

### Supporting Information

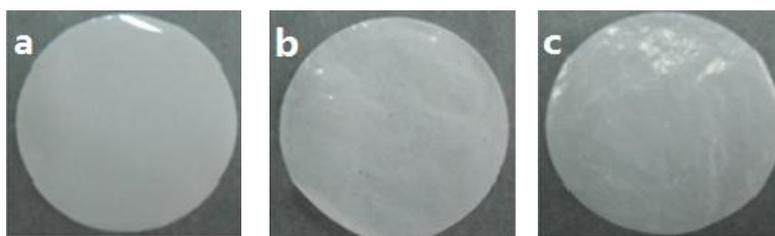


Fig. S1 Macroscopic images of (a) a bare PC membrane, (b) the organic/inorganic HMSM without solvent extraction, (c) the organic-inorganic HMSM with solvent extraction.

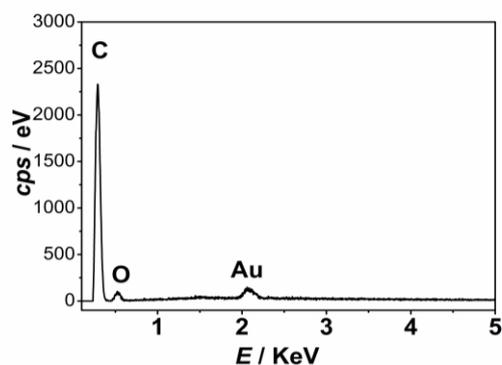


Fig. S2 The EDS analysis on the surface of bare PC membrane

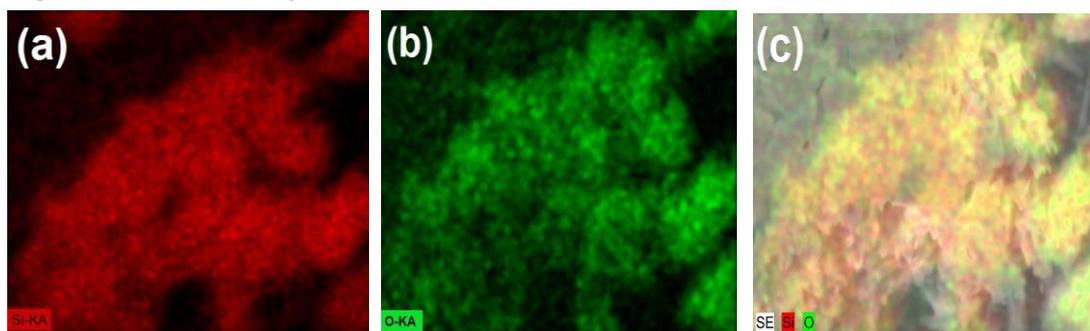


Fig. S3. EDS mappings of the silica rods (a-c) released from HMSM (red (a) and green (b) colors respectively present silicon element mapping and oxygen element mapping).

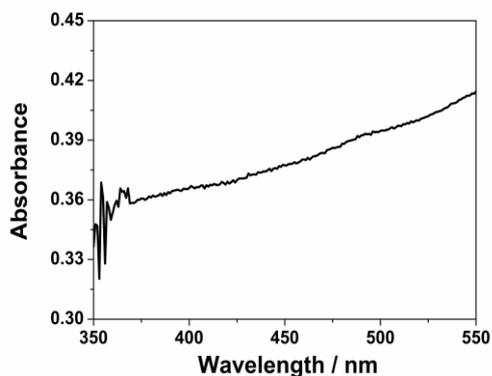


Fig.S4. The reflected UV-Vis spectrum of bare PC without enzyme adsorption.

