

Special Issue

Advanced Biomaterials for Tissue Engineering: From Design Principles to Translational Regeneration

Message from the Guest Editors

Functional biomaterials are transforming tissue engineering by enabling precise control over biological, mechanical, and biochemical cues that govern tissue repair and regeneration.

This Special Issue covers engineered biomaterials with tunable mechanical properties, aligned or hierarchical architectures, bioactive surface chemistries, and controlled delivery of cells, drugs, or genetic cargo. Emphasis will be placed on translational strategies that bridge in vitro design principles with in vivo performance across musculoskeletal, cardiovascular, neural, and soft tissue applications. Contributions addressing regenerative rehabilitation, immune–biomaterial interactions, and dynamic or stimuli-responsive materials are particularly encouraged.

By bringing together interdisciplinary perspectives from materials science, bioengineering, and clinical translation, this Special Issue will provide a comprehensive overview of how functional biomaterials can overcome persistent barriers to tissue regeneration and advance next-generation therapeutic solutions.

Guest Editors

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About the Journal

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

Prof. Dr. Pankaj Vadgama

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