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## **Supporting Documents**

## Self-healable Fluorescence Active Hydrogel Based On Ionic Block Copolymer Prepared via Ring Opening Polymerization and Xanthate Mediated RAFT Polymerization

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Figure S2: <sup>13</sup>C NMR analysis of potassium O-ethyl xanthate.



Figure S3: Mass spectra of potassium O-ethyl xanthate.



Figure S4: (a) FTIR analysis of the prepared components, (b) XRD of PCL-OH, PCL-b-PMTAC and PCL-b-PSS.



Figure S5: (i) DLS analysis results. (ii) Water contact angle (WCA) results.



**Figure S6:** Creep compliance comparison of the hydrogel samples at constant stress of 0.1 MPa and at 25°C temperature.