

Bioreactors for Tissue Engineering

Principles, Design and Operation

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Developments in tissue engineering for human medicine are increasing rapidly. Advances in stem cell biology, biomaterials science and scaffold design underpin this emerging science. An equally important facet of this field is the rational design and operation of bioreactors to control the nascent tissue growth. For the first time in a single volume, the design, characterisation and operation of the bioreactor system in which the tissue is grown is detailed.

Bioreactors for Tissue Engineering presents an overall picture of the current state of knowledge in the engineering of bioreactors for several tissue types (bone, cartilage, vascular), addresses the issue of mechanical conditioning of the tissue, and describes the use of techniques such as MRI for monitoring tissue growth. This unique volume is dedicated to the fundamentals and application of bioreactor technology to tissue engineering products. Not only will it appeal to graduate students and experienced researchers in tissue engineering and regenerative medicine, but also to tissue engineers and culture technologists, academic and industrial chemical engineers, biochemical engineers and cell biologists who wish to understand the criteria used to design and develop novel systems for tissue growth *in vitro*.