Robust conductive organohydrogel with adhesive and low-hysteresis for all-weather human motion and wireless electrocardiogram sensing

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Table S1 The detailed compositions of OH-PLT

Samples	AM(g)	LiCl(g)	TA(g)	MBAA(g)	APS(g)	Glycerol(g)	H_2O(g)
H-PAM	4	0	0	0.0217	0.0514	0	20
OH-PAM	4	0	0	0.0217	0.0514	10	10
OH-$PL_{0.5}$	4	0.5	0	0.0217	0.0514	10	10
OH-PL_1	4	1	0	0.0217	0.0514	10	10
OH-PL_2	4	2	0	0.0217	0.0514	10	10
OH-PL_3	4	3	0	0.0217	0.0514	10	10
OH-$PT_{0.8}$	4	0	0.8	0.0217	0.0514	10	10
OH-$PL_2T_{0.8}$	4	2	0.8	0.0217	0.0514	10	10

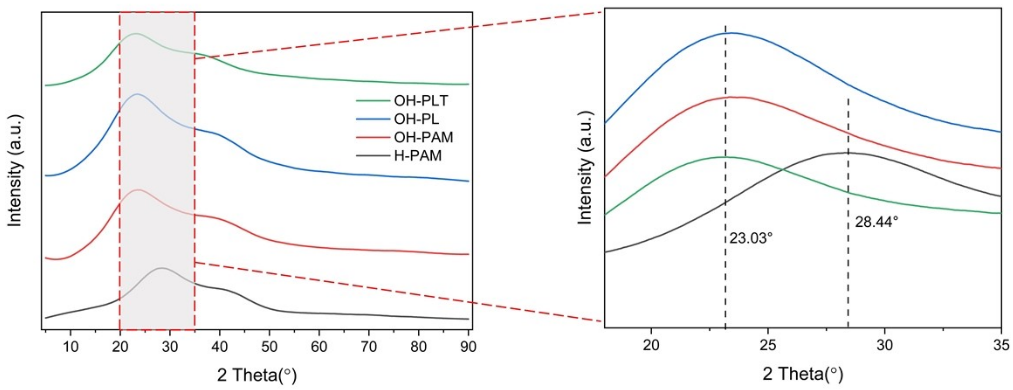

Figure S1. XRD patterns of OH-PLT.

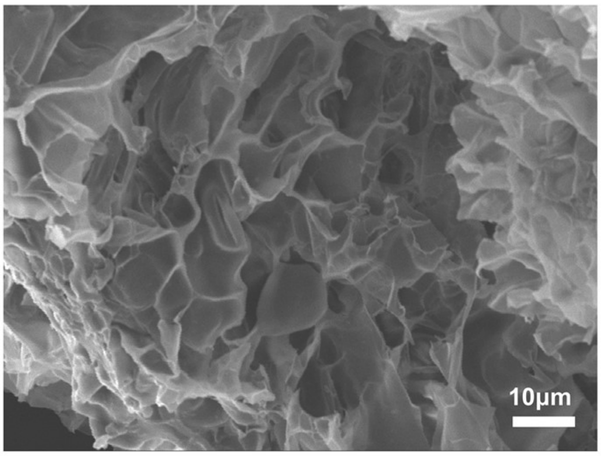

Figure S2. SEM image of OH-PLT.

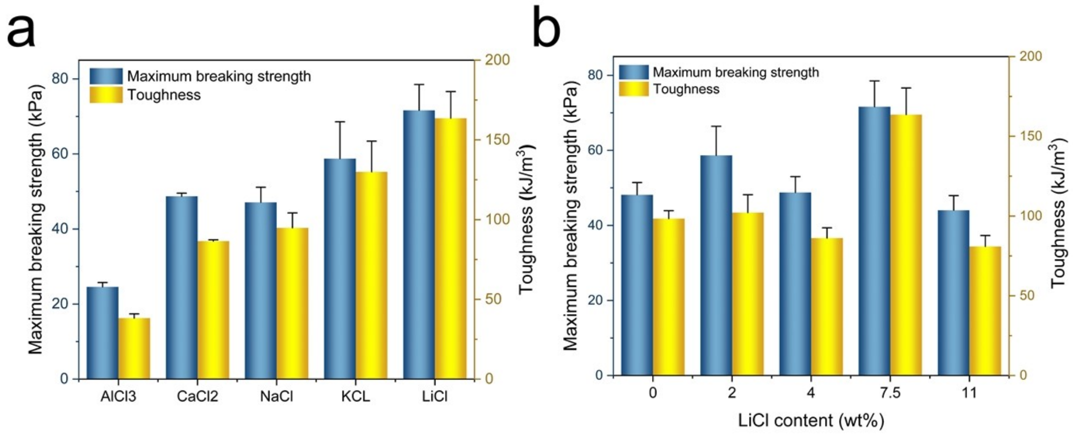

Figure S3 (a) Mechanical properties of different ions (7.5wt%) and (b) different contents of LiCl.

