structure of the hydrogel mimics a physiological condition and provides the perfect environment for encapsulated cells to grow and differentiate into healthy tissues. Their excellent biocompatibility and biodegradability also make them competitive for *in vivo* biomedical applications. The major characteristic of thermosensitive hydrogels is their temperature sensitivity as they stay as a free flowing solution at room temperature but transform into gel after injection at body temperature. The sustained release of the loaded drugs can be achieved by modifying the physical, chemical and mechanical properties of thermosensitive copolymers. Considerable progress has been made in understanding the properties of thermosensitive hydrogels and their applications. New modification approaches and copolymers are still under investigation and the emerging thermosensitive hydrogels are expected to benefit the field of both tissue engineering and drug delivery science.

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