Electronic Supplementary Information

An Adhesion-Switchable Hydrogel Dressing for Painless Dressing Removal without Secondary Damage

Zhiling Yu,[a, b] Weiqiang Huang,[b] Fei Wang,[c] Xuan Nie,[b] Guang Chen,[b] Lei Zhang,[a] Ai-Zong Shen,[a, *] Ze Zhang,[b, *] Chang-Hui Wang,[d, *] Ye-Zi You[a, b, *]

[a] Department of Pharmacy, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, Anhui, 230026, China

[b] Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei, Anhui, 230026, China

[c] Department of Neurosurgical, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, Anhui, 230026, P. R. China

[d] Department of Cardiology, The First Affiliated Hospital of Anhui Medical University, Hefei, Anhui 230022, P. R. China.

Sample	QCS (wt%)	NIPAm (wt%)	AAm (wt%)	TA (wt%)	PEGDA (wt%)	2959 (wt%)
P(AAm-co-NIPAm)	0	18	3	0	0.4	0.2
P(AAm-co-NIPAm)/QCS/TA_0	3	18	3	0	0.4	0.2
P(AAm-Co-NIPAm)/QCS/$TA_{0.1}$	3	18	3	0.1	0.4	0.2
P(AAm-Co-NIPAm)/QCS/$TA_{0.2}$	3	18	3	0.2	0.4	0.2
P(AAm-Co-NIPAm)/QCS/$TA_{0.4}$	3	18	3	0.4	0.4	0.2
P(AAm-Co-NIPAm)/QCS/$TA_{0.5}$	3	18	3	0.5	0.4	0.2

Fig. S1 The weight fraction of each component in the hydrogel.

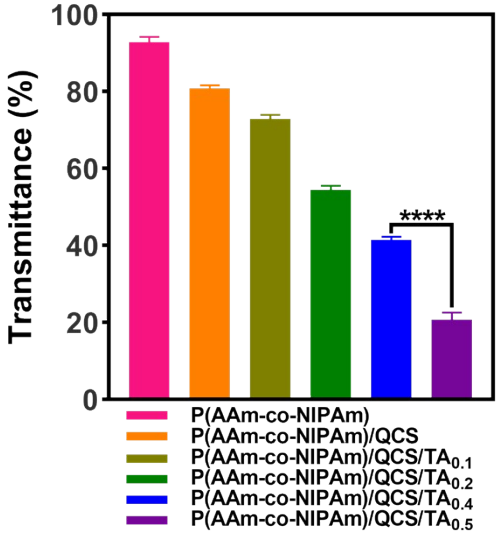

Fig. S2 The transmittance of the hydrogels. Transmittance captured at 400 nm wavelength by UV-Vis spectrometer.

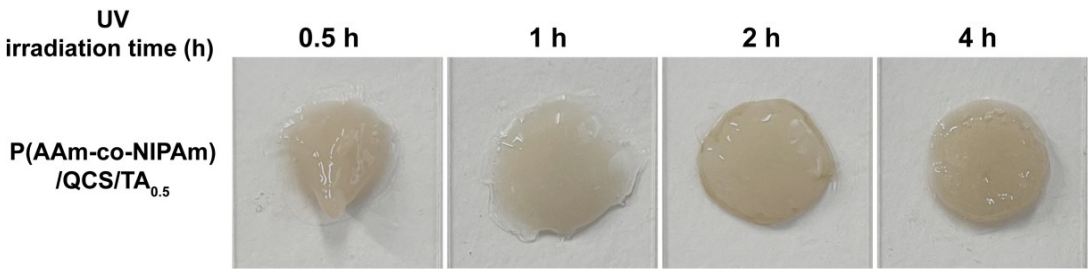

Fig. S3 The UV light irradiation time of the P(AAm-co-NIPAm)/QCS/$TA_{0.5}$ hydrogel.

