Body-temperature responsive hydrogel adhesive for active wound closure

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Table S1 Formulations for the preparation of P(PTHF-*co*-PEG-*co*-PETMP) polymers

Sample	PTHFDA (A)		PEGDA (B)		PETME (C)		DMPA (D)		CHCl$_3$
	mg	mmol	mg	mmol	mg	mmol	mg	mmol	ml

TRP-1	220.2	0.08	881.5	0.22	90.3	0.19	11.1	0.04	2.2
TRP-2	552.2	0.19	550.9	0.14	90.4	0.19	11.1	0.04	2.2
TRP-3	752.2	0.26	350.4	0.09	90.1	0.18	11.1	0.04	2.2
TRP-4	881.4	0.30	220.0	0.06	90.1	0.18	11.0	0.04	2.2

Table S2 The information of the DSC data of the polymer networks and the macromonomers

Samples	PTHF phase			PEG phase		
	T_c	T_m	ΔH_m	T_c	T_m	ΔH_m
	(^{o} C)	(^{o} C)	(J/g)	(^{o} C)	(^{o} C)	(J/g)
PTHFDA	5.5	27.0	90.4	--	--	--
TRP-1	*	*	*	25.0	49.9	72.2
TRP-2	-22.8	11.0	12.7	25.7	47.6	40.4
TRP-3	-10.4	18.7	24.8	*	37.9	16.8
TRP-4	-5.2	20.0	46.2	*	*	3.6
PEGDA	--	--	--	39.7	57.0	165.0

* The T_c or T_m was not clearly observed on the DSC curve.

Table S3 Strain values of different polymers obtained from DMA curves

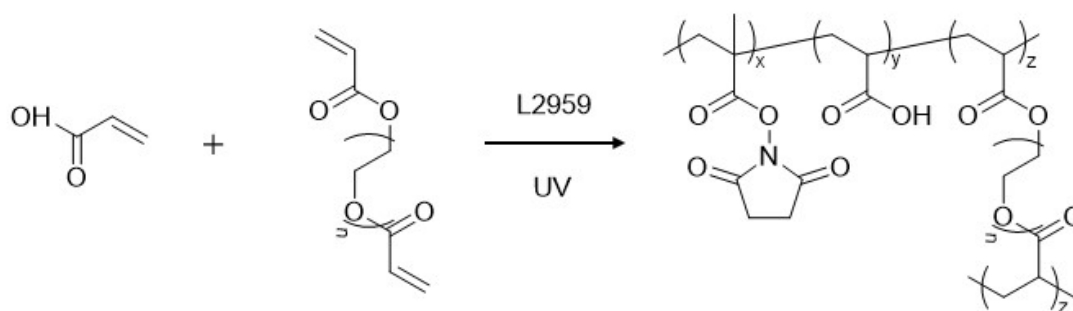| Sample	ε_{max} (%)	ε (%)	$\varepsilon_{residue}$ (%)	R_f(%)	R_r(%)
TRP-1	0.56	0.34	-1.02	60.71	-1.02
TRP-2	1.67	1.05	0.34	62.87	42.51
TRP-3	85.23	82.14	8.03	96.37	86.95
TRP-4	88.22	86.31	6.13	97.83	90.88

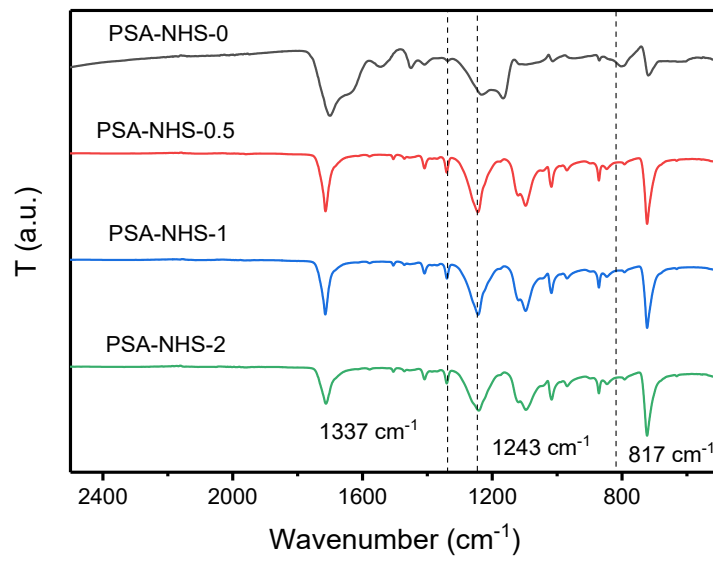Figure S1 Reaction equation for the preparation of PSA-NHS hydrogels.

