

## Supporting Information

### Ultra-stretchable, Highly Sensitive and Biocompatible Capacitive Strain Sensor from an Ionic Nanocomposite for Skin-on Monitoring

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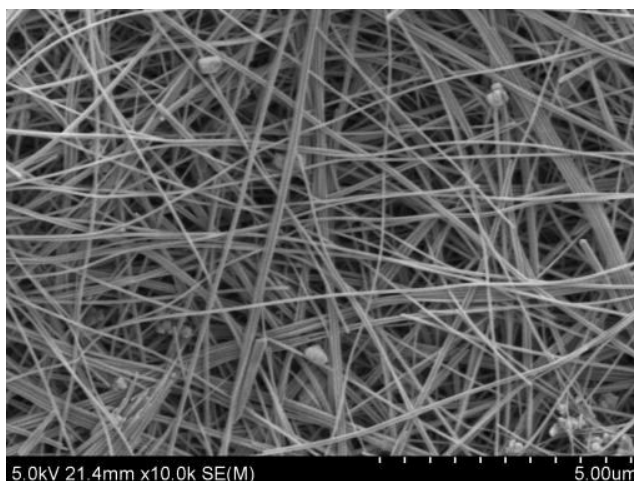
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### 1. SEM image of the AgNFs network



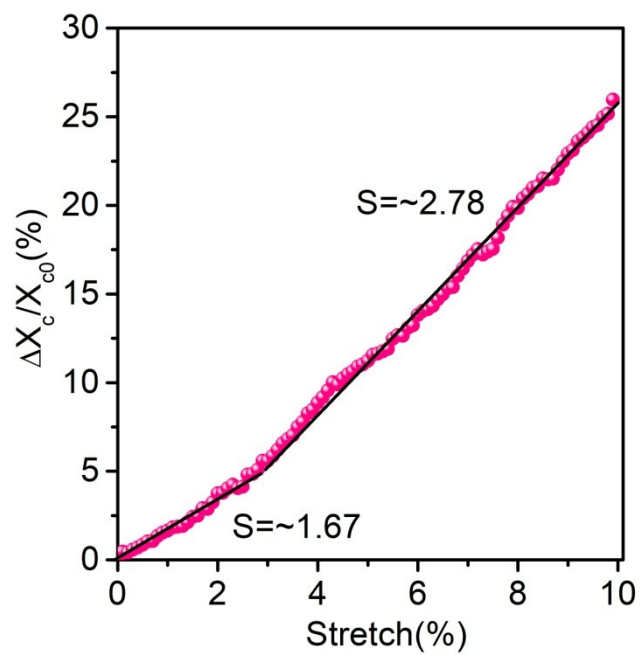
**Fig. S1.** SEM image of the AgNFs on the ACF electrode, showing the AgNFs are randomly stacked with layered porous structures with average length and diameter of AgNW 20  $\mu\text{m}$  and 100 nm

### 2. Biocompatibility measurements



**Fig.S2.** Photographs of the skin surface of the arm where the *b*-hydrogel was attached on at the initial state (left), after 1 days (middle) and 4 days (right).

### 3. Strain-sensing response in a low stretch region (<10%)



**Fig. S3.** Capacitive reactance change,  $\Delta X_c / X_{c0}$  as a function of stretch of the *b*-hydrogel ( $f=20$  Hz), the stretch range is from 0% to 10%.