Supporting Information

A Porous Self-healing Hydrogel with Island-bridge Structure for Strain and Pressure Sensor

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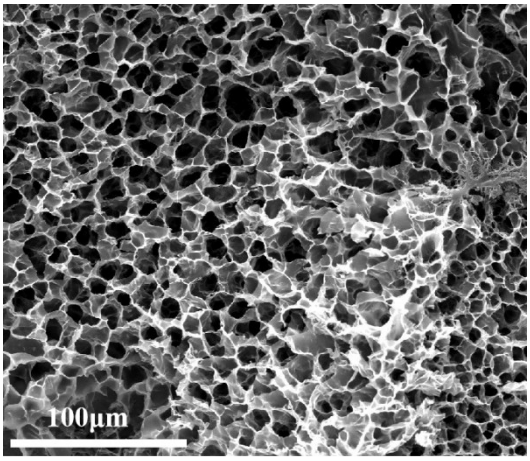

Figure S1. SEM micrographics of PVA/CNT/graphene hydrogel at magnifications of 1000×.

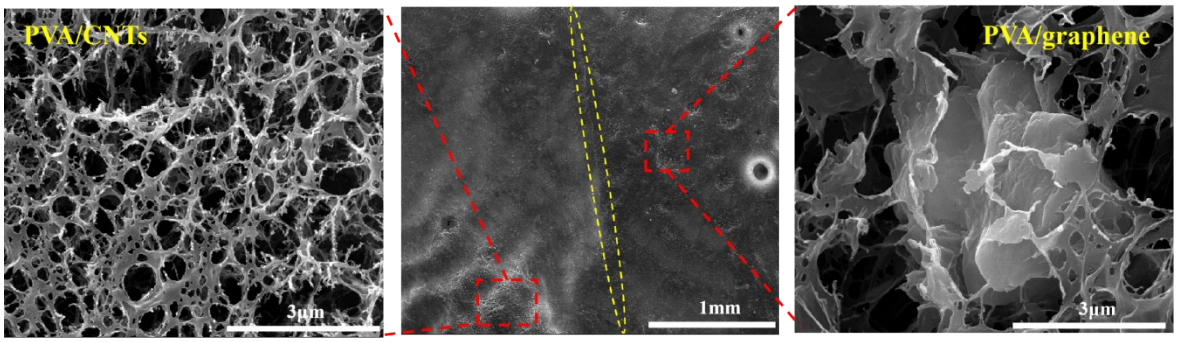

Figure S2. The SEM image of the region of the integrated location of PVA/CNTs and PVA/graphene at magnifications of 100×. The left and right sides respectively show the magnified SEM images at the red circle.

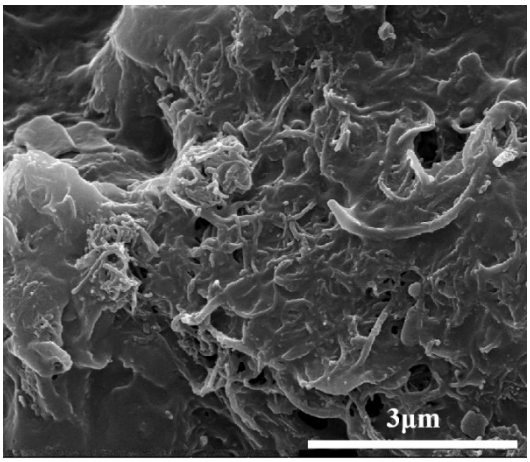

Figure S3. The enlarged SEM image of PVA/CNTs hydrogel at magnifications of 40000×.

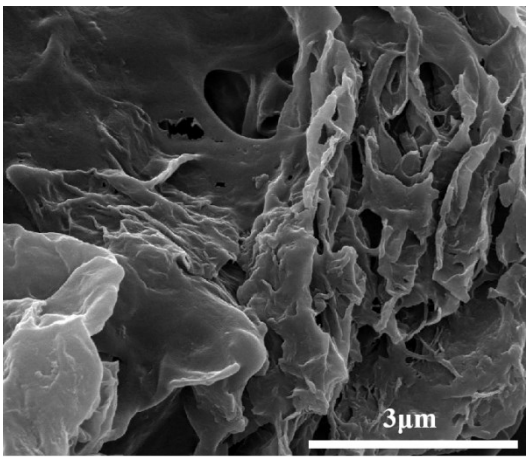

Figure S4. The enlarged SEM image of PVA/graphene hydrogel at magnifications of 40000×.

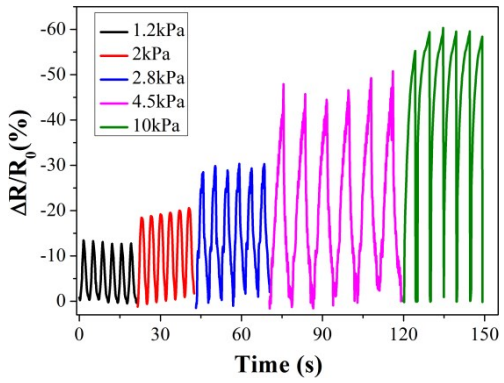

Figure S5. Relative resistance variations of PVA/CNTs/graphene hydrogel with the thickness of 2cm as function of time under different pressures (1.2, 2, 2.8, 4.5and 10kPa).

Table S1. Initial resistance of different hydrogels based on conductive nanocomposite.

System	Resistance (Ω)	Reference
PVA/polydopamine hydrogel	87	[22]
PVA/polydopamine/reduced	10^6	[3]

graphene oxide hydrogel		
MXene-based hydrogel	2200	[11]
Polyacrylic acid/reduced graphene oxide hydrogel.	5200	[30]
Single-walled CNT hydrogel	300	[16]
Polyacrylic acid-poly (-glutamic)acid-Fe^{3+}/glycerol+H_2O hydrogel	1000	[28]
PVA/polyacrylic acid/CNT/Fe^{3+}/ethylene glycol hydrogel	$7.5*10^6$	[7]
PVA//CNTs/graphene hydrogel	230	This work

Table S2. Performance evaluation of PVA/CNT/graphene hydrogel as strain and pressure sensors

PVA/CNT/graphene hydrogel	Strain sensors	Pressure sensors
Minimum monitoring limit	1%	1kPa
Maximum monitoring limit	600%	10kPa
Sensitivity	152.6	$0.127kPa^{-1}$