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Special Issue Reprint

## Hydrogels in Regenerative Medicine and Other Biomedical Applications

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Great strides have been made in the area of hydrogel science since the first hydrogels were described in the 1960s. Hydrogels usually consist of three-dimensional matrices of hydrophilic polymers, held together by chemical or physical crosslinks, or supramolecular assemblies of small amphiphilic molecules. The gelation process occurs in response to a physical or chemical stimulus, such as temperature, pH, electric or magnetic field, enzymatic modification, light, and others. Consisting of mainly water molecules, they represent a unique class of materials, with many applications such as cell therapeutics, cartilage/bone regeneration, sustained drug release and drug delivery systems, tissue engineering, and 3D bioprinting. Despite these great strides, there is still much more to discover in this area. This Special Issue is focused on the use of hydrogels in tissue and bone regeneration. Hydrogels are particularly suited for this purpose as their physical characteristics resemble that of the extracellular matrix; as such, they have found applications as an extracellular medium for cancer cells, stem cells, and neuronal cells. This Special Issue also includes research papers on the other biomedical applications of hydrogels.

