

Supporting Information

HClO/ClO⁻-indicative interpenetrating polymer network hydrogels as intelligent bioactive materials for wound healing

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1. Synthesis routes

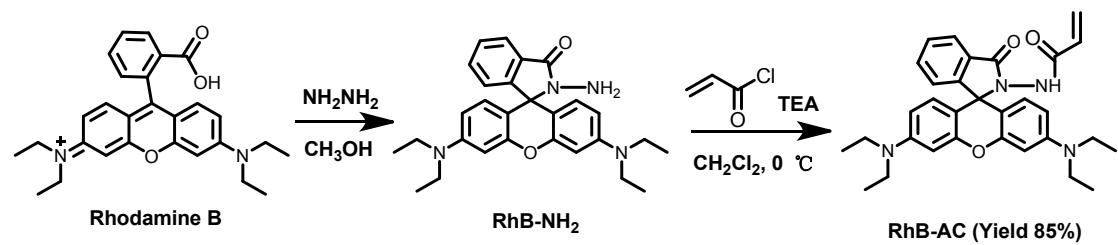


Figure S1. Synthetic routes of **RhB-NH₂** and monomer **RhB-AC**.

2. Table S1. Basic gradients for preparing hydrogels

Sample name	SA (mg)	DI-water (mL)	RhB-AC ^a (μL)	APS (mg)	MBA (mg)	TEMED ^b (μL)
SA	600	30	0	0	0	0
SA-RhB ¹	600	30	100	5	5	15
SA-RhB ²	600	30	250	5	5	25
SA-RhB ³	600	30	750	7	7	40

a: 10 mg mL⁻¹ **RhB-AC** stock solution; b: 10% vol TEMED solution.

3. Standard curve determination

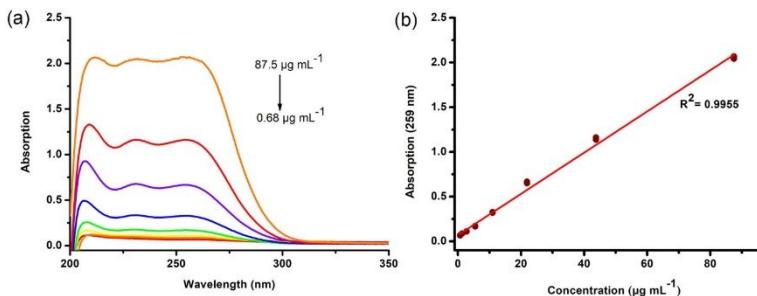


Figure S2. (a) The absorption spectrum of chlorhexidine acetate (CHXA). (b)The linear standard curve of chlorhexidine acetate (CHXA) at 259 nm.

4. Hydrogel degradation data

Table S2. Degradation of hydrogel under different stimulation conditions at different times

Time (min)	SA-RhB ² (V_t / V_{t0})%		
	HClO ^a	(HClO+EDTA) ^b	EDTA ^c
0	100	100	100
60	91.74	45.45	62.67
120	107.34	Complete degradation	Complete degradation

a. 100 μM HClO/ ClO^- ; b. 50 μM HClO/ ClO^- + 10 mM EDTA; c. 20 mM EDTA.

