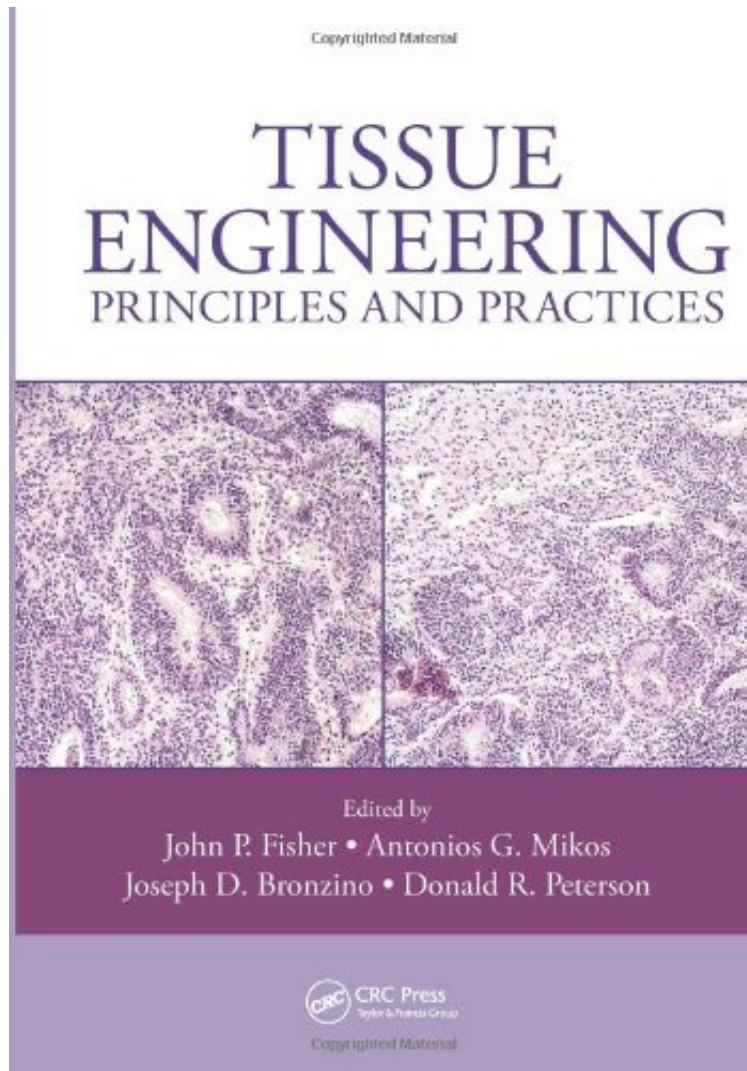


Tissue Engineering: Principles and Practices

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Tissue engineering research continues to captivate the interest of researchers and the general public alike. Popular media outlets like The New York Times, Time, and Wired continue to engage a wide audience and foster excitement for the field as regenerative medicine inches toward becoming a clinical reality. Putting the numerous advances in the field into a broad context, Tissue Engineering: Principles and Practices explores current thoughts on the development

of engineered tissues. With contributions from experts and pioneers, this book begins with coverage of the fundamentals, details the supporting technology, and then elucidates their applications in tissue engineering. It explores strategic directions, nanobiomaterials, biomimetics, gene therapy, cell engineering, and more. The chapters then explore the applications of these technologies in areas such as bone engineering, cartilage tissue, dental tissue, vascular engineering, and neural engineering. A comprehensive overview of major research topics in tissue engineering, the book: Examines the properties of stem cells, primary cells, growth factors, and extracellular matrix as well as their impact on the development of tissue-engineered devices Focuses upon those strategies typically incorporated into tissue-engineered devices or utilized in their development, including scaffolds, nanocomposites, bioreactors, drug delivery systems, and gene therapy techniques Presents synthetic tissues and organs that are currently under development for regenerative medicine applications The contributing authors are a diverse group with backgrounds in academia, clinical medicine, and industry. Furthermore, this book includes contributions from Europe, Asia, and North America, helping to broaden the views on the development and application of tissue-engineered devices. The book provides a useful reference for courses devoted to tissue engineering fundamentals and those laboratories developing tissue-engineered devices for regenerative medicine therapy.