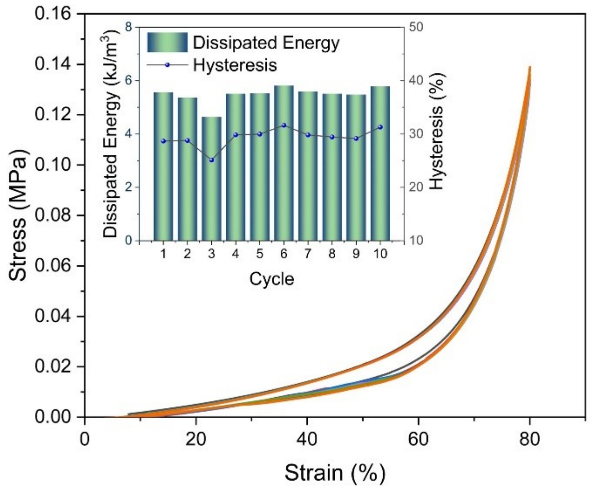

Figure S4 for 10 cycles at 80% compression (Insert diagram showing energy dissipation and hysteresis).

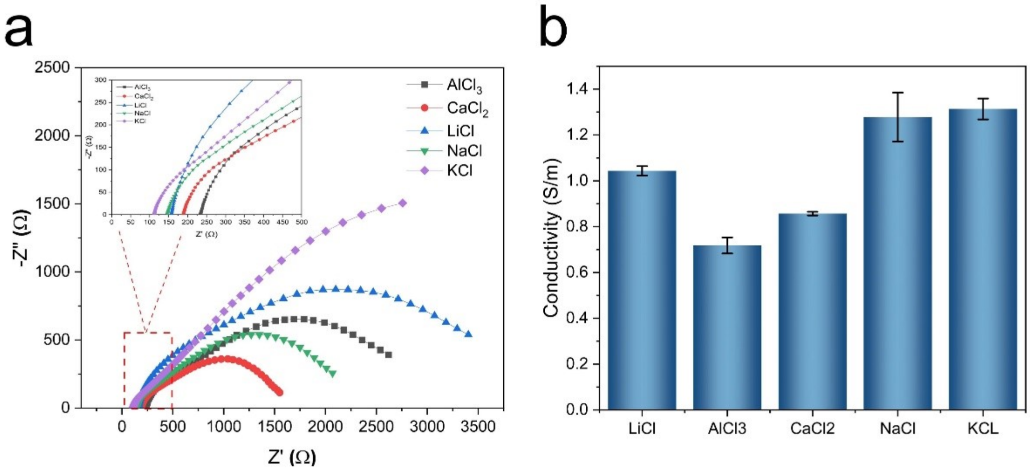

Figure S5 (a) impedance spectra (EIS) and (b) conductivity of different ions (7.5wt%)

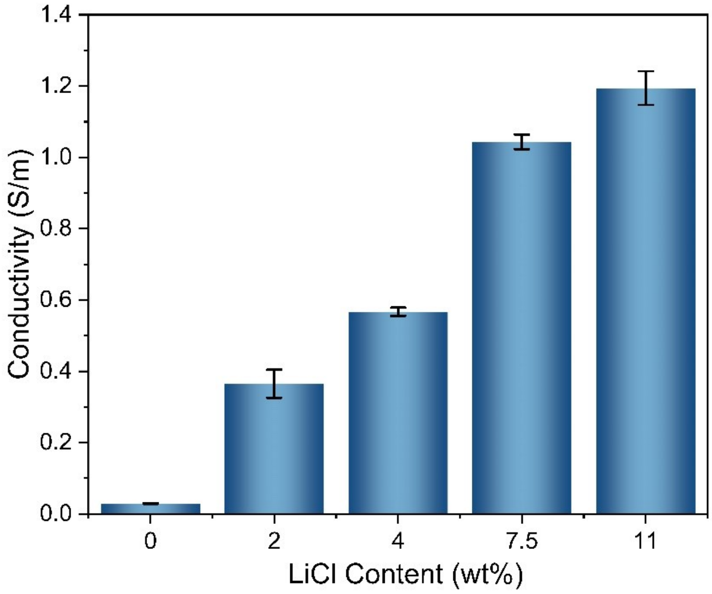

Figure S6**.** Conductivity of hydrogels with different lithium chloride content.

