



Biomaterials for Bone Tissue Engineering 4.0

Guest Editors:

Dr. Mike Barbeck

Clinic and Policlinic for
Dermatology and Venereology,
University Medical Center
Rostock, 18057 Rostock,
Germany

Prof. Dr. Reinhard Schnettler

University Medical Centre, Justus
Liebig University of Giessen,
35390 Giessen, Germany

Dr. Ole Jung

Clinic and Policlinic for
Dermatology and Venereology,
University Medical Center
Rostock, 18057 Rostock,
Germany

Deadline for manuscript
submissions:

closed (20 February 2025)

Message from the Guest Editors

Dear Colleagues,

The worldwide clinical demand for bone regeneration is a problematic issue in orthopaedic and maxillofacial surgery. The application of autologous bone is still the standard in bone transplantation. The ideal grafting material enables the regeneration of bony defects up to the condition of a restitutio ad integrum and should combine the basic mechanism of fracture healing, namely osteogenesis, osteoinduction and osteoconduction. Different tissue engineering strategies have been developed with the aim of improving the regenerative properties of bone substitute materials. However, no alternative to autologous bone has been found. In this context, preclinical in vitro and in vivo studies, as well as clinical trials analyzing fundamental molecular processes, are crucial to define the regeneration mechanisms of new materials and tissue engineering concepts.

This Special Issue focuses on the various aspects of interactions of bone substitutes with cells and tissues. We invite to contributions of reviews and/or original papers reporting new results in the field of bone substitute development and bone tissue engineering concepts with a focus on new molecular insights.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. José L. Quiles

Department of Physiology,
Institute of Nutrition and Food
Technology “Jose Mataix”,
Biomedical Research Center,
University of Granada, Avda.
Conocimiento s/n, 18100 Armilla,
Granada, Spain

Message from the Editor-in-Chief

The *International Journal of Molecular Sciences (IJMS)* is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, and molecular biophysics. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), PubMed, PMC, MEDLINE, Embase, CAPlus / SciFinder, and other databases.

Journal Rank: JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore - Q1 (Organic Chemistry)

Contact Us

*International Journal of Molecular
Sciences* Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/ijms
ijms@mdpi.com
X@IJMS_MDPI