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Hydrogel-based delivery

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The Institute of Bioengineering and Nanotechnology, Singapore, has developed an injectable biodegradable hydrogel system using enzyme-mediated reaction for drug delivery and tissue engineering applications. This system does not involve toxic chemicals or reactions in the hydrogel formation process, thus allowing therapeutic proteins, growth factors and cells to be incorporated without damaging the biological molecules. This system also allows controlling the mechanical strength of the hydrogel, while achieving a rapid gelation rate.

The researchers of the institute claim that this technology has advantages in controlling degradation, drug release and cell proliferation or differentiation, while preventing uncontrolled leakage of the bioactive agents during the gelation process in-vivo.