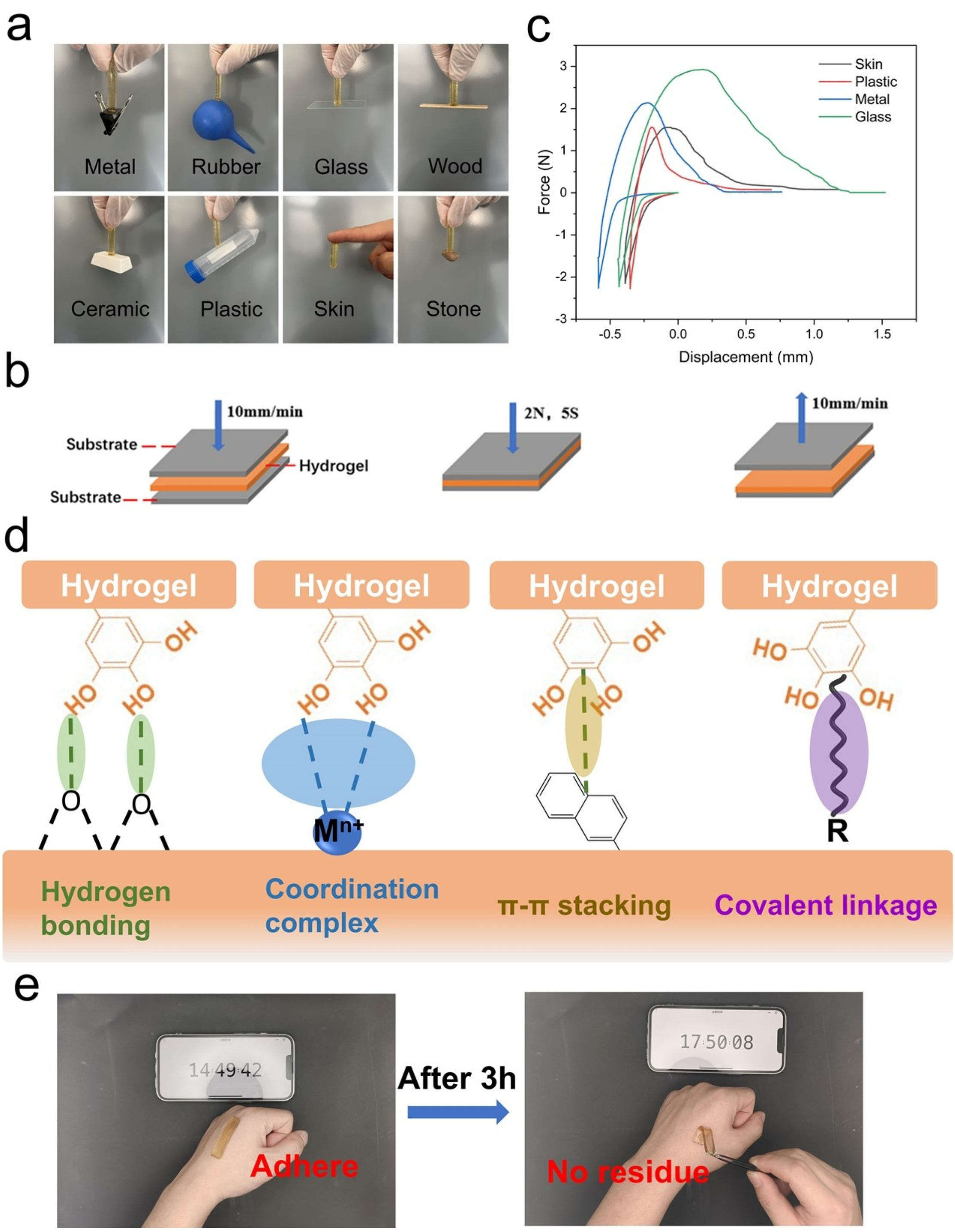

Figure S7 (a) Photographs of the OH-PLT gels adhering to different substrates. (b) Schematic diagram for adhesion test. (c) Adhesion curves of the gel on pigskin, plastic, metal and glass surfaces. (d) Schematic adhesion mechanisms of the OH-PLT hydrogels. (e) The hydrogel was adhered on the skin. Peeling off after 3 h, no residue or irritation on the skin was found.