5. Characterization

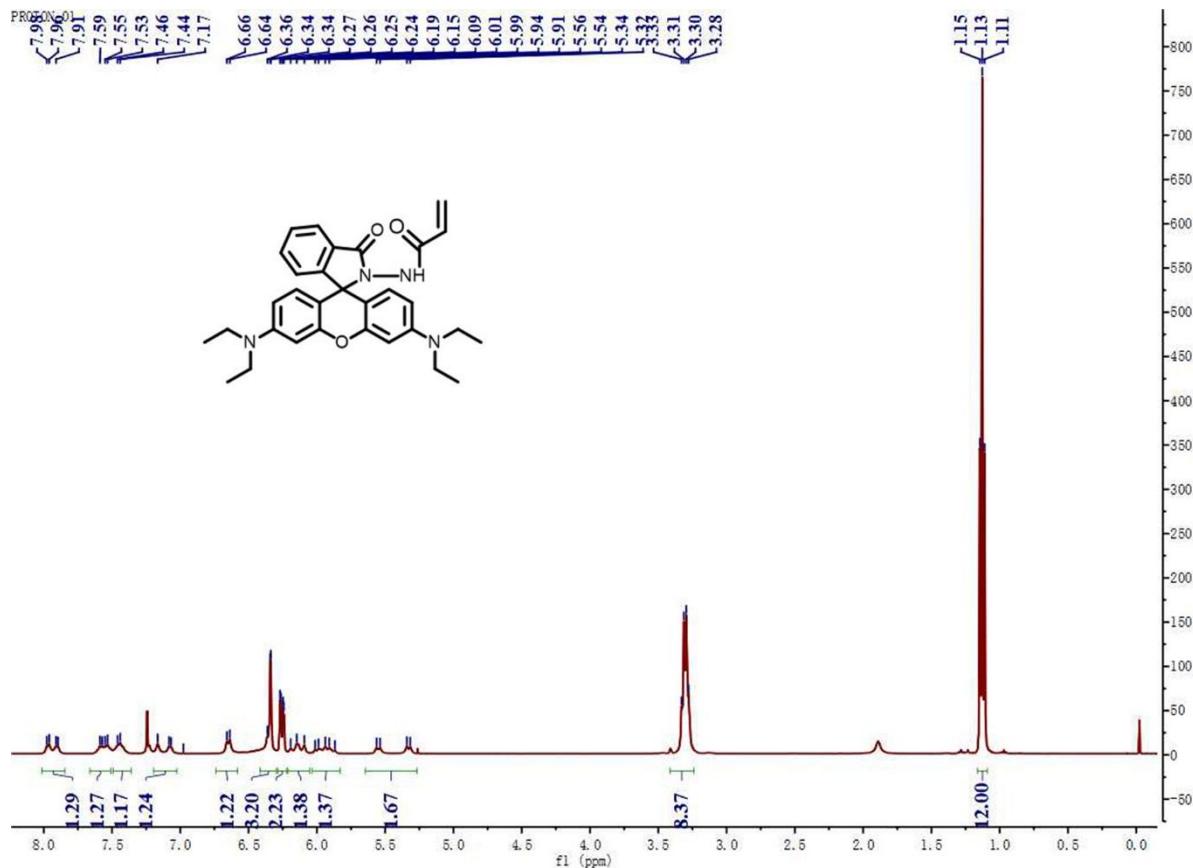


Figure S3. ^1H NMR spectrum of RhB-AC in CDCl_3 .

