

Supplementary

Fast Gelation of Poly(ionic liquid)-Based Injectable Antibacterial Hydrogels

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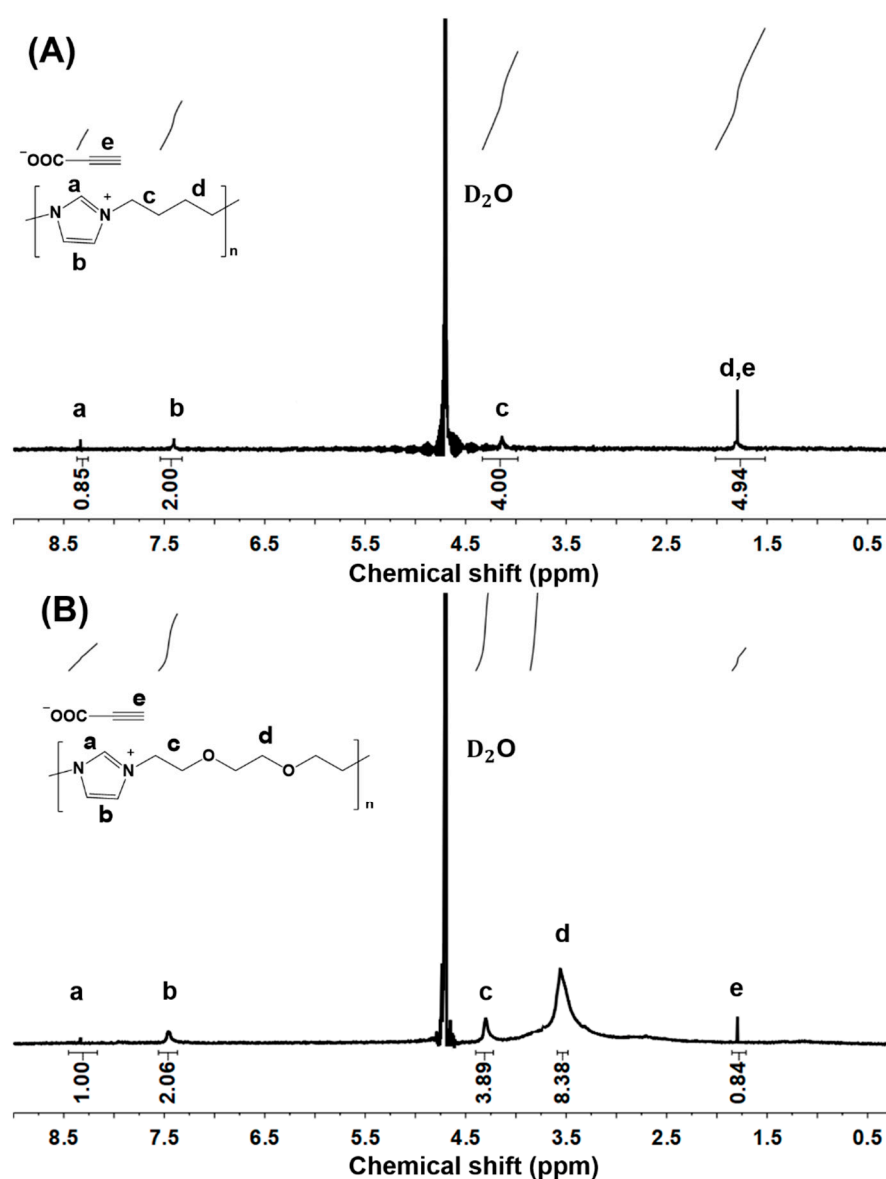


Figure S1. ^1H NMR (500 MHz, D_2O) of (A) PBP a 8.3 (d, $-\text{N}=\text{CH}=\text{CN}^+$), b 7.48 (d, $\text{N}-\text{CH}=\text{CH}-\text{N}^+$), c 4.25 (d, $\text{N}^+-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2$), d,e 1.74 (s, $\text{COOH}-\text{C}\equiv\text{CH}$), 1.75 (m, $\text{N}^+-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2$) and (B) PDP a 8.3 (d, $-\text{N}=\text{CH}=\text{CN}^+$), b 7.48 (d, $\text{N}-\text{CH}=\text{CH}-\text{N}^+$), c 4.25 (dd, $\text{N}^+-\text{CH}_2-\text{CH}_2-\text{O}$), d 3.55–3.75 (m, $\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_2$) and e 1.74 (s, $\text{COOH}-\text{C}\equiv\text{CH}$).

