Electronic Supplementary Material (ESI) for RSC Advances.

A photoelectrochemical glucose sensor based on gold nanoparticles as mimic enzyme of glucose oxidase

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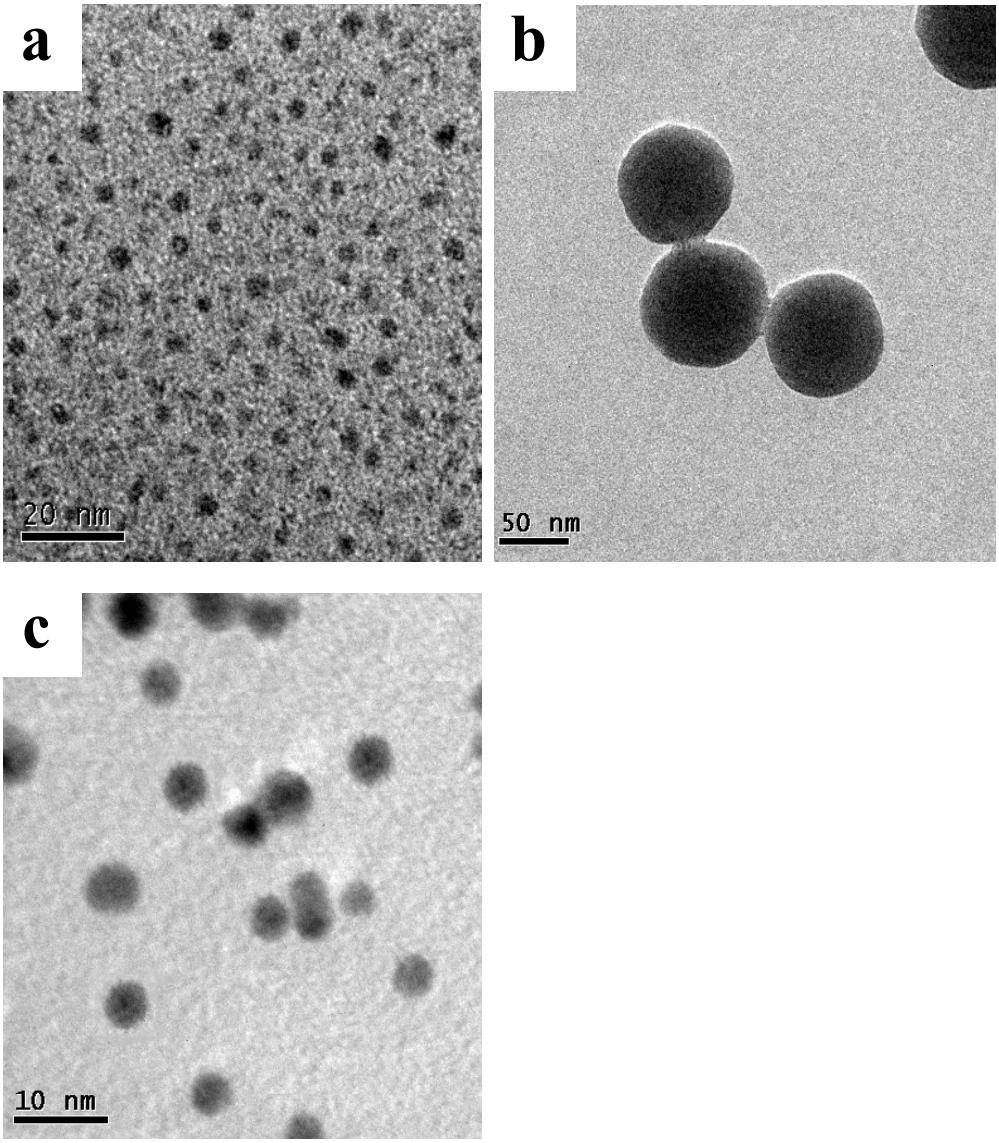

Figure S1. TEM of the as-synthesized PbS QDs (a), thiol-modified SiO_2 (b) and Au nanoparticles (c).

