

Figure S1. Photographs of the QCMCS/OSA/TA/STB hydrogel.

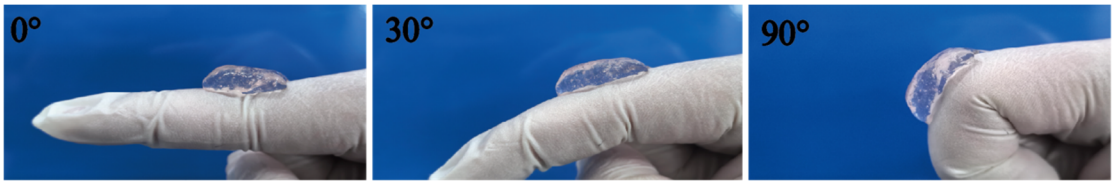


Figure S2. Adaptation of QCMCS/OSA/TA/STB hydrogel to finger bending at 0°,60°, and 90°.

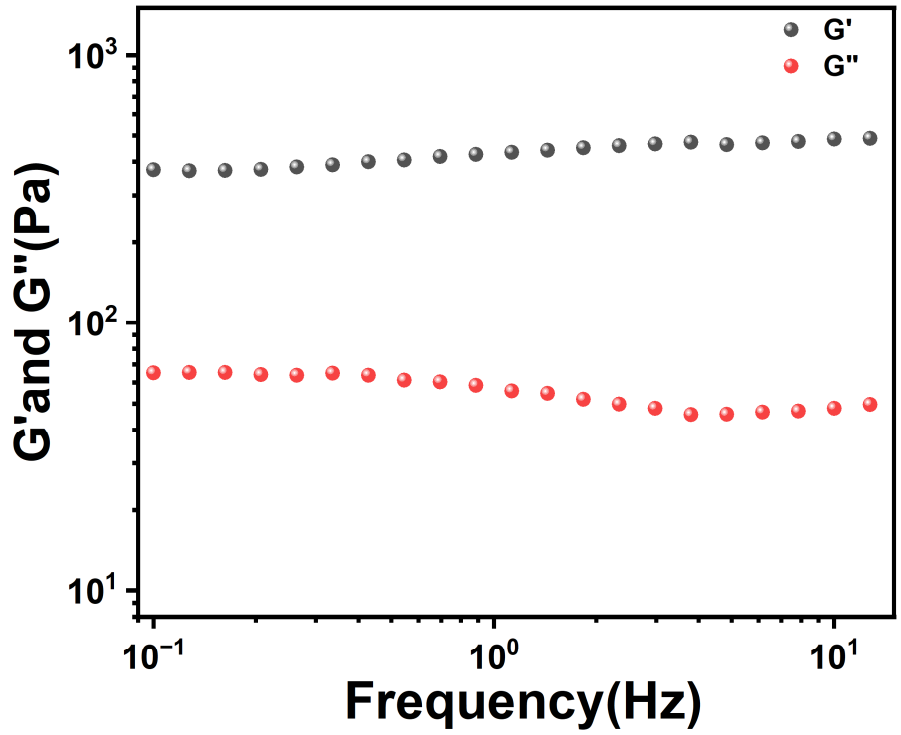


Figure S3. Frequency sweep measurement of QCMCS/OSA/TA/STB hydrogels (fixed at 1% strain).

