Terminal Differentiation; 2.4.2.12 Adaptation; 2.4.2.13
 Transdifferentiation; 2.4.2.14 Multifactorial Differentiation; 2.5
 Regeneration; 2.5.1 Events Immediately after an Injury
 2.5.2 Wound Closure
 2.5.3 Programmed Cell Death (Apoptosis); 2.5.4
 Cooperative Renewal; 3 Classical Culture Methods; 3.1 History; 3.2 First
 Cultures; 3.2.1 Culture Containers; 3.2.1.1 Individual Culture
 Containers; 3.2.1.2 Dimensions of the Container; 3.2.1.3 Coating the
 Culture Dish; 3.2.1.4 Filter Inserts; 3.2.2 Culture Media; 3.2.2.1
 Ingredients; 3.2.2.2 Adjustment of Serum Supplements; 3.2.2.3 Serum
 Collection; 3.2.2.4 Serum-free Culture Media; 3.2.2.5 pH of the
 Medium; 3.2.2.6 Antibiotics; 3.2.2.7 Other Additives; 3.2.3 Growth
 Factors; 3.2.3.1 Overview of Different Growth Factors
 3.2.3.2 Effect of Growth Factors

Sommario/riassunto

Comprehensive in its scope and illustrated in detail, this practical book provides a fundamental insight into the complex world of tissue development and artificial cell culture using tissue engineering. The introductory chapters cover basic cell biology and cellular development as well as cell culture, with a main emphasis on ways of differentiating tissue and the critical evaluation of the properties of maturing tissue constructs. The authors also focus on the use of stem cells from the most varied sources in tissue engineering. The whole is rounded off by an exceptionally wide-rangin