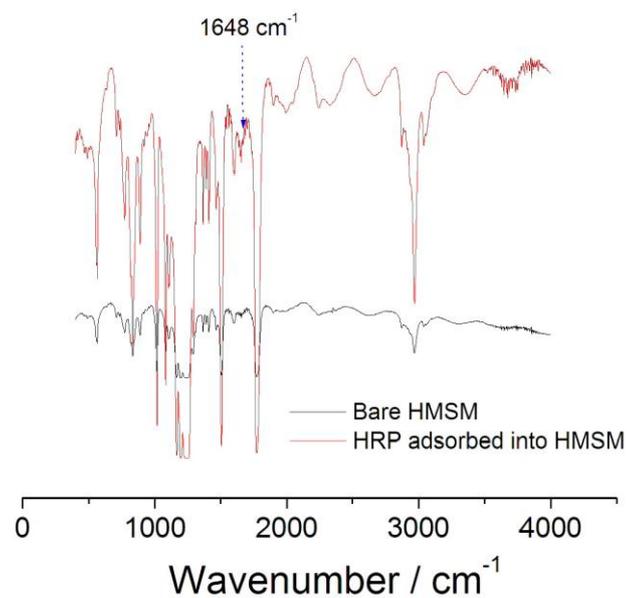


Fig.S5. The FT-IR spectra of (a) bare HMSM and (b) HRP adsorbed into HMSM.

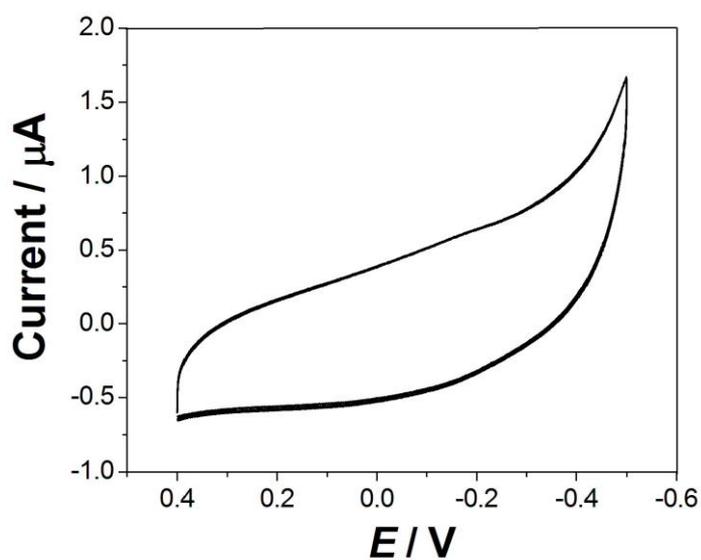


Fig.S6. CVs of bare GC electrode in 0.1M PBS (pH~7.0) containing HRP (0.0055 g L<sup>-1</sup>). Scan rate: 200 mV s<sup>-1</sup>.

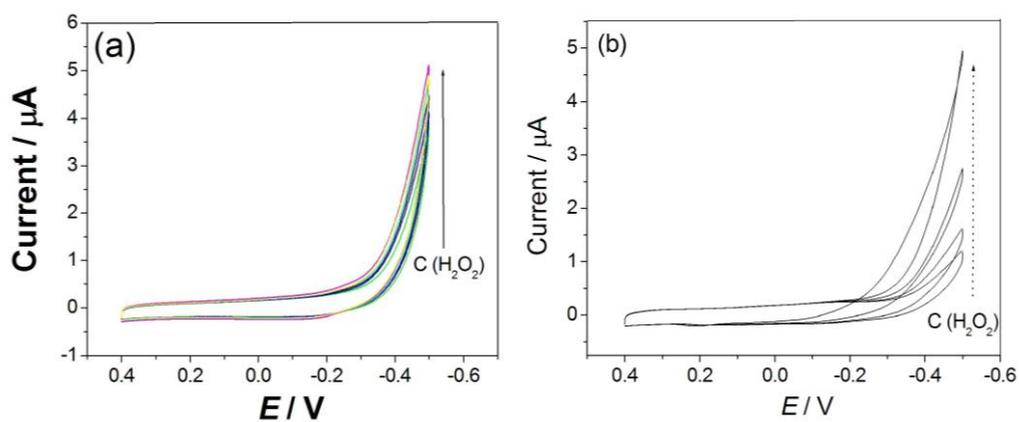


Fig.S7. CVs of (a) bare GC and (b) HRP-GC obtained in the presence of 0.003, 0.01, 0.018, 0.025 and 0.035 M of  $\text{H}_2\text{O}_2$  in PBS (pH~7.0).