



ΕΙΧΗΜΥΘ: 1984 - 2009

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Διακεκριμένη Ομιλία

ΟΜΙΛΗΤΗΣ: Antonios G. Mikos

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ΤΙΤΛΟΣ: Synthetic scaffolds for tissue engineering

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων ΙΤΕ/ΕΙΧΗΜΥΘ

ΗΜΕΡΟΜΗΝΙΑ: Παρασκευή, 3 Ιουλίου 2009

ΩΡΑ: 12:00

ΠΕΡΙΛΗΨΗ:

Recent developments in biomaterials technology have enabled the production of biodegradable, cytocompatible tissue engineering scaffolds that can be tailored with appropriate mechanical and biological signals to restore damaged tissue in specific sites in the body. For instance, our laboratory has developed a class of fumarate-based polymers for the controlled delivery of cells and/or bioactive agents to improve tissue repair. We have applied this technology to fabricate biodegradable synthetic scaffolds from a hydrophilic fumarate-based polymer, oligo(poly(ethylene glycol) fumarate), and load bearing scaffolds from a hydrophobic fumarate-based polymer, poly(propylene fumarate). These synthetic scaffolds have been widely investigated as injectable carriers for marrow stromal progenitor cells and/or controlled delivery of bioactive factors to promote regeneration of orthopedic tissues. Additionally, composites of fumarate-based polymers and nanomaterials have been explored to provide a means of increasing the mechanical integrity of synthetic tissue engineering scaffolds. This talk will present examples of fumarate-based materials from our laboratory to illustrate significant recent advances in synthetic scaffold technology for tissue engineering.



Χρόνια

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ΣΥΝΤΟΜΟ ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ:

Antonios G. Mikos is the Louis Calder Professor of Bioengineering and Chemical and Biomolecular Engineering at Rice University. He received his Dipl.Eng. (1983) from the Aristotle University of Thessaloniki, Greece, and his Ph.D. (1988) in chemical engineering from Purdue University. He was a postdoctoral researcher at the Massachusetts Institute of Technology and the Harvard Medical School before joining the Rice Faculty in 1992 as an assistant professor. His research focuses on the synthesis, processing, and evaluation of new biomaterials for use as scaffolds for tissue engineering, as carriers for controlled drug delivery, and as non-viral vectors for gene therapy. He is the author of over 380 publications and 24 patents. He is the editor of 10 books and the author of one textbook (Biomaterials: The Intersection of Biology and Materials Science, Pearson Prentice Hall, 2008). Mikos is a Fellow of the International Union of Societies for Biomaterials Science and Engineering and a Fellow of the American Institute for Medical and Biological Engineering. He has been recognized by various awards including the Alpha Chi Sigma Award for Chemical Engineering Research of the American Institute of Chemical Engineers, the Robert A. Pritzker Distinguished Lecturer Award of the Biomedical Engineering Society, the Edith and Peter O'Donnell Award in Engineering of The Academy of Medicine, Engineering and Science of Texas, the Marshall R. Urist Award for Excellence in Tissue Regeneration Research of the Orthopaedic Research Society, the Chemstations Lectureship Award of the American Society for Engineering Education, and the Clemson Award for Contributions to the Literature of the Society for Biomaterials. Mikos is a founding editor of the journal Tissue Engineering. He is president of the North American Tissue Engineering and Regenerative Medicine International Society. He is the organizer of the continuing education course Advances in Tissue Engineering offered annually at Rice University since 1993.