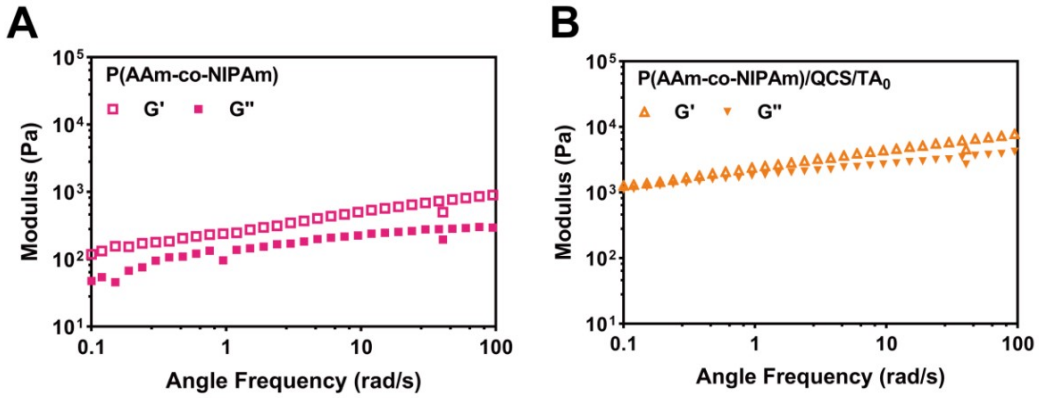

Fig. S4 (A) Frequency dependency of the storage (G') and loss (G") moduli of the P(AAm-co-NIPAm) hydrogel. (B) Frequency dependency of the storage (G') and loss (G") moduli of the P(AAm-co-NIPAm)/QCS/TA_0 hydrogel.

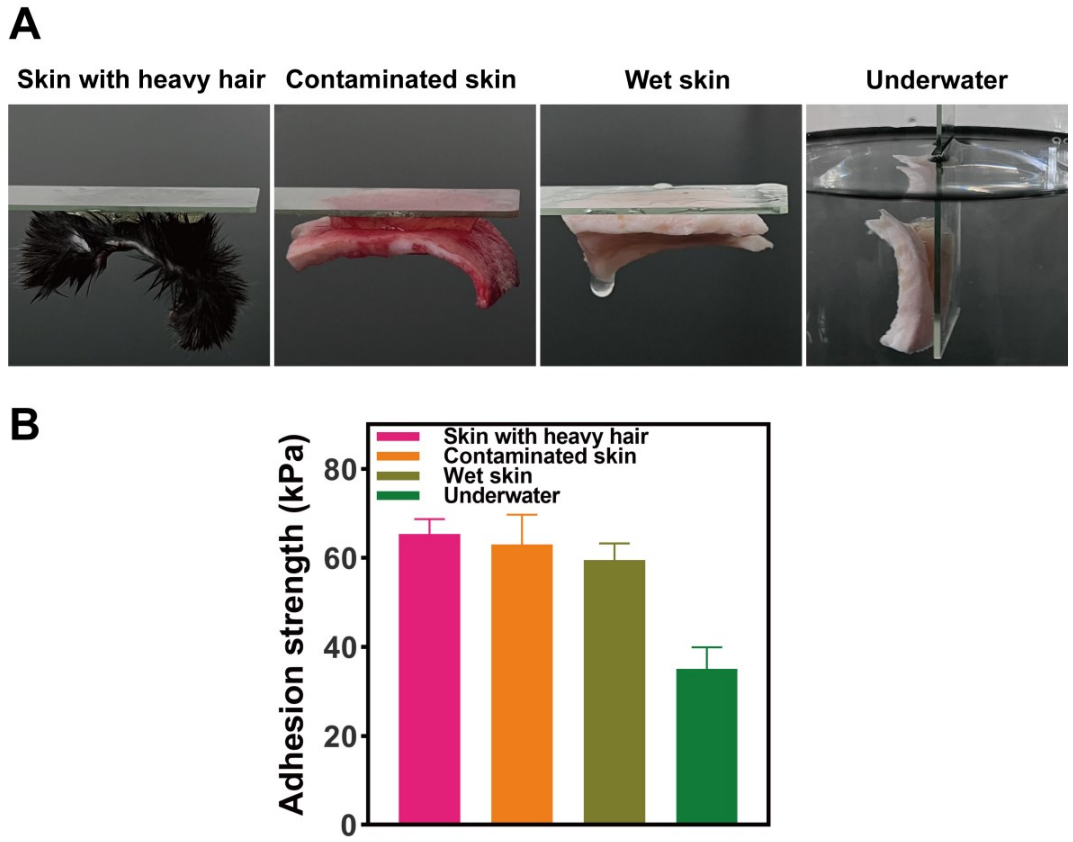

Fig. S5 (A) Photographs of the P(AAm-co-NIPAm)/QCS/$TA_{0.4}$ hydrogel adhered to different complex biological substrates (B) Adhesion strength of the P(AAm-co-NIPAm)/QCS/$TA_{0.4}$ hydrogel on different substrates.