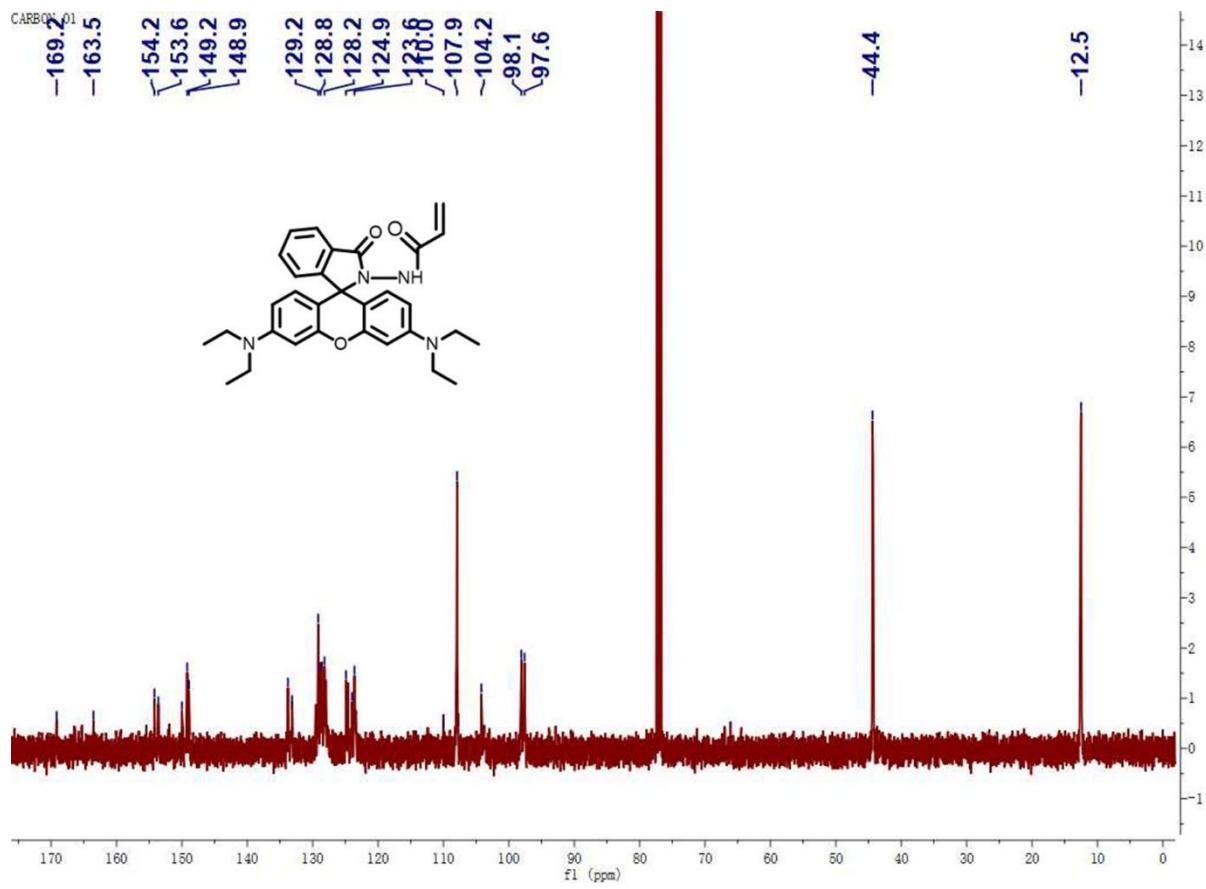


Figure S4. ^{13}C NMR spectrum of RhB-AC in CDCl_3 .

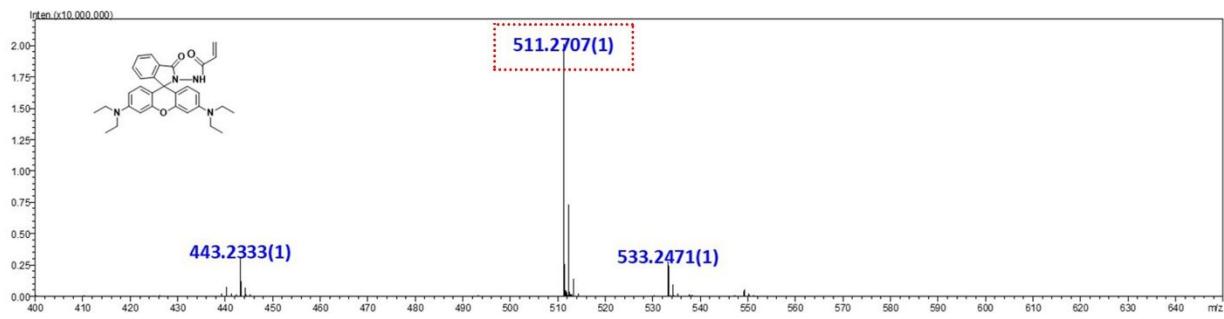


Figure S5. ESI-MS data of RhB-AC.

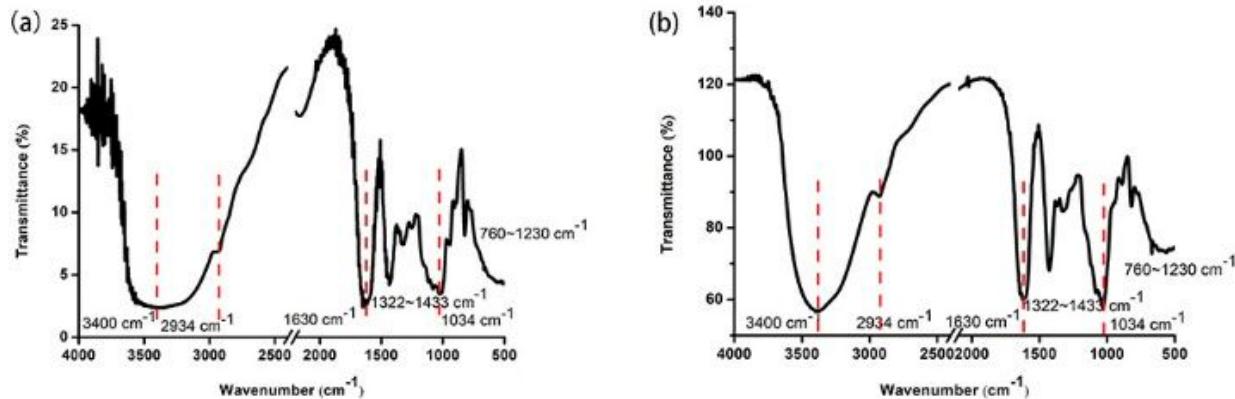


Figure S6. The IR spectrum of (a) SA-RhB² and (b) SA-RhB³.

