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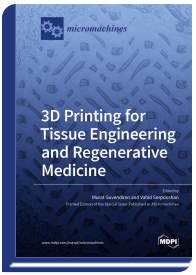
Special Issue Reprint

3D Printing for Tissue Engineering and Regenerative Medicine



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Three-dimensional (3D) printing enables the fabrication of tissue-engineered constructs and devices from a patient's own medical data, leading to the creation of anatomically matched and patient-specific constructs. There is a growing interest in applying 3D printing technologies in the fields of tissue engineering and regenerative medicine. The main printing methods include extrusion-based, vat photopolymerization, droplet-based, and powder-based printing. A variety of materials have been used for printing, from metal alloys and ceramics to polymers and elastomers as well as from hydrogels to extracellular matrix proteins. More recently, bioprinting, a subcategory of 3D printing, has enabled the precise assembly of cell-laden biomaterials (i.e., bioinks) for the construction of complex 3D functional living tissues or artificial organs. In this Special Issue, we aim to capture state-of-the-art research papers and the most current review papers focusing on 3D printing for tissue engineering and regenerative medicine. In particular, we seek novel studies on the development of 3D printing and bioprinting approaches, developing printable materials (inks and bioinks), and utilizing 3D-printed scaffolds for tissue engineering and regenerative medicine applications. These applications are not limited to but include scaffolds for in vivo tissue regeneration and tissue analogues for in vitro disease modeling and/or drug screening.

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