



gels



Special Issue Reprint

Design of Polymeric Hydrogels Biomaterials

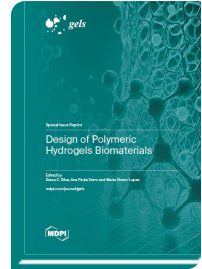
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Hydrogels have become one of the most promising biomaterials in recent years due to their biocompatibility, versatility, and ability to mimic biological tissues and are already widely used in areas such as ophthalmology, cardiovascular health, wound healing, and regenerative medicine. These materials can be produced in the form of films, 3D-printed structures, fibers, or nanoparticles and tailored to serve as platforms for the sustained delivery of drugs and/or other bioactive molecules. Some more advanced hydrogels exhibit smart stimuli-responsive behaviors, offer self-healing capacity, or shape memory properties. Despite significant progress, challenges remain in designing new hydrogels that are both safe and high-performing. This reprint gathers some of the most recent achievements related to the synthesis, characterization, and application of the new generation of hydrogels, covering issues from the use of artificial intelligence (AI) for hydrogel development to their most innovative uses.



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