

## Supplementary information

### A hybrid hydrogel composed of chitin and $\beta$ -glucan for effectively management of wound healing and scarring

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# Equal contribution

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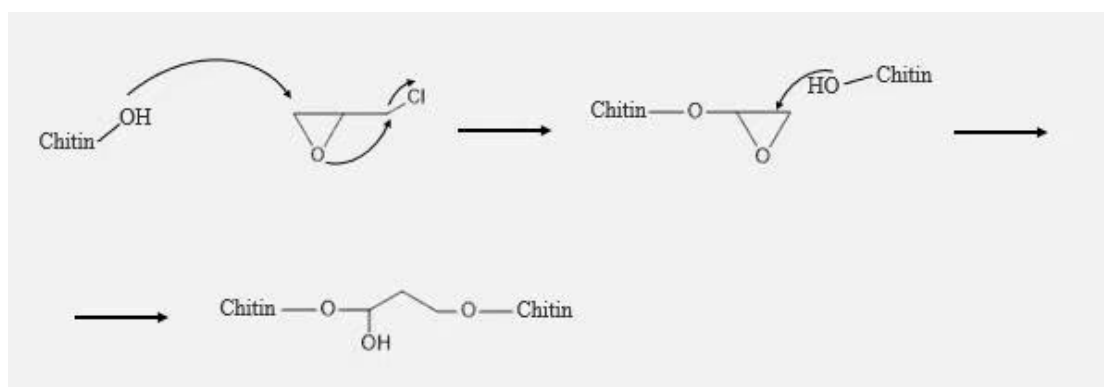


Figure S1. The reaction scheme between epichlorohydrin and chitin.

Table S1. Formulation optimization for Chitin hydrogel

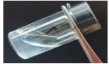







Concentration of Chitin (w/w)	ECH ( $\mu\text{L}$ )	Gelation state	
1%	20	No	
1%	40	No	
1%	80	No	
1.5%	5	No	
1.5%	10	No	
1.5%	20	Yes	
1.5%	40	Yes	
1.5%	80	yes	

Table S2. Formulation optimization for  $\beta$ -glucan hydrogel

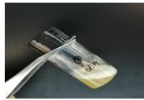


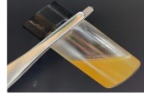

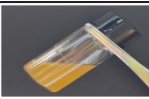
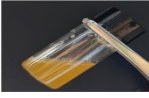
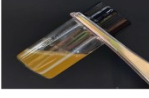
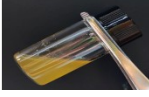




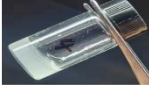
Concentration of $\beta$ -glucan (w/w)	ECH ( $\mu$ L)	Gelation state	
1%	20	no	
3%	20	no	
6%	5	no	
6%	10	no	
6%	20	yes	

Table S3. Formulation optimization for hybrid hydrogel

The volume of 1.5% Chitin (mL)	The volume of 6% $\beta$ -glucan (mL)	ECH ( $\mu$ L)	Gelation state	
0.1	0.9	20	no	
0.2	0.8	20	no	
0.3	0.7	20	no	
0.4	0.6	20	no	
0.5	0.5	20	no	
0.6	0.4	20	no	
0.7	0.3	20	no	
0.8	0.2	20	yes	
0.9	0.1	20	yes	

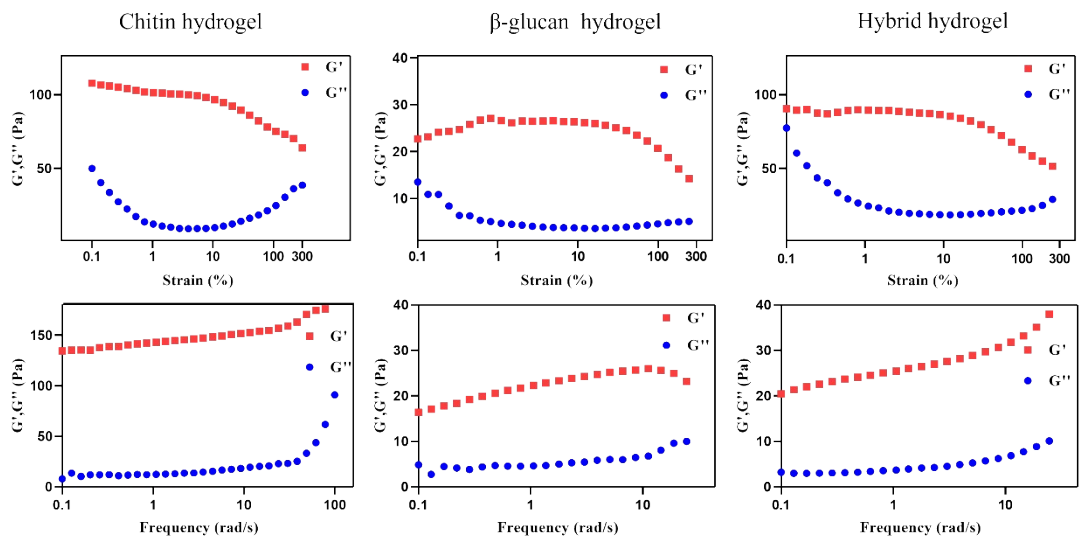


Figure S2. Rheological properties of the three hydrogels.

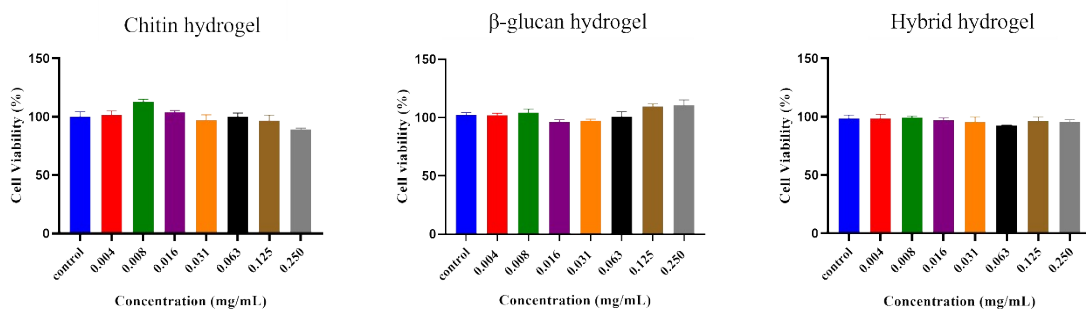


Figure S3. Cytotoxicity of the three hydrogels.