

# Supporting Information

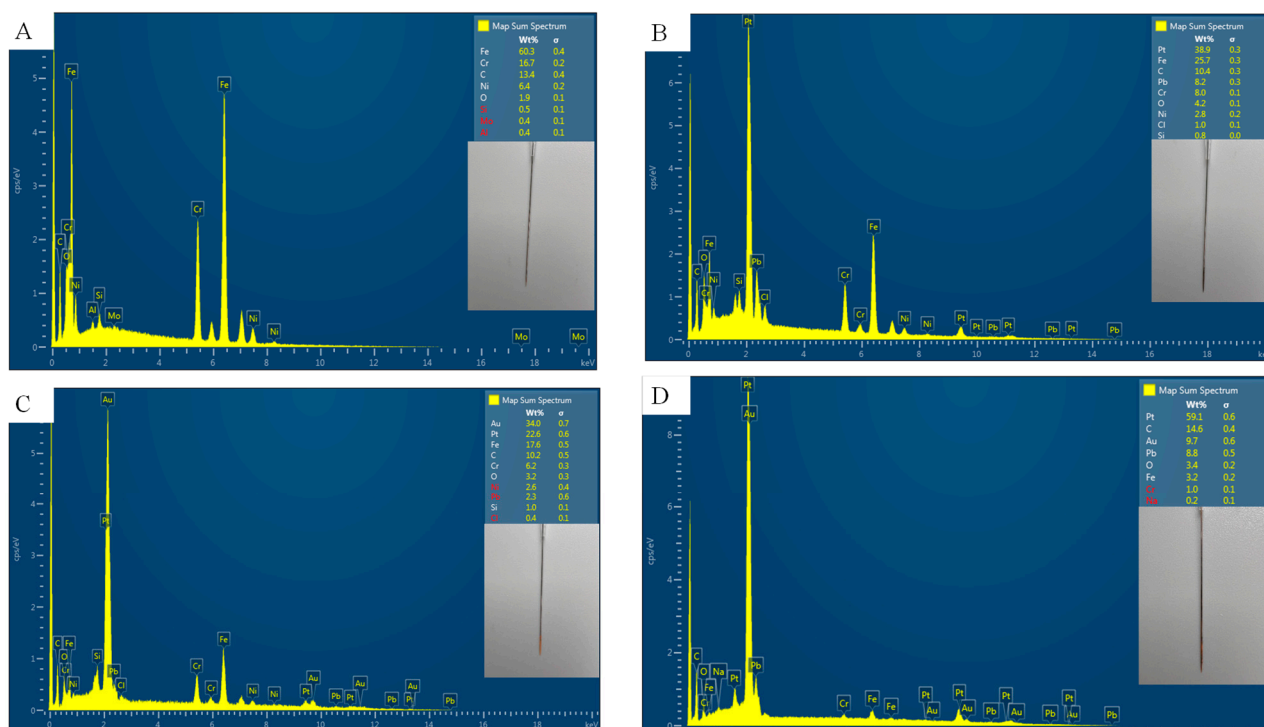
## **Platinum black/gold nanoparticles/polyaniline modified electrochemical microneedle sensors for continuous in vivo monitoring of pH value**

