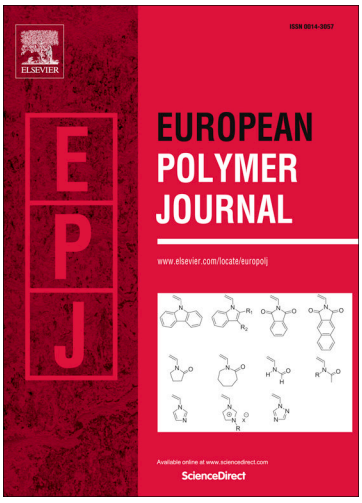

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Guanine-cytosine base-pairings crosslinked ROS-sensitive supramolecular hydrogels with improved rheological properties

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Abstract

In this work, we presented a kind of intelligent supramolecular hydrogels (SHGs) based on base-pairing interaction between guanine and cytosine, comprising α-cyclodextrin, thioketals-modified guanine (G-TK-G) and cytosine-terminated PEG (C-PEG-C). The hydrogen bond of nucleic acid between G and C as an additional cross-linker effectively enhanced storage moduli (*G'*s) of the hydrogels. Notably, the obtained hydrogels exhibited excellent reactive oxygen species (ROS) responsive property due to the introduction of thioketals group. Under ROS-rich environment, the hydrogels could control the release of loaded-cargoes, outlining the potential of intelligent materials for biomedical application, such as smart drug delivery for anticancer.

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Keywords: ROS-sensitive; Base pairs; Guanine-cytosine; Hydrogen-bond; hydrogel