

Supporting Information

Thermogelling Chitosan-Based Polymers for the Treatment of Oral Mucosa Ulcers

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1. ^1H NMR Spectroscopy Characterization

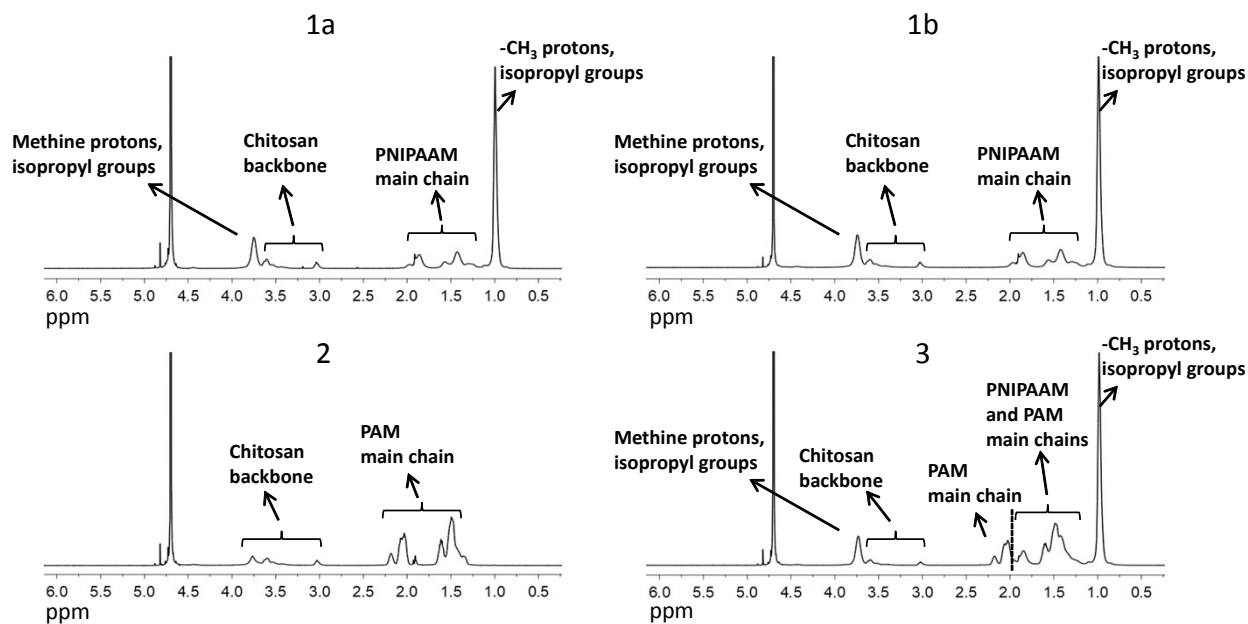


Figure S1. ^1H NMR spectra of the four chitosan-based conjugates, **1a** (CS-g-PNIPAAm with less PNIPAAm), **1b** (CS-g-PNIPAAm with more PNIPAAm), **2** (CS-g-PAM) and **3** (CS-g-PNIPAAm-g-PAM), respectively in D_2O containing DCl (0.10 M) at 25 $^\circ\text{C}$ (500 MHz).

