Special Issue

Advances and Challenges in Polymer-Based 3D Bioprinting for Biomedical Applications

Message from the Guest Editor

This Special Issue aims to explore the current advances, ongoing challenges, and future perspectives in polymer-based 3D bioprinting, with a particular focus on its translation toward real-world biomedical applications. Topics of interest include, but are not limited to, the following areas:

The design, development, and characterization of printable polymer bioinks;
Crosslinking strategies and rheological considerations for print fidelity and structural integrity;
The integration of cells, growth factors, and functional additives into printed constructs;
The biomechanical and biological performance of printed tissues and scaffolds;
Applications in regenerative medicine, tissue engineering, organ-on-chip systems, and drug screening;
Challenges in scalability, standardization, regulatory compliance, and clinical translation.

We welcome contributions including original research, comprehensive reviews, and perspectives that provide insight into the multidisciplinary efforts required to overcome material, technical, and biological barriers.

Guest Editor

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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