



Tissue Engineering and Regenerative Medicine: A Nano Approach

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Through the integration of strategies from life science, engineering, and clinical medicine, tissue engineering and regenerative medicine hold the promise of new solutions to current health challenges. This rapidly developing field requires continual updates to the state-of-the-art knowledge in all of the aforementioned sciences. **Tissue Engineering and Regenerative Medicine: A Nano Approach** provides a compilation of the important aspects of tissue engineering and regenerative medicine, including dentistry, from fundamental principles to current advances and future trends.

Written by internationally renowned scientists, engineers, and clinicians, the chapters cover the following areas:

- Nanobiomaterials and scaffolds?including nanocomposites and electrospun nanofibers
- Tissue mechanics
- Stem cells and nanobiomaterials
- Oral and cranial implants and regeneration of bone
- Cartilage tissue engineering
- Controlled release?DNA, RNA, and protein delivery
- Animal science and clinical medicine

The editors designed this textbook with a distinctive theme focusing on the utilization of nanotechnology, biomaterials science in tissue engineering, and regenerative medicine with the inclusion of important clinical aspects. In addition to injured veterans and other individuals, increased life expectancy in the industrialized world is creating a growing population that will require regenerative medicine, producing greater pressure to develop procedures and treatments to improve quality of life. This book bridges the gap between nanotechnology and tissue engineering and regenerative medicine, facilitating the merger of these two fields and the important transition from laboratory discoveries to clinical applications.

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Editorial Review

Review

"This book broadly covers current topics of tissue engineering. In particular, it would be helpful for those who are studying in this field based on nanotechnology and biomaterial science."

?Shoji Takeuchi, The University of Tokyo

About the Author

Murugan Ramalingam is an associate professor and scientist 'G' at the Centre for Stem Cell Research (CSCR), Department of Biotechnology, Government of India, Christian Medical College Bagayam Campus, Vellore, Tamil Nadu, India. He is also an adjunct associate professor at the Tohoku University, Sendai, Miyagi, Japan. Dr. Ramalingam's current research interests focus on the development of multiphase biomaterials, through conventional to nanotechnology to biomimetic approaches, cell patterning, stem cell differentiation, and tissue engineering. He is the author of more than 125 publications, including peer-reviewed journal papers, conference proceedings, book chapters, authored books, edited books, and patents relevant to biomaterials and tissue engineering. He serves on the editorial boards of multiple biomaterials- and tissue engineering-related journals.

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John Almanzar:

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