2. Dynamic Rheological Characterization

2.1 Conjugate 1a (CS-g-PNIPAAM with less PNIPAAM)

Sample solution: 5 wt% in HOAc-NaOAc buffer, 0.1 M, pH 6.0

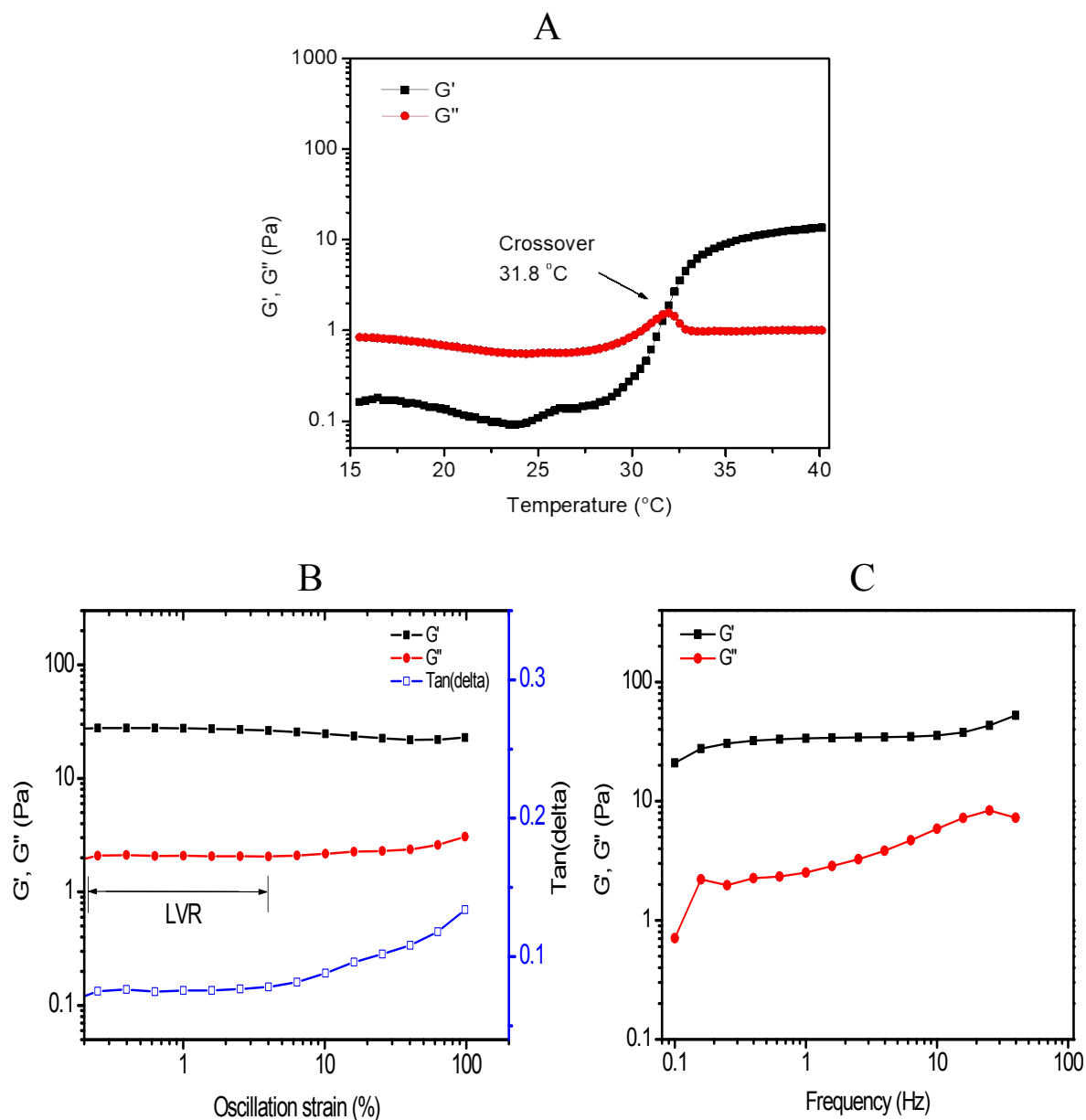


Figure S2. (A) Oscillatory temperature sweep measurement of thermogel **1a** showing the variations of G' and G'' as a function of temperature between 15 and 40 °C at a constant frequency of 1 Hz and strain of 1.0 %. (B) Oscillatory strain sweep measurement of thermogel **1a** showing the variations of G' , G'' and elasticity loss factor $\text{Tan}(\delta)$ as a function of strain amplitude between 0.2 % and 200 % under 37 °C at a constant frequency of 1 Hz. (C) Oscillatory frequency sweep measurement of thermogel **1a** showing the variations of G' and G'' as a function of frequency between 0.1 Hz and 100 Hz under 37 °C at a constant strain of 1 %.

