



Bone Tissue Engineering: Opportunities and Challenges

Guest Editors:

Dr. Elisa Mazzoni

Department of Chemical,
Pharmaceutical and Agricultural
Sciences, University of Ferrara,
44121 Ferrara, Italy

Dr. Maria Rosa Iaquinta

Department of Medical Sciences,
University of Ferrara, 64/b,
Fossato di Mortara Street, 44121
Ferrara, Italy

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Message from the Guest Editors

Dear Colleagues,

Tissue engineering (TE) aims to repair and regenerate tissues damaged by injury or disease. To this end, bone grafting has emerged as a viable treatment modality. Biomaterials play a key role in this reparative strategy. The burgeoning science of nanomaterials as nanomedicines is growing. Novel biological therapies that can effectively treat bone fracturing or degeneration are of great significance in regenerative medicine. In addition, mesenchymal stem cells (MSCs) isolated from bone marrow (BM-MSCs), adipose tissue (AD-MSCs), and umbilical cord (UC-MSCs) show considerable promise for use in bone repair. The microenvironment, including that of the immune system, influences the state of stem cells in the context of tissue repair and regeneration of bone tissue. Although extensive strides have been made in our collective understanding of the processes governing bone and tissue regeneration within the microenvironment, effective clinical translation of these mechanisms remains a challenge.





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Editor-in-Chief

Prof. Dr. Maurizio Battino

Department of
Odontostomatologic and
Specialized Clinical Sciences,
Sez-Biochimica, Faculty of
Medicine, Università Politecnica
delle Marche, Via Ranieri 65,
60100 Ancona, Italy

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