Supporting Information

Real-time Personal Fever Alert Monitoring by Wearable Detector based on Thermoresponsive Hydrogel

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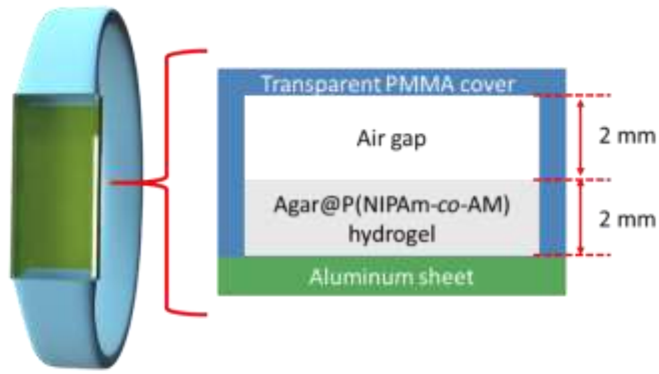

Figure S1. The structural illustration of the wristband and its detector component.

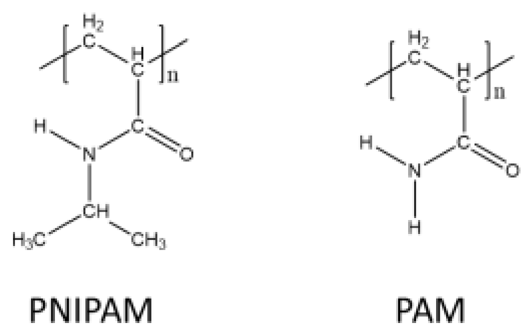

Figure S2. Molecular structures of PNIPAM and PAM.

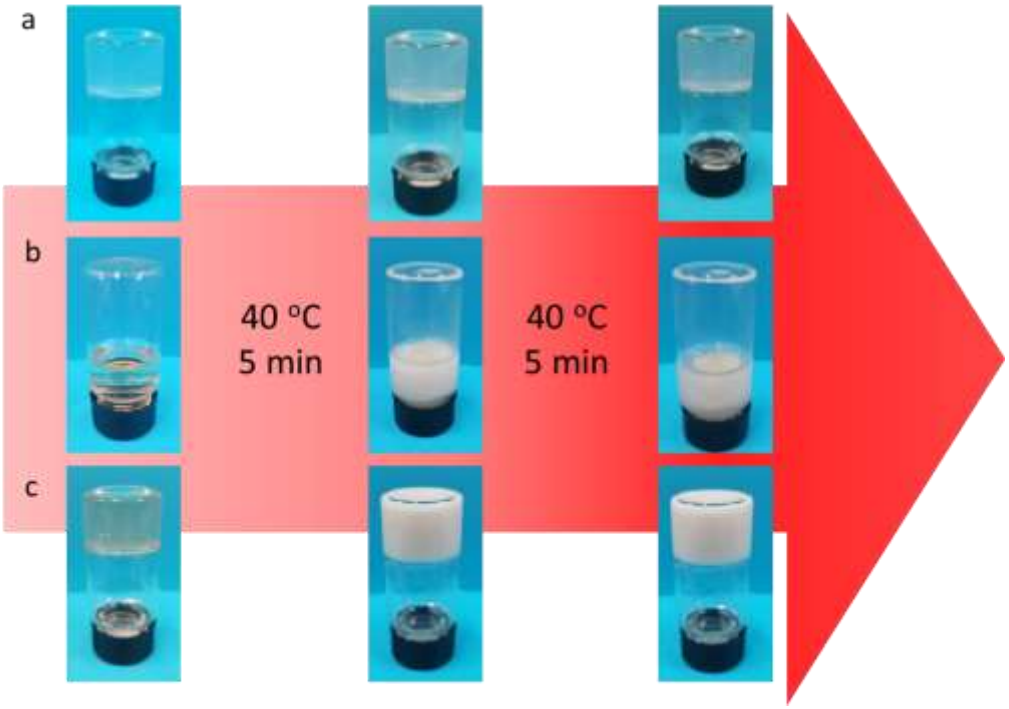

Figure S3. Transparency change of (a) agarose hydrogel, (b) P(NIPAM-*co*-AM) microgel and (c) agarose@P(NIPAM-co-AM) hydrogel before and after heating.