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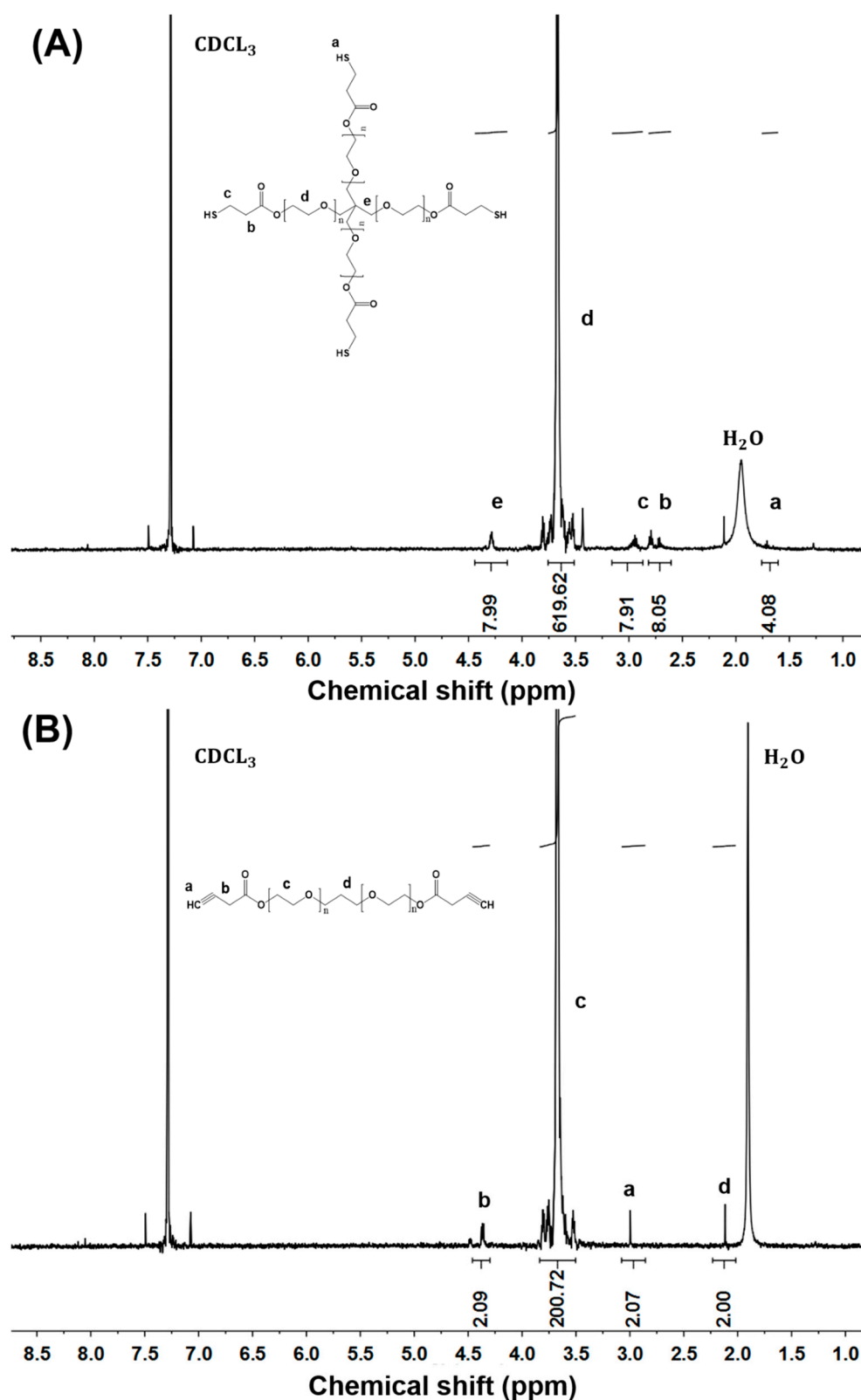


Figure S2. ^1H NMR (500 MHz, CDCl_3) of (A) 4 arm PEG-SH a 1.70 (s, S-H), b 2.66 (s, O=C-CH₂), c 2.85 (d, CH₂-SH), d 3.57–3.70 (m, CH₂-CH₂-O), e 4.26 (s, O-CH₂) and (B) PEG-Alkynyl a 1.12 (s, CH₂-CH₂-CH₂), b 3.01 (s, C≡CH), c 3.57–3.70 (m, CH₂-CH₂-O), d 4.26 (s, CH₂-C=O).