2.2 Conjugate **1b** (CS-*g*-PNIPAAM with more PNIPAAM)

Sample solution: 5 wt% in HOAc-NaOAc buffer, 0.1 M, pH 6.0

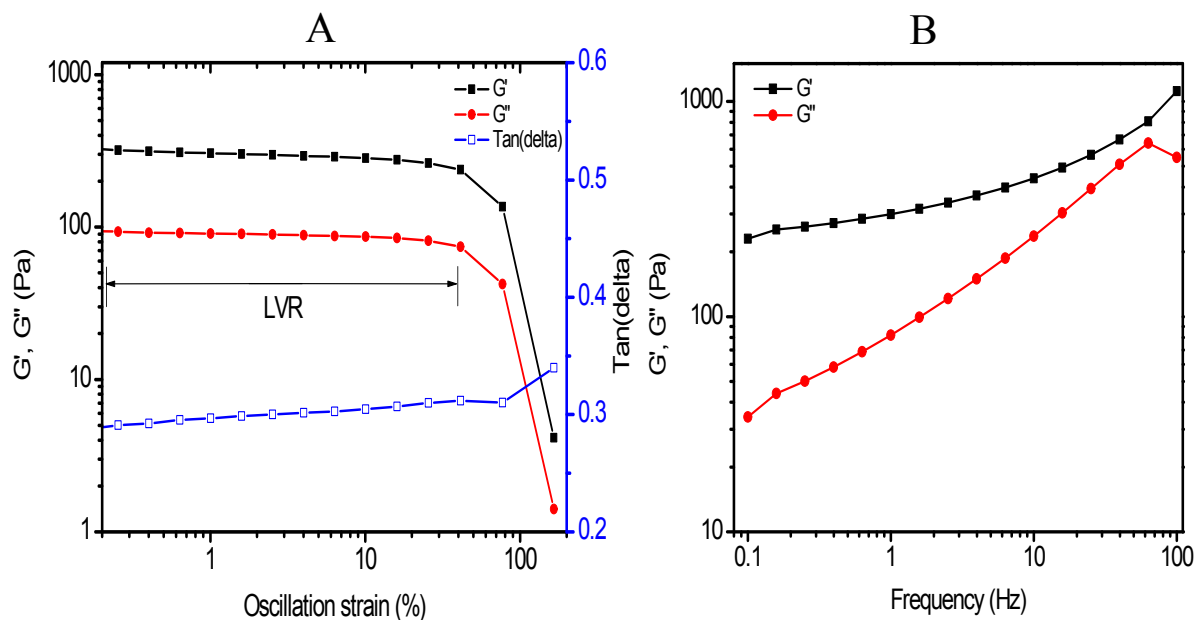


Figure S3. (A) Oscillatory strain sweep measurement of thermogel **1b** showing the variations of G' , G'' and elasticity loss factor Tan(delta) as a function of strain amplitude between 0.2 % and 200 % under 37 °C at a constant frequency of 1 Hz. (B) Oscillatory frequency sweep measurement of thermogel **1b** showing the variations of G' and G'' as a function of frequency between 0.1 Hz and 100 Hz under 37 °C at a constant strain of 1 %.