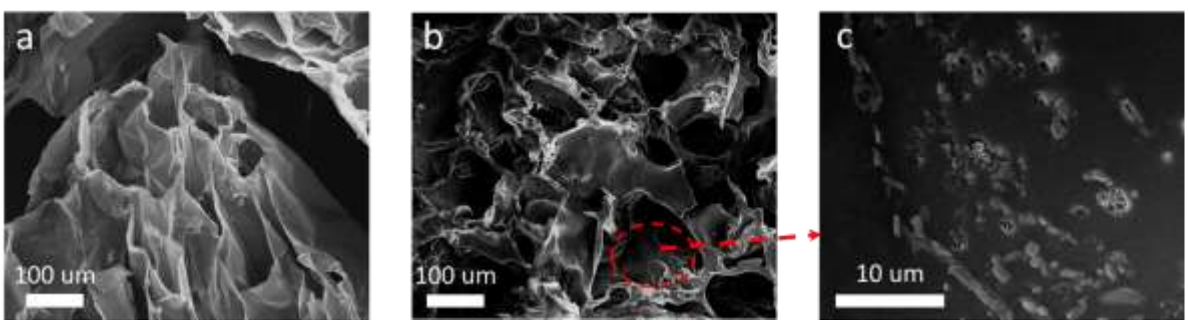

Figure S4. SEM images: (a) agarose and (b, c) agarose@P(NIPAM-co-AM).

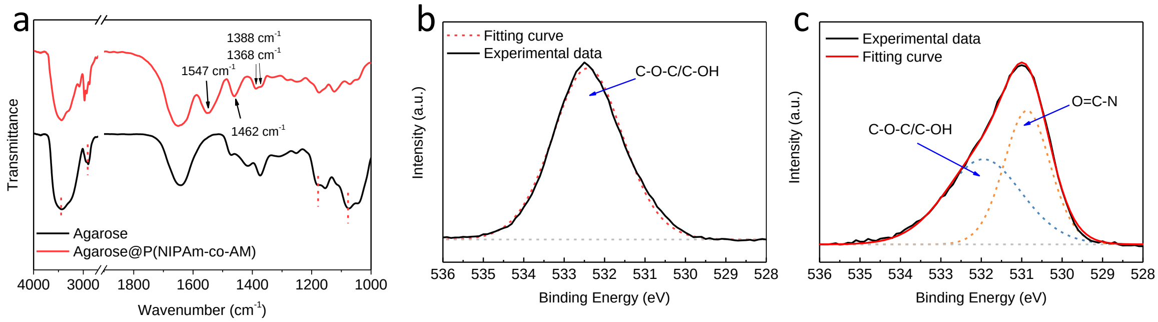

Figure S5. (a) FTIR spectra of agarose hydrogel and agarose@P(NIPAM-co-AM); (b, c) high resolution XPS O 1s spectra of (b) agarose and (c) agarose@P(NIPAM-co-AM)

Figure S6. Experimental setup for the measurement of the hydrogel transparency at different temperature. (1 light source of the transmission meter; 2 hydrogel sample; 3 heating plate of thermostatic table; 4 screen of the transmittance meter; 5 screen and control board of the thermostatic table)

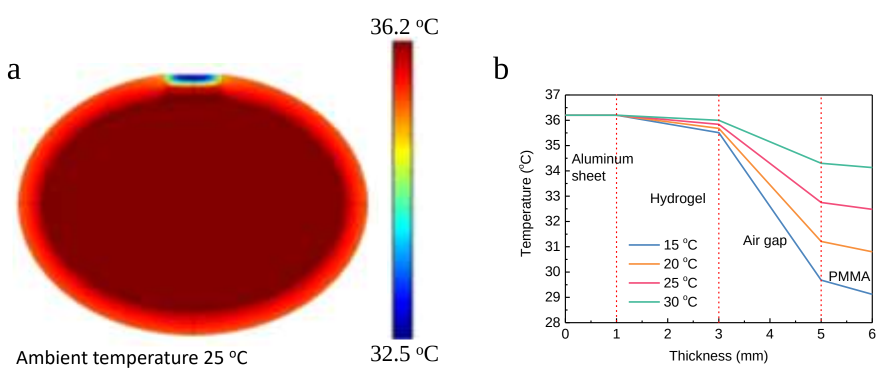

Figure S7. (a) Cross-sectional temperature distribution of the wristband; (b) temperature evolution of the detector along its cross-section .