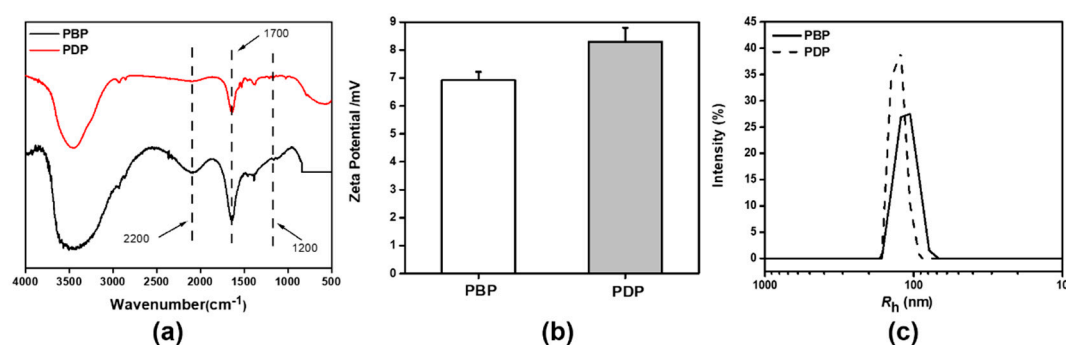


Figure S3. Characterization of poly(ionic liquids) (a) FTIR of PBP and PDP; (b) zeta potential of PBP and PDP and (c) nano particle size of PBP and PDP.

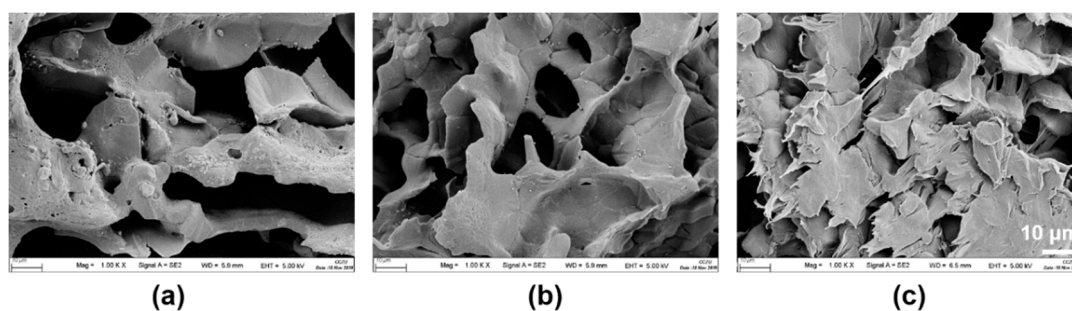


Figure S4. Surface morphology of (a) HN; (b) HB; (c) HD by FE-SEM; the scale bars are 10 μm .

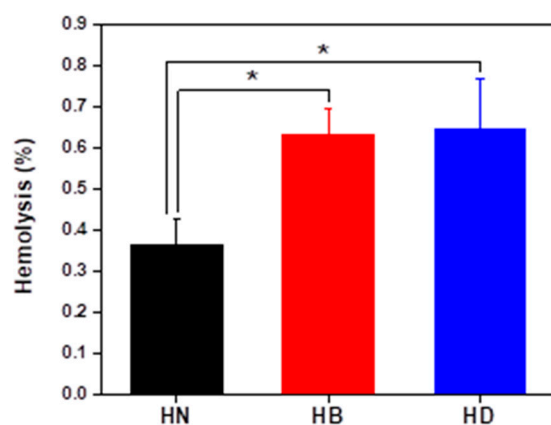


Figure S5. Hemolysis of hydrogels ($n = 4$, * means $P \leq 0.5$).

Table S1. Swelling characteristics and crosslinking density of injectable hydrogels in PBS (pH = 7.4) at 37 $^{\circ}\text{C}$.

Samples	Swelling Ration (%)	Crosslinking Density (mol/cm ³)
HN	754	0.13
HB	421	0.41
HD	373	0.52

Table S2. Antibacterial and cell viability of PBP and PDP.

Samples	MIC ($\mu\text{g/mL}$)		Cell Viability (%)
	<i>E. coli</i>	<i>S. aureus</i>	
PBP	250	125	90.2
PDP	62.5	25	91.3