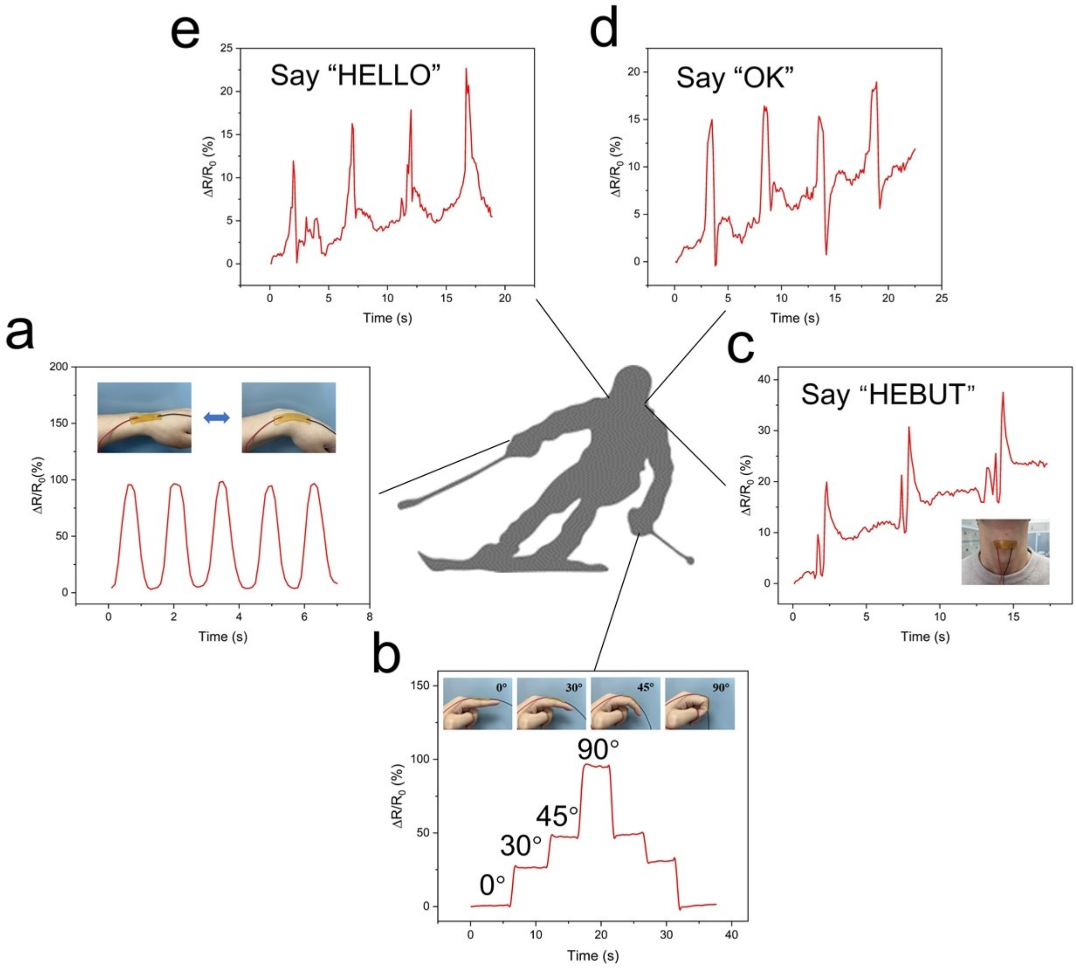

Figure S8 OH-PLT hydrogel sensors were used to monitor the movement of different parts of the body (a) wrist, (b) finger flex stay; and the pronunciation of different phrases (c) “HEBUT”, (d) “OK”, (e) “Hello”.

Table S2 Comparisons of OH-PLT hydrogels with those reported conductive hydrogels in terms of thickness, transparency, and UV-blocking, respectively.

