



Biologic Foundations for Skeletal Tissue Engineering

By Julie Glowacki, Ericka Bueno

Morgan Claypool Publishers, United States, 2011. Paperback. Book Condition: New. 235 x 190 mm. Language: English . Brand New Book. Tissue engineering research for bone and joint applications entails multidisciplinary teams bringing together the needed expertise in anatomy, biology, biochemistry, pathophysiology, materials science, biomechanics, fluidics, and clinical and veterinary orthopedics. It is the goal of this volume to provide students and investigators who are entering this exciting area with an understanding of the biologic foundations necessary to appreciate the problems in bone and cartilage that may benefit from innovative tissue engineering approaches. This volume includes state-of-the-art information about bone and cartilage physiology at the levels of cell and molecular biology, tissue structure, developmental processes, their metabolic and structural functions, responses to injury, mechanisms of post-natal healing and graft incorporation, the many congenital and acquired disorders, effects of aging, and current clinical standards of care. It reviews the strengths and limitations of various experimental animal models, sources of cells, composition and design of scaffolds, activities of growth factors and genes to enhance histogenesis, and the need for new materials in the context of cell-based and cell-free tissue engineering. These building blocks constitute the dynamic environments in which innovative approaches are needed...



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