# Supplementary Information

## Self-Healable Hydrogels with NaHCO<sub>3</sub> Degradability and

# Reversible Gel-Sol-Gel Transition from Phenolic Ester Containing

### Polymers

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Fig. S4 Repeated self-healing of the hydrogel under stretching (a) and subjected to

gravity (b).

Fig. S5The self-healable hydrogel can also be degraded by  $N(C_2H_5)_3$ .

Fig. S6 Hydrogel prepared from  $P(DMA_{104}-stat-FPA_8)$  and  $PEO_{90}$  dihydrazide can

also be cleaved by PEO dihydrazide.

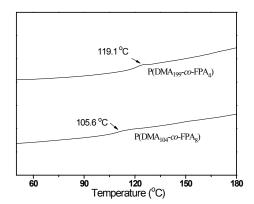




Fig. S1 DSC curves of P(DMA-stat-FPA) copolymers.

Fig. S2 Hydroel prepared P(DMA<sub>199</sub>-stat-FPA<sub>4</sub>) with DTPDH cross-linking.



Fig.S3 Hydrogel prepared P(DMA<sub>199</sub>-stat-FPA<sub>4</sub>) with PEO<sub>90</sub> dihydrazide cross-linking.

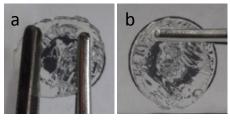


Fig. S4 Repeated self-healing of the hydrogel under stretching (a) and subjected to gravity (b).

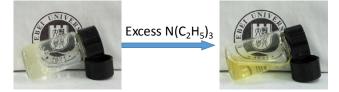


Fig. S5 The self-healable hydrogel can also be degraded by  $N(C_2H_5)_3$ .

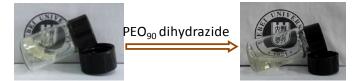


Figure S6. Hydrogel prepared from P(DMA<sub>104</sub>-*stat*-FPA<sub>8</sub>) and PEO<sub>90</sub> dihydrazide can also degraded by PEO dihydrazide.