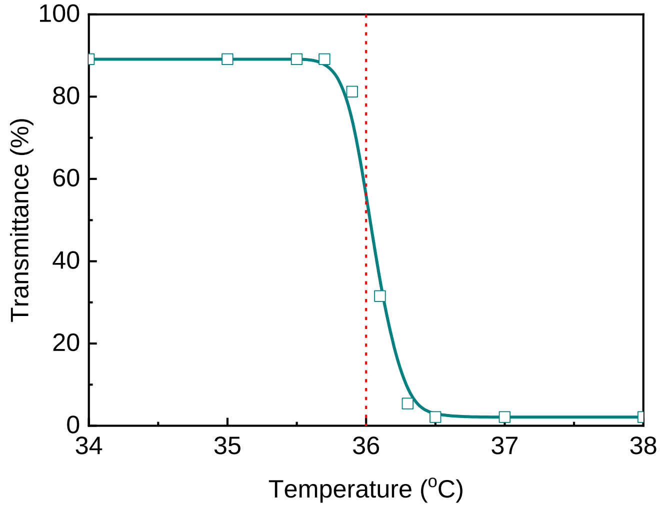

Figure S8. Transmittance of the agarose@P(NIPAM-co-AM) hydrogel as a function of temperature at the wavelength of 550 nm.

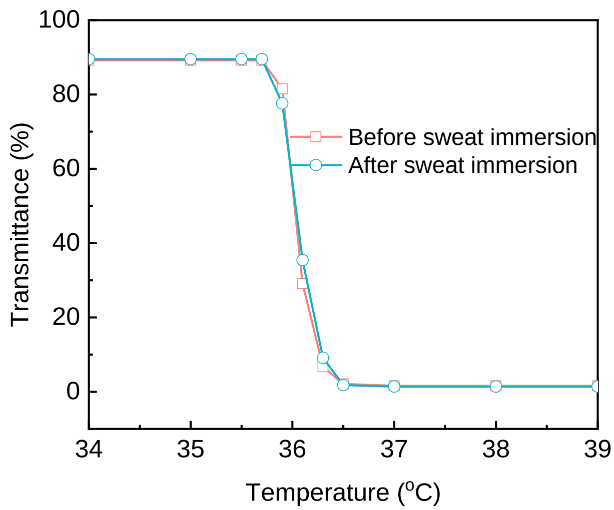

Fig S9. Photo of the cross-section of the detector.

Table S1. The market price of the chemicals

Chemicals	Price CNY/kg	Resource
NIPAM	400 ¥	1688.com
AM	13.8 ¥	1688.com
KPS	30.0 ¥	1688.com
TEMED	25.0 ¥	1688.com
Agarose	102.0 ¥	1688.com

Note: The price was obtained in 08/13/2020.

Note S1.

To further prove the advantage of the agarose hydrogel, pure agarose hydrogel and P(NIPAM-co-AM) microgel were prepared for comparison. As shown in Figure S3, the agarose hydrogel in the bottom of the upside-down bottle maintained unchanged transparency and shape after heating at 40 ^{o}C. For aqueous P(NIPAM-co-AM) microgel, it fell to the cover of the upside-down bottle owing to gravity, and turned from transparent to opaque white after heating for 5 min. Subsequently, the white microgel was aggregated after further heating for 5 min at 40 ^{o}C. In terms of agarose@P(NIPAM-co-AM) hydrogel, it is initially light yellow with a poor transparency, which might be caused by the high thickness of the hydrogel. After heating for 5 min, it turned to white and maintained a uniform shape at the bottom of the upside-down bottle. Different from the P(NIPAM-co-AM) microgel, no aggregation can be observed after further heating for 5 min, indicating that the agarose hydrogel is capable to prevent the aggregation of the microgel. These results indicate that the agarose hydrogel is capable of immobilizing the microgel and prevent its aggregation.