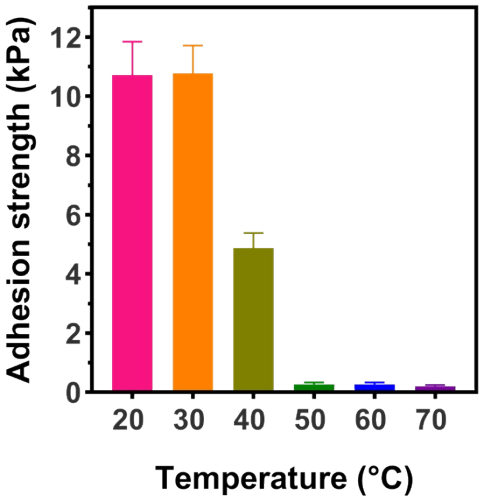

Fig. S6 The relationship between the temperature and adhesion strength of the P(AAm-co-NIPAm)/QCS/$TA_{0.4}$ hydrogel.

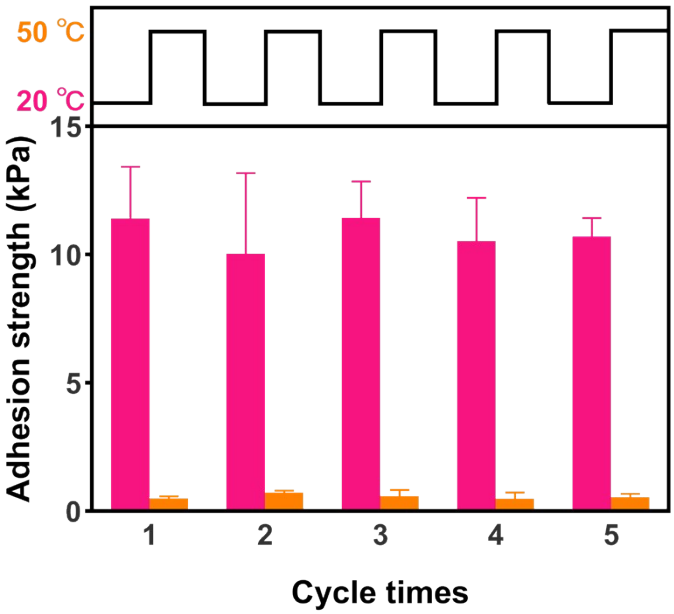

Fig. S7 Thermo-responsive switchable adhesion cycles of the P(AAm-co-NIPAm)/QCS/$TA_{0.4}$ hydrogel at low and high temperature.

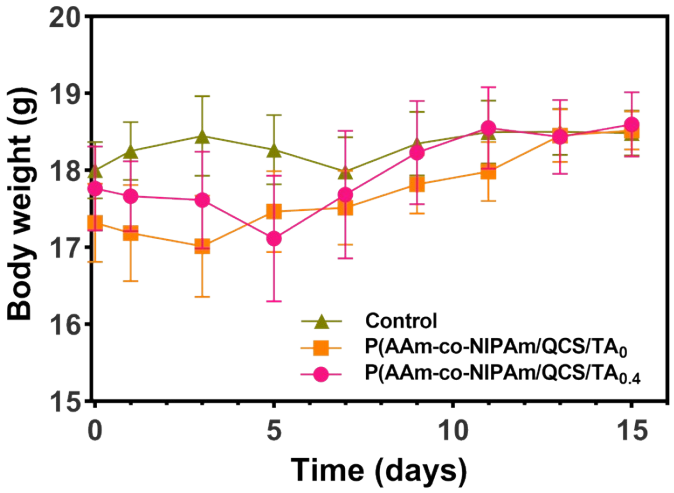

Fig. S8 Body weight tracking of mice from different treatment groups.