

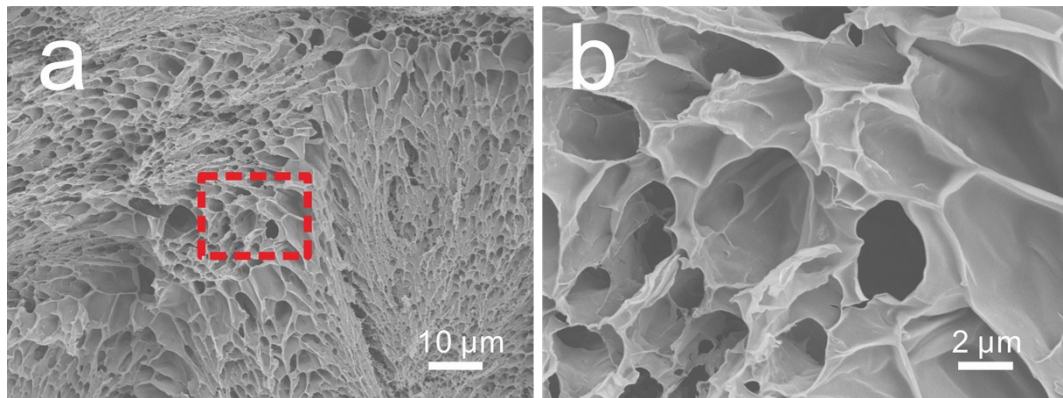
## **Supplementary Information**

### **A compliant, self-adhesive and self-healing wearable hydrogel for epidermal strain sensor**

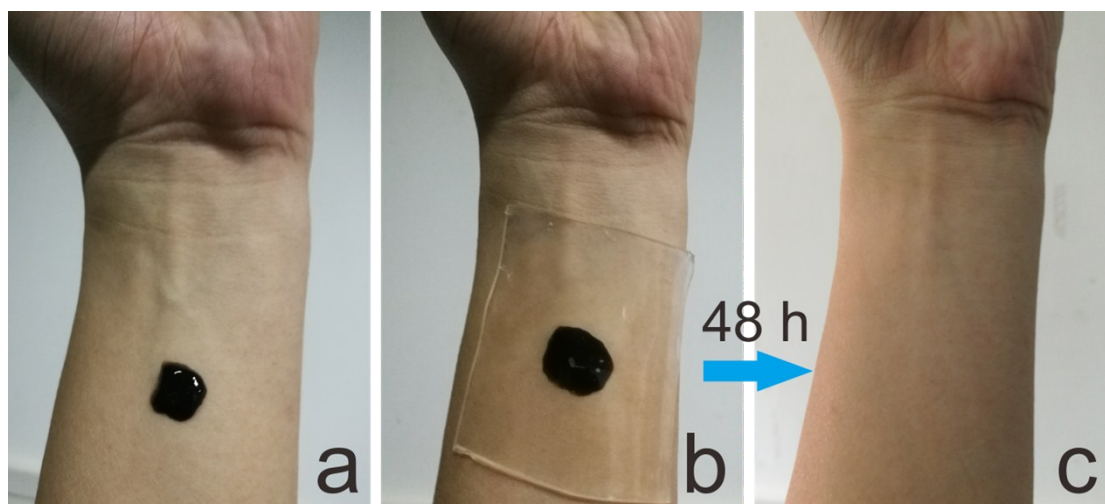
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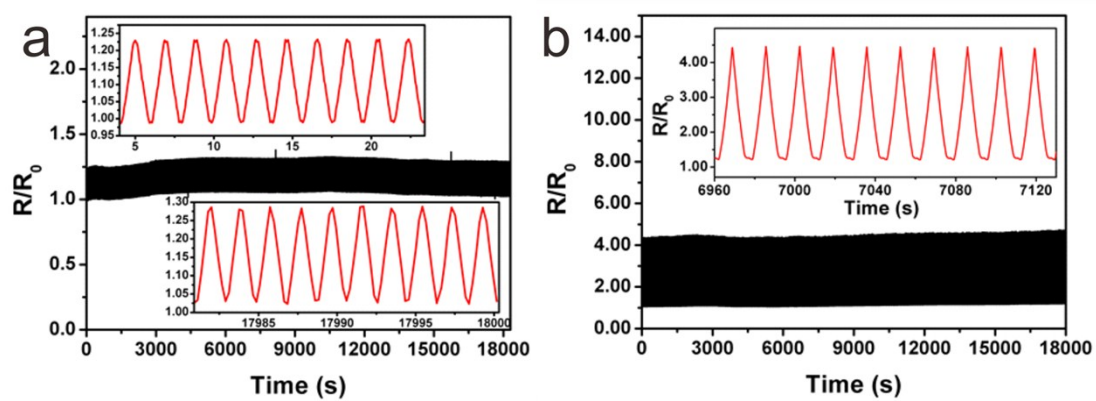
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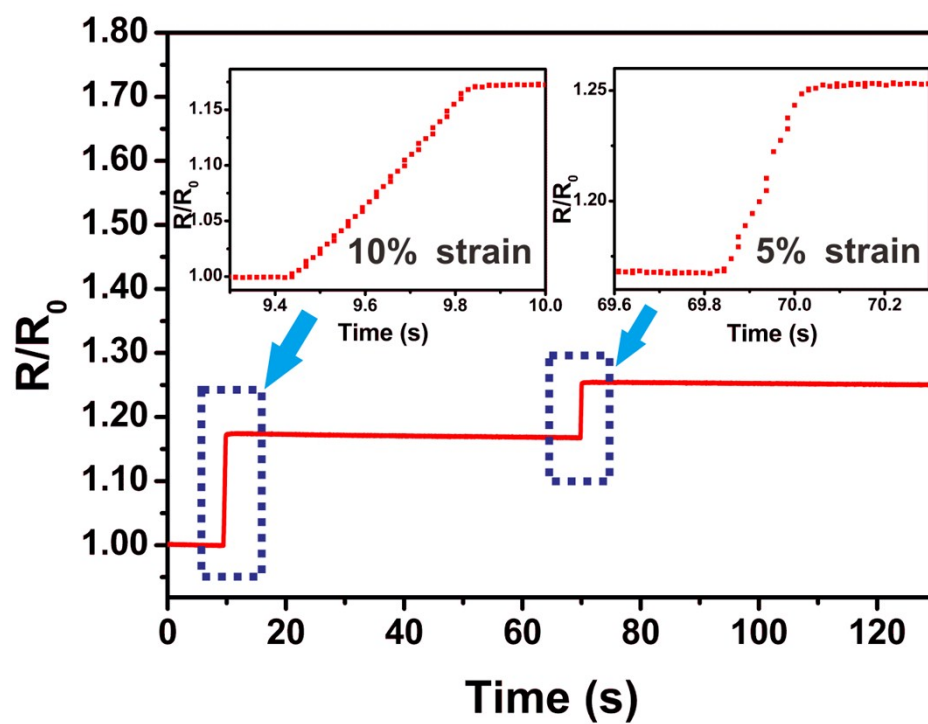
**Figure S1.** (a-b) SEM images of the PVA/PDA hydrogel after freeze drying, Fig. S1b is the higher definition of the selected area in Fig. S1a.



