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Hydrogels for the Regeneration of Joints of the Musculoskeletal System in Orthopedics

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Message from the Guest Editors

Hydrogels for the regeneration or repair of tissues of the musculoskeletal apparatus in orthopedic research are of very high translational value. Various tissues of joint and joint-like tissues warrant applications of hydrogels. The best examples are the regeneration of articular cartilage of the knee or of the intervertebral disc (IVD) of the spine. These hydrogels need to be relatively stiff and should be very similar to native tissue in terms of mechanobiological parameters. In orthopedics, there is an urgent need to develop clinically feasible solutions to relieve pain and to restore the function of degenerated tissues such as the spine and other joints such as the rotator cuff of the shoulder. In the last few decades, smart biomaterials have been investigated which could be injected into degenerated IVD to restore disc height. This Special Issue seeks contributions to the field of engineered hydrogels for orthopedic applications that warrant mechanically reinforced properties by cross-linking and other means. These hydrogels will be targeted for cartilage repair and/or IVD, with a special focus on these micro-environments.



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Special Issue



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Message from the Editorial Board

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