Figure S2 The FTIR spectra of PSA-NHS hydrogels with different NHS ester concentrations.
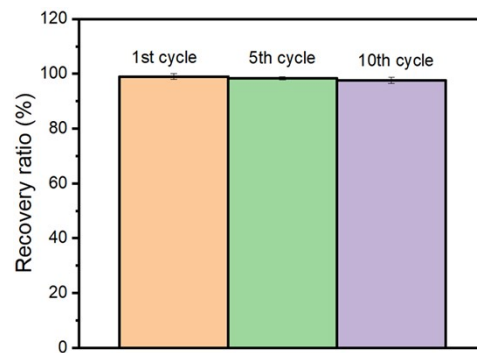

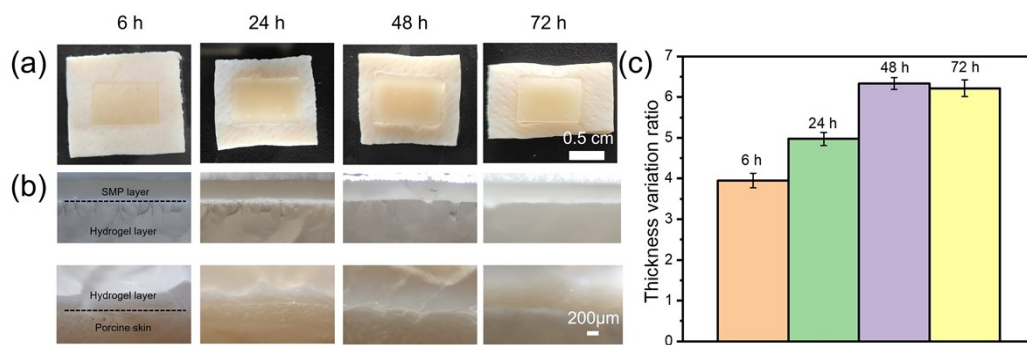Figure S3 The recovery ratio after various shape memory cycles.

Figure S4 (a) The top view and sided view of TRAT adhesion to porcine skin after soaking in PBS for various times, and corresponding thickness variation ratio (c).
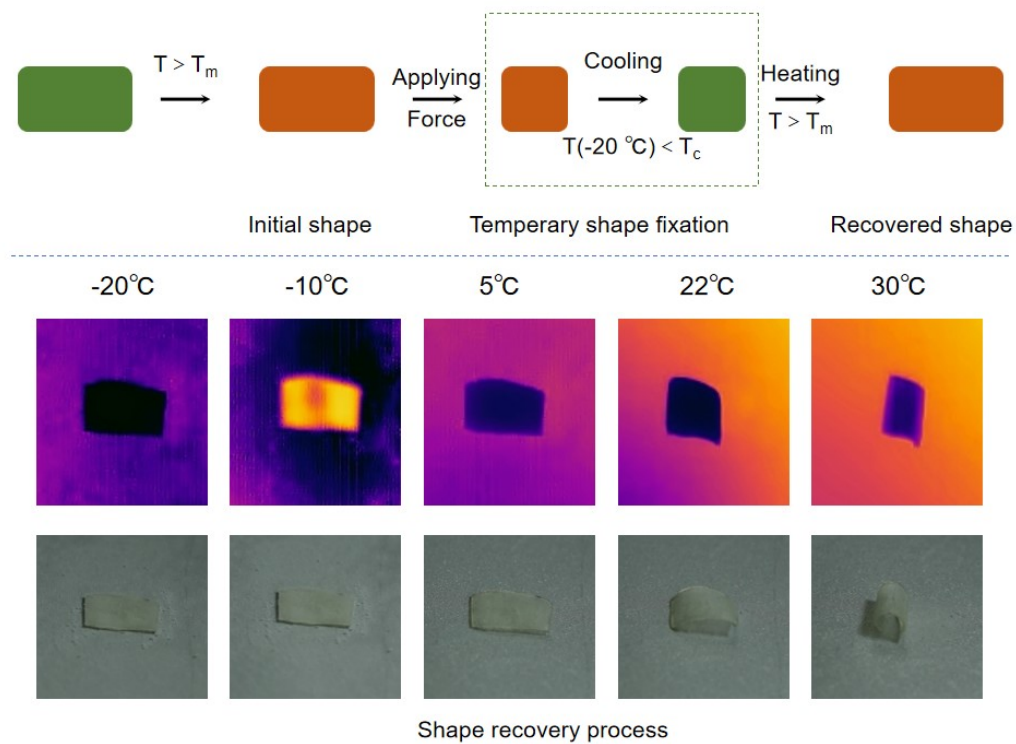
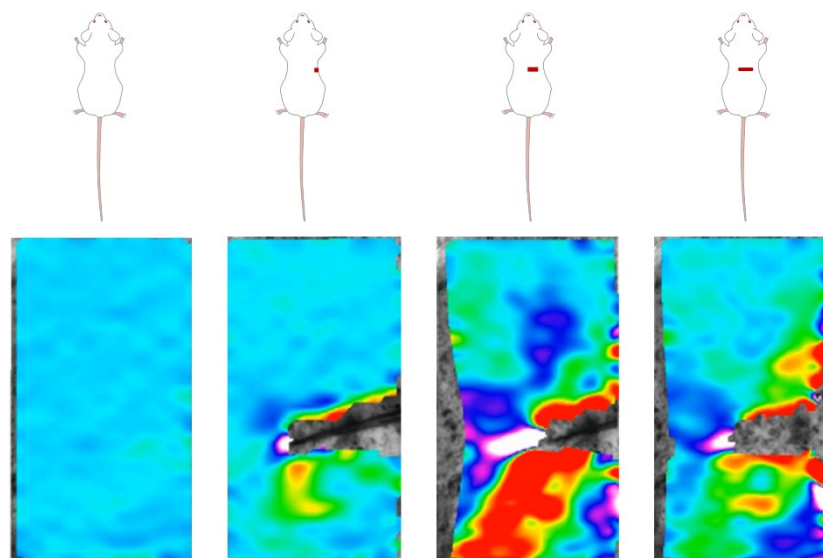Figure S5 The shape recovery of TRAP responding to increasing temperature.