2.3 Conjugate 2 (CS-g-PAM)

Sample solution: 5 wt% in HOAc-NaOAc buffer, 0.1 M, pH 6.0

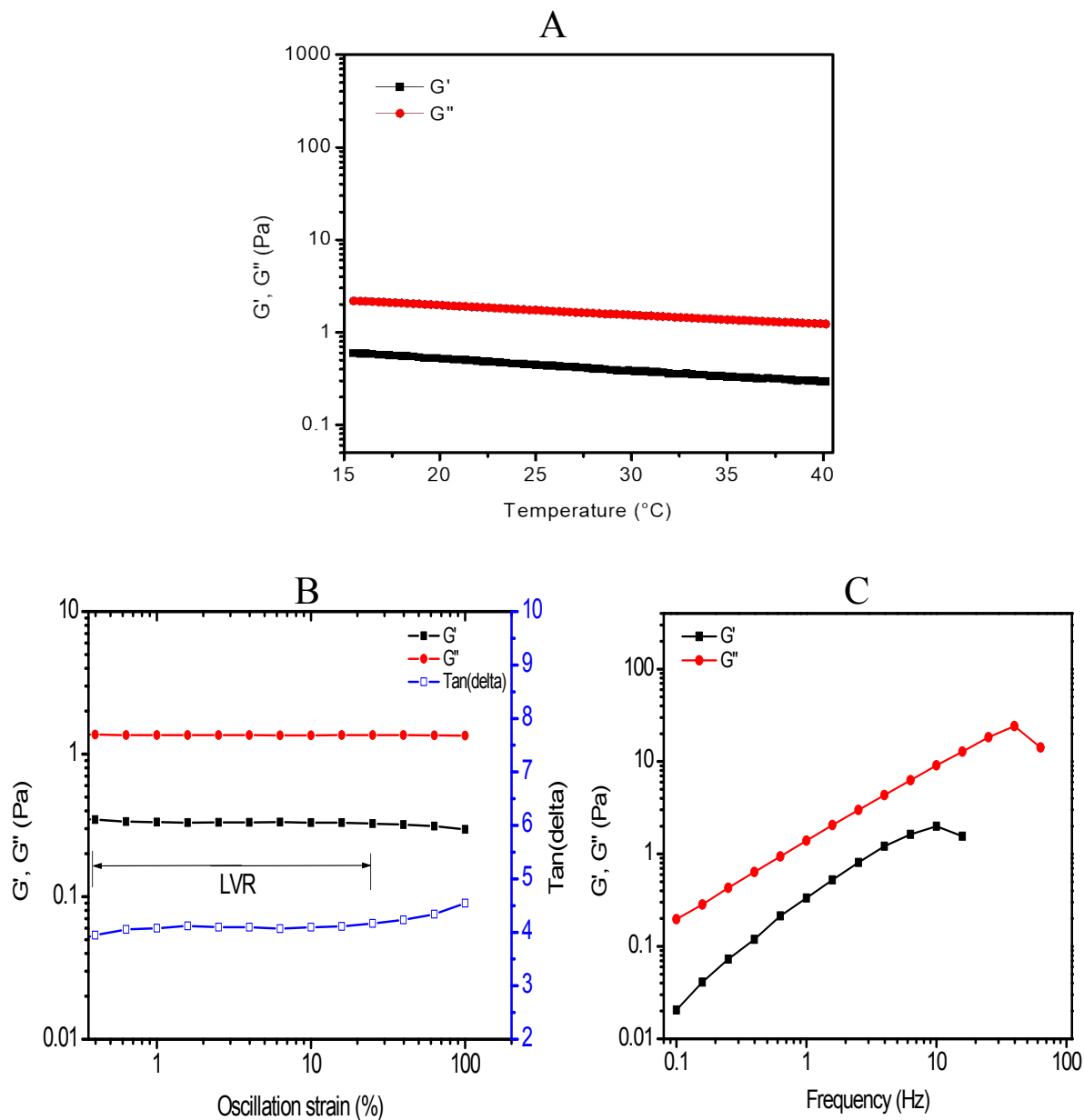


Figure S4. (A) Oscillatory temperature sweep measurement of conjugate 2 showing the variations of G' and G'' as a function of temperature between 15 and 40 °C at a constant frequency of 1 Hz and strain of 1.0 %. (B) Oscillatory strain sweep measurement of conjugate 2 showing the variations of G' , G'' and elasticity loss factor $\tan(\delta)$ as a function of strain amplitude between 0.2 % and 200 % under 37 °C at a constant frequency of 1 Hz. (C) Oscillatory frequency sweep measurement of conjugate 2 showing the variations of G' and G'' as a function of frequency between 0.1 Hz and 100 Hz under 37 °C at a constant strain of 1 %.

