Supporting Information for

Three-dimensional WS₂ Nanosheet Networks for H₂O₂ Produced for Cell Signaling

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Supporting Figures

Fig. S1. Cyclic voltammograms of (a) carbon fiber, (b) WS$_2$/carbon fiber in PBS, (c) carbon fiber, and (d) WS$_2$/carbon fiber in PBS with and without 0.1 mM H$_2$O$_2$ in the N$_2$ saturated 0.1 M PBS at a scan rate of 50 mV s$^{-1}$. 
**Fig. S2.** ROS selectivity obtained at −0.25 V versus Ag/AgCl toward the addition of H$_2$O$_2$, O$_2$•$^-$ and ClO$^-$. 

**Fig. S3.** Amperometric responses obtained at the WS$_2$/carbon fiber electrodes located near in living RAW 264.7 macrophage cells at applied potentials of −0.25 V versus Ag/AgCl in 0.1 M PBS (pH 7.4) with the addition of 0.3 µM fMLP and 60 U mL$^{-1}$ (final concentration) of catalase.
Table S1. Comparison of the electrochemical detection limits of different H$_2$O$_2$ sensors.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Detection limit</th>
<th>Reference</th>
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<tbody>
<tr>
<td>3D WS$_2$</td>
<td>2 nM</td>
<td>Our work</td>
</tr>
<tr>
<td>Pt$<em>{48}$Pd$</em>{52}$-Fe$_3$O$_4$ on carbon</td>
<td>0.005 μM</td>
<td>Ref. S1</td>
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<tr>
<td>HRP-Au-chitosan-clay</td>
<td>9 μM</td>
<td>Ref. S2</td>
</tr>
<tr>
<td>Pt-MnO-graphene</td>
<td>0.05 μM</td>
<td>Ref. S3</td>
</tr>
<tr>
<td>AuCu nanowires</td>
<td>0.002 μM</td>
<td>Ref. S4</td>
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<tr>
<td>Au/MnO NPs</td>
<td>0.008 μM</td>
<td>Ref. S5</td>
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<tr>
<td>MoS$_2$ Nanoparticles</td>
<td>0.0025 μM</td>
<td>Ref. S6</td>
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<tr>
<td>Hydrogel-Stabilized Enzyme</td>
<td>50 nM</td>
<td>Ref. S7</td>
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<tr>
<td>Au-TiO$_2$</td>
<td>2 nM</td>
<td>Ref. S8</td>
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<tr>
<td>PCL-2 and IETDC probes</td>
<td>0.037 μM</td>
<td>Ref. S9</td>
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<tr>
<td>CdS–Carbon Nanotube Nanocomposite</td>
<td>0.08 μM</td>
<td>Ref. S10</td>
</tr>
</tbody>
</table>

References