Hydrogels	Thickness (mm)	Transparency (%)	UV-blocking (%)	Refs.
OH-PLT	**1**	**81.05**	**98.7**	**This work**
LSN-Fe/PAM	1.5	76.9	95.1	1
Ca^{2+}-TA@SL-PAM	3	72	80	2
Ls-Cu@WG-PHEAA	2	50	99	3
Fe-SL-g-PAA	2	81	97	4
PVA-Gp-TA-$CaCl_2$	1	60	90	5
TA@HAPNWs-PVA(W/EG)	1.5	60	96.4	6
SL-Ca^{2+}/PAM	2	20	95.1	7
PVA/LNP-$AlCl_3$(W/EG)	3	74	95	8
PAA/LS/Alg/Ca	3	40	97	9
CNC@Ls-Ag-PAM	1.8	30	100	10
TA-PVA/CNFs/α-ZrP	2	55	99	11
PVA/Gel/TA@CNC –Al^{3+}	3	80	60	12

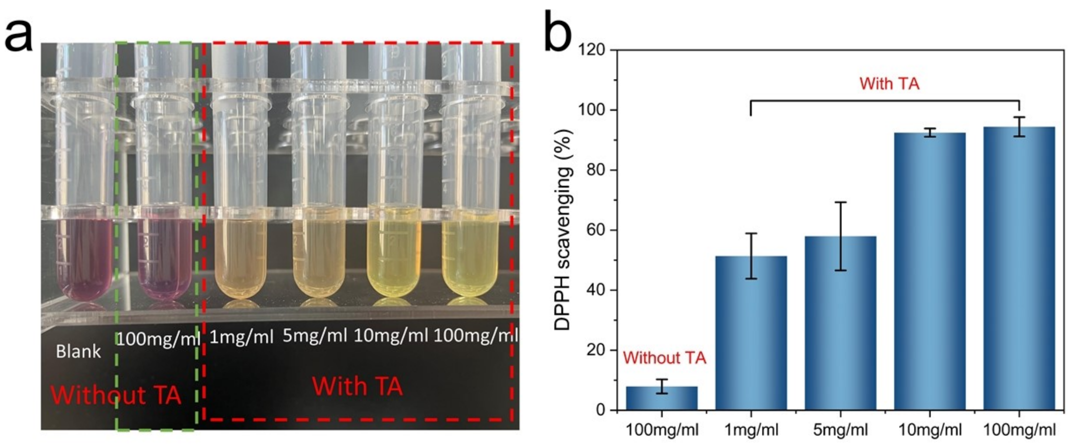

Figure S9 (a) Photographs of OH-PLT hydrogels at different concentrations after scavenging DPPH radicals. (b) DPPH-free radical scavenging rate of the OH-PLT hydrogel with different concentrations.

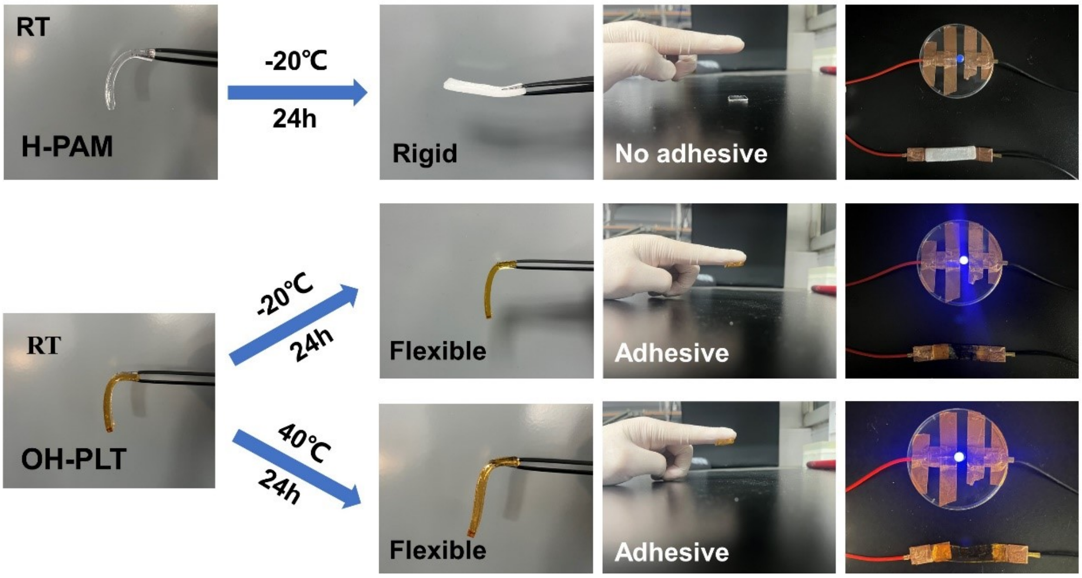

Figure S10 Photographs of H-PAM and OH-PLT hydrogels at different temperatures.

References

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