Supporting Information

Tunable, conductive, self-healing, adhesive and injectable hydrogel for bioelectronics and tissue regeneration applications

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# Table of Contents

Figure S1. Scheme for the synthesis of carboxymethyl chitosan ....................... 3  
Figure S2. FTIR Spectra of chitosan and carboxymethyl chitosan ..................... 3  
Figure S3. FTIR Spectra of CMC, CMC-D and CMC-D-PDA ............................ 4  
Figure S4. FTIR Spectra of CMC-D-PDA, CMCh and Ch-CMC-PDA .................. 4  
Figure S5. Scheme for the synthesis of Ch-CMC-PDA ................................... 5  
Figure S6. The recovery of hydrogel after high shear load ............................. 6  
Figure S7. I-V curves of hydrogels swollen in PBS and deionized H₂O ............... 6  
Figure S8. Schematic representation for conductivity ................................... 7  
Figure S9. Scheme of device fabrication for TENG ...................................... 7  
Figure S10. Cytocompatibility studies ......................................................... 8  
Figure S11. MTT Assay ........................................................................... 8  
Table S1. Conductivity Comparison with the reported hydrogels ..................... 9  
References .................................................................................................. 9
**Figure S1.** Scheme for the synthesis of carboxymethyl chitosan.

**Figure S2.** FTIR Spectra of chitosan and carboxymethyl chitosan
**Figure S3.** FTIR Spectra of CMC, CMC-D and CMC-D-PDA

**Figure S4.** FTIR Spectra of CMC-D-PDA, CMCh and Ch-CMC-PDA
Figure S5. Scheme for the synthesis of Ch-CMC-PDA
Figure S6. The recovery of hydrogel after high shear load demonstrated by the continuous step strain. A) Ch-CMC-PDA$_1$, B) Ch-CMC-PDA$_2$, C) Ch-CMC-PDA$_3$

Figure S7. Current-Voltage characteristics of Ch-CMC and Ch-CMC-PDA$_2$ hydrogel swollen in PBS and deionized H$_2$O.
Figure S8. Schematic representation for electrical measurement

Figure S9. Scheme of device fabrication for TENG (a) Control and (b) Ch-CMC-PDA$_x$
Figure S10. Cytocompatibility studies. Bright field images of L929 cells treated with contact media and incubated for 72 h. (A) Untreated control, (B) Ch-CMC-PDA$_1$, (C) Ch-CMC-PDA$_2$ (D) Ch-CMC-PDA$_3$ respectively.

Figure S11. Cell viability on exposure of L929 cells with hydrogel-contact media using MTT assay. Data represents mean ± SD from 3 experiments carried out in triplicate. ns indicates no significant change (One-way ANOVA, Tukey's multiple comparison test).
**Table S1.** Conductivity comparison with the reported hydrogels

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Material</th>
<th>Application</th>
<th>Conductivity</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PEDOT: PSS/peptide–PEG hydrogels</td>
<td>Tissue engineering</td>
<td>8-16×10⁻³ S/cm</td>
<td>[1]</td>
</tr>
<tr>
<td>2.</td>
<td>GOxSPNB Hydrogels.</td>
<td>Adhesive</td>
<td>1.05×10⁻² S/cm</td>
<td>[2]</td>
</tr>
<tr>
<td>3.</td>
<td>PNIPAM/L/CNT</td>
<td>Human monitoring motion</td>
<td>1.3-1.9×10⁻² S/cm</td>
<td>[3]</td>
</tr>
<tr>
<td>5.</td>
<td>Chitosan/graphene oxide composite hydrogel</td>
<td>Tissue engineering</td>
<td>0.57-1.22×10⁻³ S/cm</td>
<td>[5]</td>
</tr>
<tr>
<td>7.</td>
<td>CS-AT Hydrogel</td>
<td>Cell Delivery Carrier for Cardiac Cell Therapy</td>
<td>2.2-2.4×10⁻³ S/cm</td>
<td>[7]</td>
</tr>
<tr>
<td>8.</td>
<td>QCSP/PEGS-FA hydrogel</td>
<td>Wound dressing and cutaneous wound healing</td>
<td>2.25–3.5×10⁻³ S/cm</td>
<td>[8]</td>
</tr>
<tr>
<td>9.</td>
<td>Ch-CMC-PDAx hydrogel</td>
<td>Multi-functional hydrogel</td>
<td>0.01-3.4×10⁻³ S/cm</td>
<td>Our Hydrogel</td>
</tr>
</tbody>
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**References**