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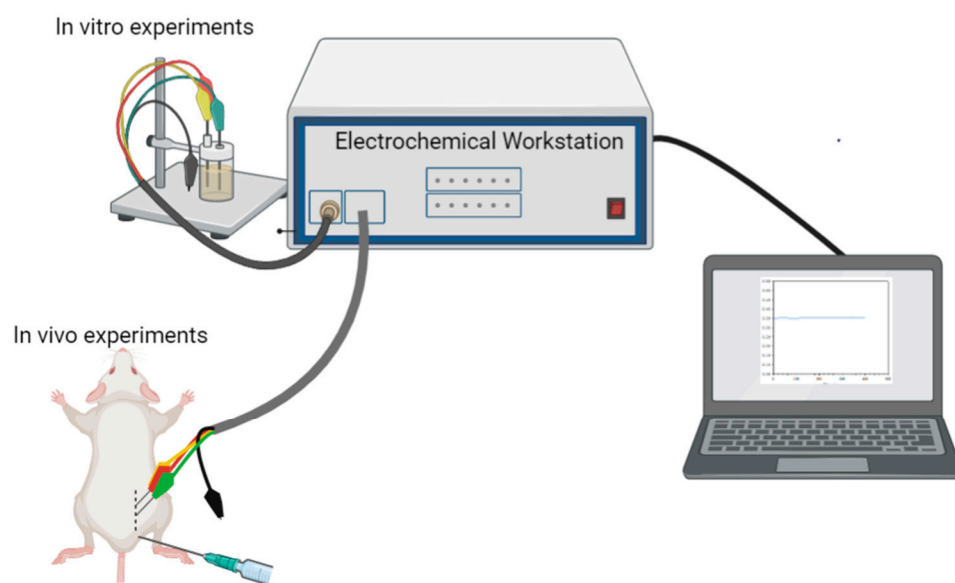
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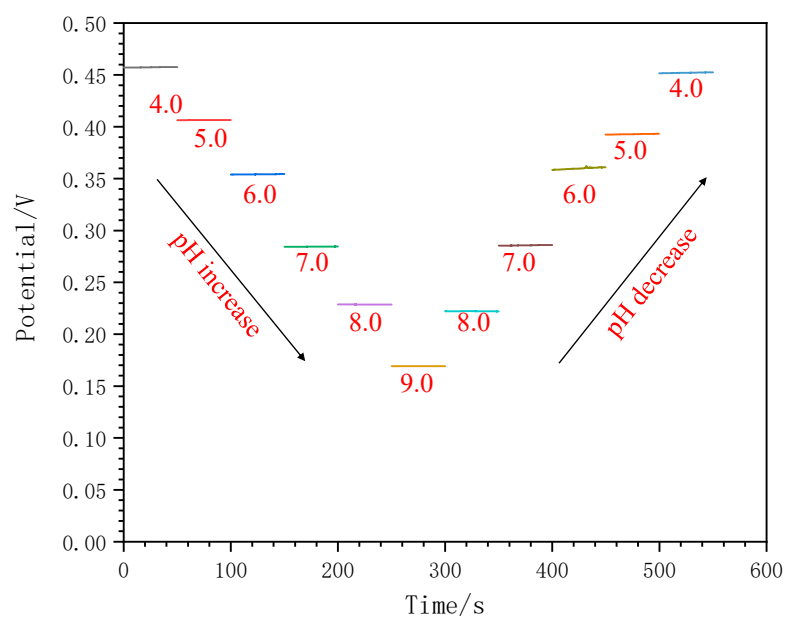


**Fig. S1** The physical image and the EDS results of the electrode: (A) Bare AN; (B) Ptb/AN; (C) AuNPs/Ptb/AN; (D) PANI/ AuNPs/Ptb/AN;

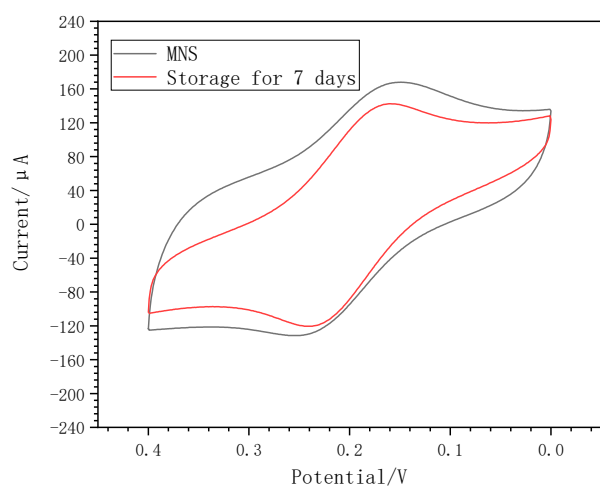


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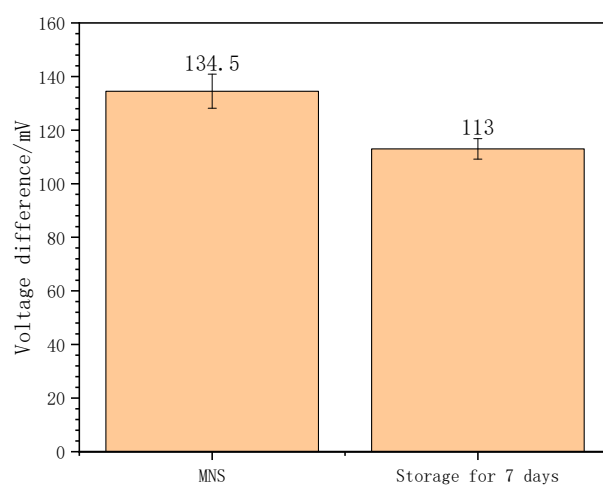
**Fig. S2** Schematic of the measurement setup



**Fig. S3** The real-time OPCT responses in various pH buffer solutions.



A



B

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**Fig. S4** The stability of the MNS. (A) The CV response of the proposed MNS and MNS after storing in standard serum for seven days; (B) The change in detection capability of the sensor;