6. In vitro cytotoxicity assay and cell imaging experiments of SA hydrogel

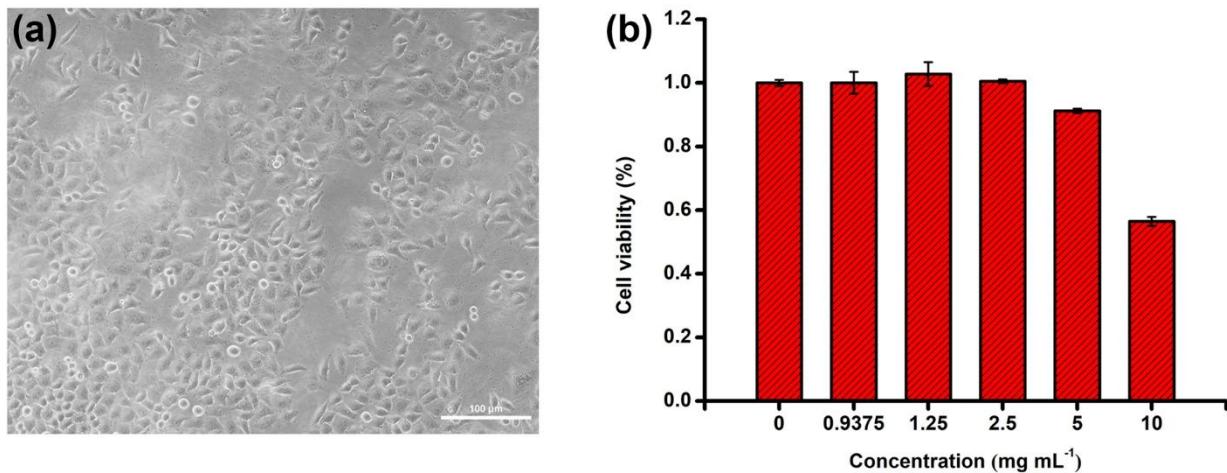


Figure S7. (a) Cells culture on hydrogels SA and (b) in vitro cytotoxicity of SA at different concentrations.

7. Photographic images of the extent of wound healing

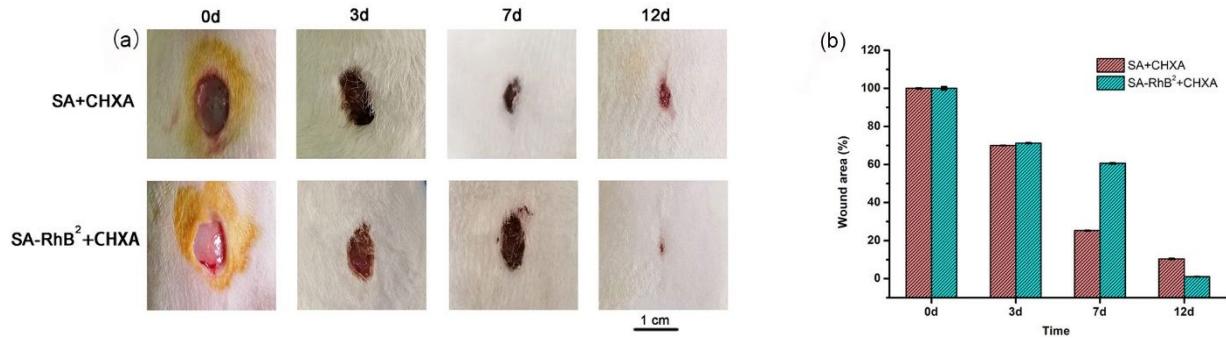


Figure S8. Photographic images of the extent of wound healing: (a) graphical illustration of the changes in the wound size on days 0, 3, 7, 12 for **SA+CHXA** and **SA-RhB²+CHXA** hydrogels. (b) Histogram of wound area on days 0, 3, 7, 12 for the **SA+CHXA** and **SA-RhB²+CHXA** hydrogels; Scale bar: 1 cm.