Special Issue

Advancements in Biomaterials for Bone Tissue Engineering

Message from the Guest Editors

Bone defect repair remains a significant clinical challenge. While current treatments such as autografts and allografts are commonly employed, they are associated with limitations, including donor site morbidity, limited availability, and risk of immune response or disease transmission. To address these concerns, synthetic biomaterial-based bone grafts and tissue-engineered scaffolds have emerged as promising alternatives. These bone scaffolds provide a structural framework that supports cellular attachment, proliferation, and the formation of new tissue, aiming to replicate the complex architecture and osteogenic functionality of native bone. Despite remarkable progress in this field, developing scaffolds that meet the required mechanical strength, bioactivity, biodegradability, and interconnected porosity remains challenging. As research evolves, new materials and fabrication techniques, including 3D printing, biofabrication, and surface modification, are being explored to improve scaffold performance and clinical outcomes.

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Message from the Editor-in-Chief

The biomaterials field is one of the largest and fastest growing research areas both in the scientific community and in the industrial one. Biomaterials are the result of collaborations between different disciplines: chemistry, medicine, pharmacology, engineering and biology. The objective of this collaboration is to lead to the implementation of new devices to restore form and human body functions. The mission of the *Journal of Functional Biomaterials* (*JFB*) is to focus attention on physico-chemical characteristics and their importance in the interactions between biomaterials and living tissues. *JFB* seeks to publish studies on the preparation, performance and use of biomaterials in biomedical devices, as well as regarding their behavior in physiological environments. We are pleased to welcome you as our authors.

Editor-in-Chief

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