2.4 Conjugate 3 (CS-g-PNIPAAM-g-PAM)

Sample solution: 5 wt% in HOAc-NaOAc buffer, 0.1 M, pH 6.0

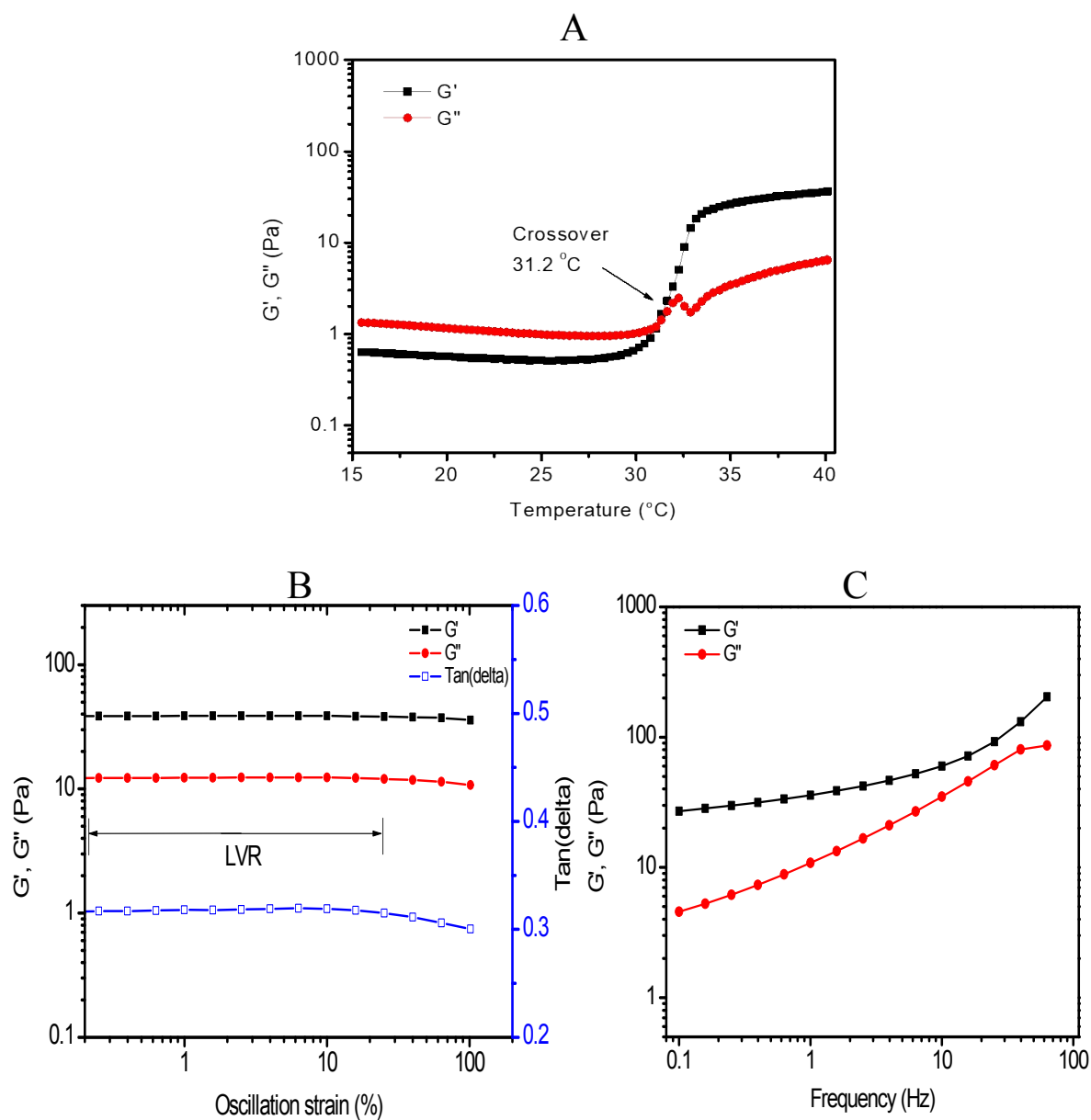
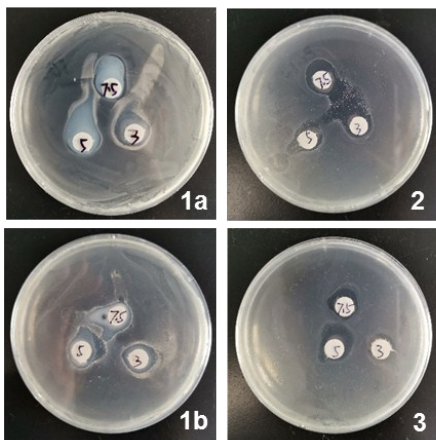


Figure S5. (A) Oscillatory temperature sweep measurement of thermogel **3** showing the variations of G' and G'' as a function of temperature between 15 and 40 °C at a constant frequency of 1 Hz and strain of 1.0 %. (B) Oscillatory strain sweep measurement of thermogel **3** showing the variations of G' , G'' and elasticity loss factor $\text{Tan}(\delta)$ as a function of strain amplitude between 0.2 % and 200 % under 37 °C at a constant frequency of 1 Hz. (C) Oscillatory frequency sweep measurement of thermogel **3** showing the variations of G' and G'' as a function of frequency between 0.1 Hz and 100 Hz under 37 °C at a constant strain of 1 %.

3. Antibacterial Activity

a.

Escherichia Coli



b.

Staphylococcus Aureus

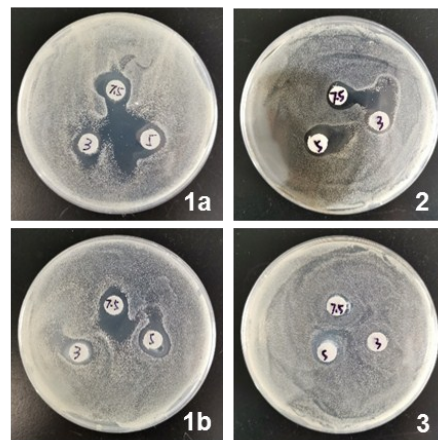


Figure S6. Plate antibacterial maps against *Escherichia coli* (a) and *Staphylococcus aureus* (b) at different thermogel concentrations after 16 h.