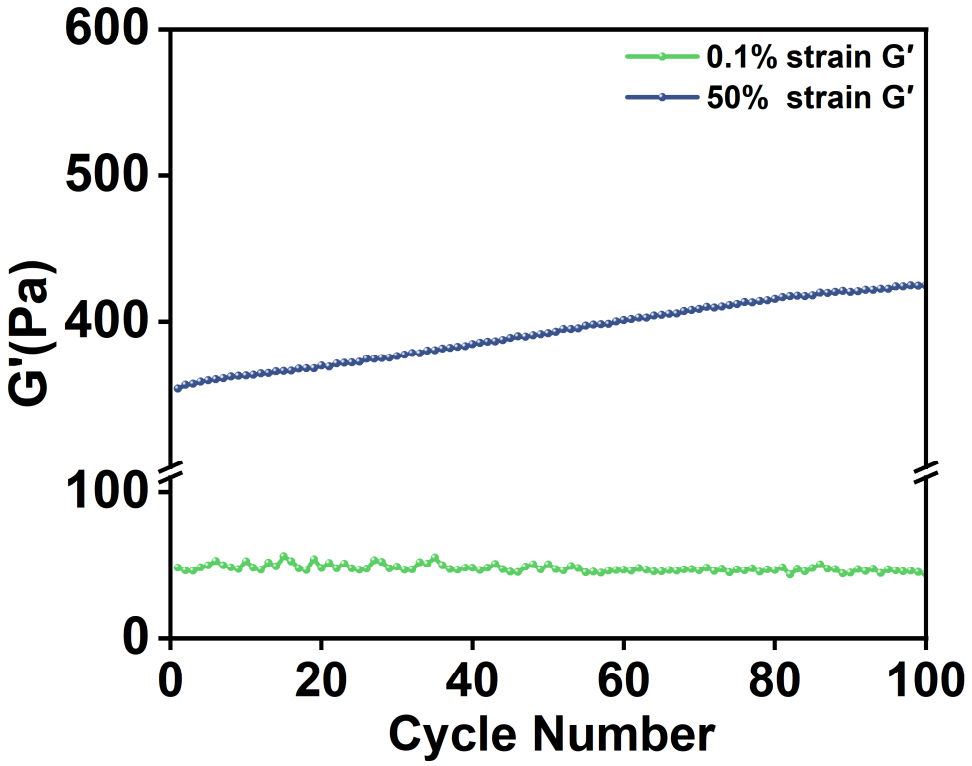


Figure S4. Storage modulus variation of QCMCS/OSA/TA/STB hydrogels during cyclic loading at 0.1% and 50% strains.

Table S1. Kinetic parameters obtained through fitting to various mathematical kinetic models of TA release profile in different pH at 37 ℃.

pH	Kinetic models								
	Zero order		First order		Higuchi order		Korsmeyer−Peppas model		
	R^2	k	R^2	k	R^2	k	R^2	k	n
5	0.56	0.14	0.59	0.01	0.75	1.98	0.96	4.47	0.27
5.5	0.57	0.15	0.57	0.01	0.77	2.13	0.95	4.63	0.28
6	0.52	0.18	0.52	0.01	0.70	2.67	0.95	6.35	0.26
6.5	0.60	0.27	0.64	0.01	0.78	3.73	0.97	8.12	0.28
7	0.61	0.34	0.63	0.01	0.80	4.60	0.97	9.71	0.29
7.5	0.61	0.43	0.59	0.01	0.82	5.64	0.94	11.10	0.31
8	0.47	0.42	0.50	0.01	0.63	6.54	0.94	16.78	0.34

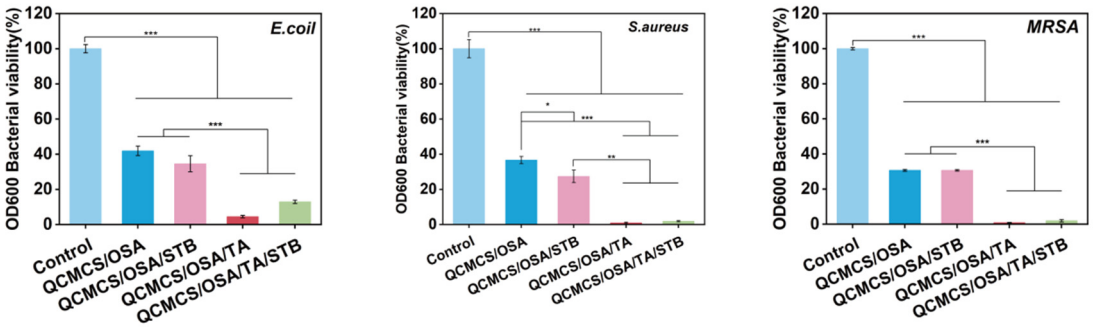


Figure S5. The OD value at 600 nm of *E.coli* (a), *S.aureus* (b) and MRSA (c) after co-culture with different sample. mean ± SD, n = 3, *p < 0.05,**p < 0.01,***p < 0.001.