**Additional experimental data**

Fig. S1 shows the effect of PVA content on the dynamic viscoelastic spectra of GSH-Ag. Both storage modulus ($G'$) and loss modulus ($G''$) of PVA/GSH-Ag gels distinctly increased in comparison with the unreinforced gels.

**Fig. S1** Effect of PVA content on the dynamic viscoelastic spectra of GSH-Ag gels. The $G'$ values were indicated using filled symbols and $G''$ values were indicated using hollow symbols. PVA content was 0 wt% (★), 0.4 wt% (►), 0.6 wt% (◄), 0.8 wt% (▼), 1 wt% (▲), 1.2 wt% (●) and 1.4 wt% (●).
Fig. S2 shows SEM images of GSH-Ag gels before and after UV irradiation. As shown in Fig. S2a, three-dimensional network structure of GSH-Ag gels can be observed. After 12 h UV irradiation, the three-dimensional network structure was collapsed (Fig. S2b).

**Fig. S2** SEM images of GSH-Ag gels before (a) and after (b) UV irradiation.