SUPPORTING INFORMATION FOR

MoS$_2$ Nanosheets-Au Nanorods Hybrids for Highly Sensitive Amperometric Detection of H$_2$O$_2$ in Living Cells

Yun Shu,$^a$ Jingyuan Chen,$^a$ Qin Xu,$^a$ Zhen Wei,$^a$ Fengping Liu,$^a$ Rui Lu,$^b$ Sheng Xu,$^b$

Xiaoya Hu*,$^a$

$^a$College of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225002, China
$^b$Co-innovation Center for Prevention and Control of Important Animal Infectious Diseases and Zoonoses, College of veterinary medicine, Yangzhou University, Yangzhou 225002, China

*Corresponding author. Email: xyhu@yzu.edu.cn
Fig. S1. EDX spectrum of MoS$_2$-Au hybrid.

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<thead>
<tr>
<th>Element</th>
<th>Atom%</th>
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<tbody>
<tr>
<td>Mo</td>
<td>37.48</td>
</tr>
<tr>
<td>S</td>
<td>51.04</td>
</tr>
<tr>
<td>Au</td>
<td>11.48</td>
</tr>
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Fig. S2. FT-IR spectra of AuNRs, MoS$_2$ and MoS$_2$-Au hybrid.
Fig. S3. UV-vis absorption spectra of AuNRs, MoS$_2$ and MoS$_2$-Au hybrid.
Fig. S4. (A) CVs of the CAT/MoS$_2$-Au/chitosan modified GCE in an N$_2$-saturated 0.1 M PBS at different scan rates. Scan rates (a–i): 25, 50, 75, 100, 150, 200, 300, 400 and 500 mV•s$^{-1}$. Inset: the plot of cathodic and anodic peak currents versus scan rates. (B) CVs of the CAT/MoS$_2$-Au/chitosan modified GCE in an N$_2$-saturated 0.1 M PBS at different pH values. Scan rate: 100 mV•s$^{-1}$. Inset: plot of the redox peak potential versus pH value.
Fig. S5. (A) Influence of pH on the current response of CAT/MoS$_2$-Au/chitosan/GCE towards 80 µM H$_2$O$_2$ in the N$_2$-saturated 0.1 M PBS at an applied potential of -0.55 V. (B) Influence of the applied potential on the current response of CAT/MoS$_2$-Au/chitosan/GCE towards 0.1 mM H$_2$O$_2$ in the N$_2$-saturated 0.1 M PBS (pH= 7.0).
Fig. S6. Amperometric response of CAT/MoS$_2$-Au/chitosan/GCE, CAT/Au/chitosan/GCE, CAT/MoS$_2$/chitosan/GCE and CAT/chitosan/GCE in the N$_2$-saturated 0.1 M PBS at -0.55 V with successive addition of H$_2$O$_2$.

Fig. S7. Variation of the current response to 50 µM H$_2$O$_2$ for CAT/MoS$_2$-Au/chitosan/GCE electrode versus storage time.
Fig. S8. The corresponding current responses obtained from amperometric curves shown in Fig. 5.