# **Supporting Information**

#### **Electrochemical Redox Responsive Supramolecular Self-healing**

#### Hydrogels Based on Host-Guest Interaction

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## 1. FT-IR spectra of P(DMA-r-HEMA-Fc) and P(DMA-r-GMA-CD)

The structures of P(DMA-r-HEMA-Fc) and P(DMA-r-GMA-CD) were characterized by FT-IR using a Perkin-Elmer Spectrum 100 FT-IR spectrometer, and the results are shown in Figure S1.

### 2. UV-vis characterization of ferrocenecarboxylic acid and P(DMA-

### r-HEMA-Fc)

The UV-vis spectra of ferrocenecarboxylic acid and P(DMA-r-HEMA-Fc) in the absence and presence of  $\beta$ -CD and P(DMA-r-GMA-CD) were characterized, and shown in Figure S2 and Figure S3.



Figure S1 FT-IR spectra of P(DMA-*r*-HEMA-Fc)(a) and P(DMA-*r*-GMA-CD)(b)



**Figure S2** UV-vis spectra of ferrocenecarboxylic acid in the absence and presence of  $\beta$ -CD and P(DMA-*r*-GMA- $\beta$ -CD)(Solvent: CHCl<sub>3</sub>)



**Figure S3** UV-vis spectra of P(DMA-*r*-HEMA-Fc) in the absence and presence of P(DMA-*r*-GMA- $\beta$ -CD) (Solvent: H<sub>2</sub>O)