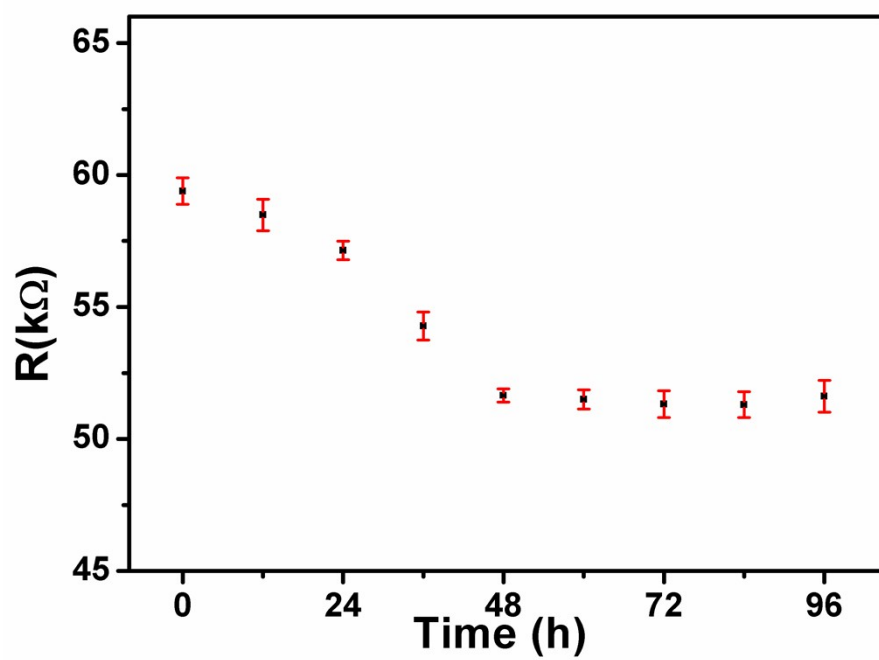
**Figure S2.** (a-c) Digital pictures of the forearm that attached by a piece of PVA/PDA hydrogel (a), fixed and encapsulated by commercial tape (b) and after peeling the hydrogel off (c).



**Figure S3.** (a, b)  $R/R_0$  of the polydopamine/polyvinyl alcohol strain sensor as a function of time during cyclic stretch-relax at strain of 15% (a) and 100% (b).



**Figure S4.** Relative resistance changes versus time for the step-strain experiment of PVA/PDA hydrogel. The inserted figures are the enlarged view of the selected area.



**Figure S5.** The resistance of encapsulated PVA/PDA hydrogel as a function of standing time.