Special Issue

Advances in Biomaterials: Preparation, Properties and Applications in Biomedicine and Tissue Engineering

Message from the Guest Editors

Tissue engineering and regenerative medicine are promising strategies for tissue and organ repair using engineered biomaterials and scaffolds. Yet, current constructs show limited ability to mimic the native microenvironment and achieve optimal regeneration. Decellularized tissues and cell-derived extracellular matrix have therefore emerged as effective alternatives. Biomaterials, natural or engineered, offer high biocompatibility and often immunomodulatory properties. Their networks of proteins, polysaccharides, and growth factors provide structural support and biochemical cues that promote cell growth. Bioactive biomaterials further create tissue-specific microenvironments that enhance regenerative therapies. This Special Issue seeks to highlight innovative research on engineered biomaterials for biomedical and tissue engineering applications. Topics include biomaterial preparation, properties, composites, bioinks, bioprinting, chemical modification, and applications in biomedicine, tissue engineering, and microenvironment regulation.

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As the premier open access journal dedicated to molecular chemistry, now in its 29th year of publication, the papers published in *Molecules* span from classical synthetic methodology to natural product isolation and characterization, as well as physicochemical studies and the applications of these molecules as pharmaceuticals, catalysts, and novel materials. Pushing the boundaries of the discipline, we invite papers on all major fields of molecular chemistry and multidisciplinary topics bridging chemistry with biology, physics, and materials science, as well as timely reviews and topical issues on cutting-edge fields in all of these areas.

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