Figure S6 The strain distribution image during scratching a rat's back skin.
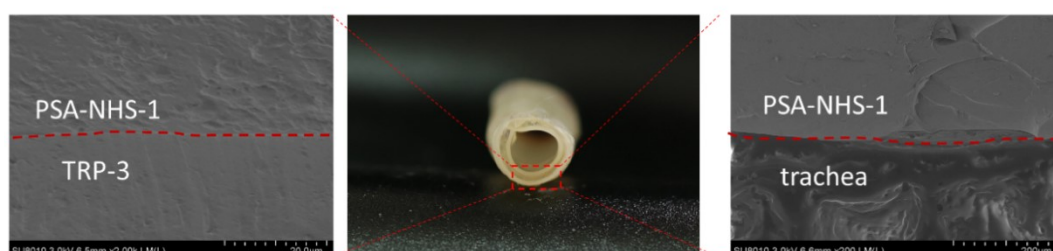

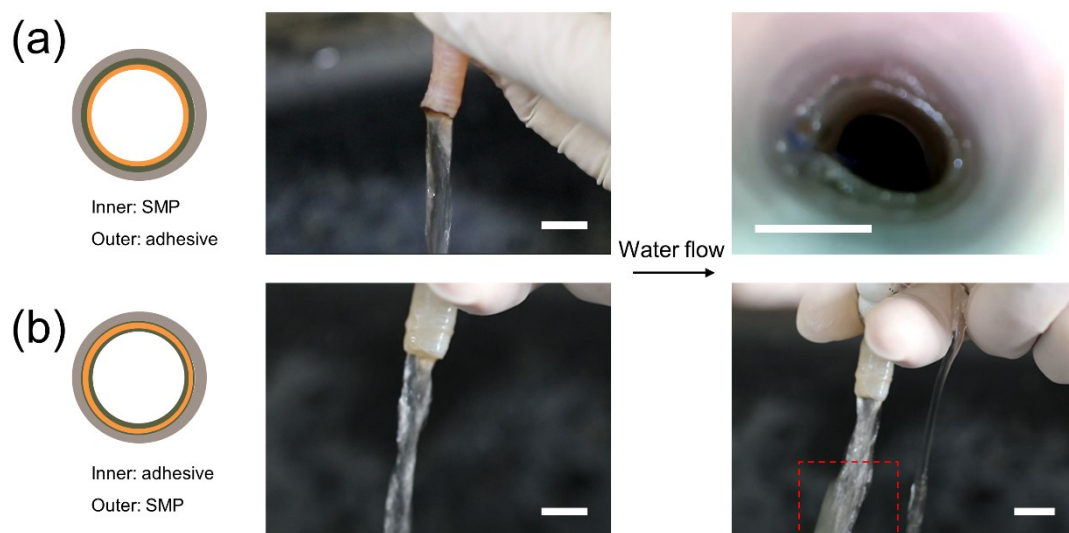Figure S7 The SEM images after implantation of TRAT to bronchia.

Figure S8 (a) TRAT still adhesion to inter wall even after water flowing while (b) the inverse TRAT was brought out by the water flow. Scale bar: 1 cm.
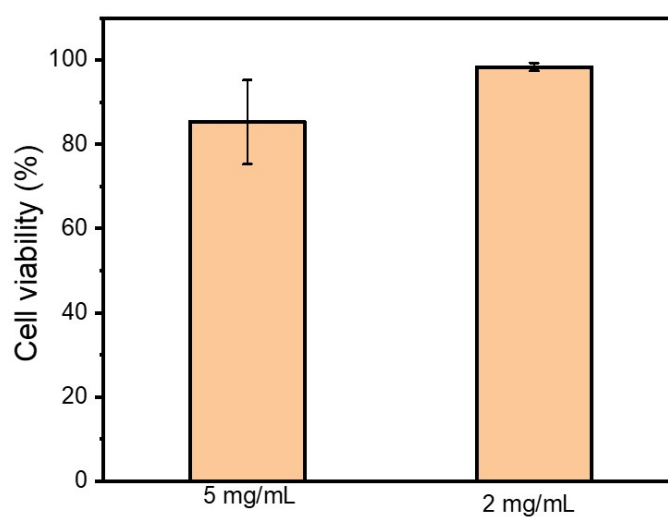

Figure S9 The cell viability of TRAT.