

Special Issue

Design of Injectable and Self-Healing Hydrogels for Tissue Regeneration and Drug Delivery

Message from the Guest Editors

Injectable and self-healable hydrogels have shown great promise in tissue engineering and drug delivery because they have the capacity to provide mechanical support, cell adhesion sites, and the controlled release of therapeutic molecules at the site of the defect. In addition to the merit of mimicking the natural extracellular matrix of defect tissues, these hydrogels can also be delivered to various anatomical sites, including irregularly shaped or hard-to-reach areas without the need for open surgeries, leading to less trauma, faster recovery times, and lower risk of infection and complications. This Special Issue aims to cover the most recent advances in injectable and self-healable hydrogels by discussing different fabrication strategies, available triggered drug release mechanisms, their potential for multimodal therapy and cell delivery, as well as challenges of optimal balance between gelation time, mechanical properties, and biodegradability to provide high flexibility in their biomedical application and make them a more promising tool for the future of regenerative medicine and drug delivery.

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