Supporting Information

A super-stretchable, self-healing and injectable supramolecular hydrogel constructed by a host-guest crosslinker

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Fig. S1 Synthesis of (A) Ad-MA, (B) CD-NH₂, CD-MA, (C) OCPOSS and OCDPOSS.



Fig. S2 The ¹H NMR (400 MHz, CDCl₃) spectrum of Ad-AAm.



Fig. S3 The ¹H NMR spectrum (400 MHz, D_2O) of CD-MA.



Fig. S4 The ¹H NMR spectrum (400 MHz, (CD₃)₂SO) of OCPOSS.



Fig. S5 The ¹H NMR spectrum (400 MHz, (CD₃)₂SO) of OCDPOSS.



Fig. S6 The MALDI-TOF MS spectrum of OCDPOSS.



Fig. S7 The FT-IR spectra of CD and CD-MA.



Fig. S8 The 2D ROESY ¹H NMR spectra of HGP supramolecular crosslinker in D_2O .



Fig. S9 Characterization of rheological property. (A) The strain sweep tests of the HGP hydrogels. (B) Frequency sweep tests of HGP hydrogels.



Fig. S10 Tensile-stress curves of HGP hydrogels. (A) Representative strain and stress curves during the cyclic tensile tests of the HGP0.8 hydrogel. (B) The HGP0.8 hydrogel under cyclic tensile tests with the increasing strain rate from 20% to 80% with a frequency of 1 Hz. (A) Representative strain and stress curves during the cyclic tensile tests of the HGP0.8 hydrogel.



Fig. S11 (A) Photograph demonstrating that the HGP0.8 hydrogel was self-healed. (B) The self-healed HGP0.8 hydrogel was stretched without any obvious crack. (C) Photographs of the self-healing process of HGP0.8 hydrogels. (a) SEM image of the HGP0.8 hydrogel before self-healing. The black dotted circle denotes the boundary between the two halves of the hydrogel. (b) SEM image of the HGP0.8 hydrogel after self-healing. The black dotted circle denotes that the boundary between the two halves of stated circle denotes that the boundary between the two halves of the hydrogel. (scale bar: 50 μ m).



Fig.S12 Injectability of the methylene blue-stained HGP0.8 hydrogel through a 26G needle at room temperature. The stability of the HGP0.8 hydrogel can be observed after its injection into water.