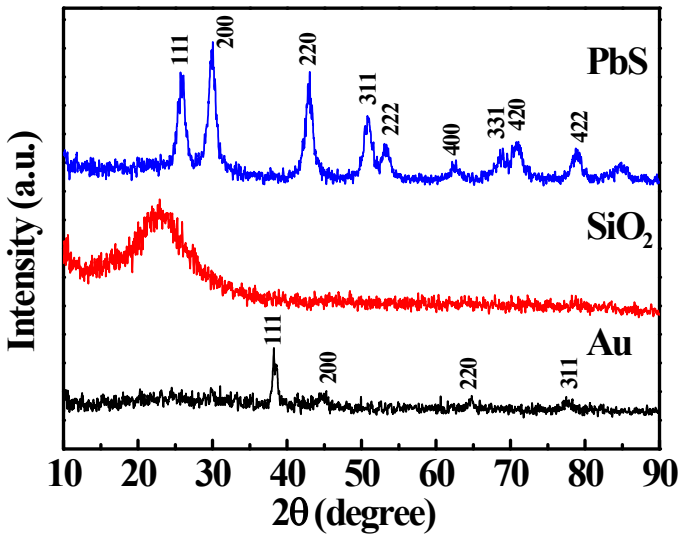

Figure S2. XRD patterns of the as-fabricated PbS QDs, thiol-modified SiO_2 and Au nanoparticles.

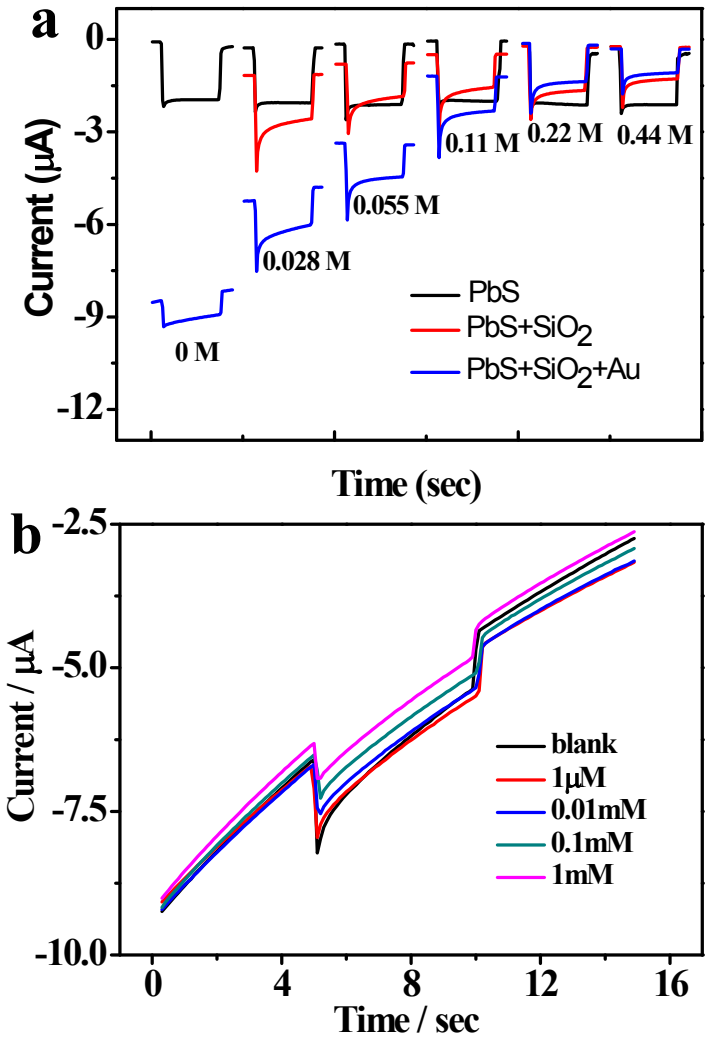

Figure S3. Photocurrent responses of ITO/PbS, ITO/PbS/SiO_2, and ITO/PbS/SiO_2/AuNPs electrodes in pH 7.4 buffer solution at applied potential of -0.2V (a); Detection of glucose without SiO_2 layer (b).

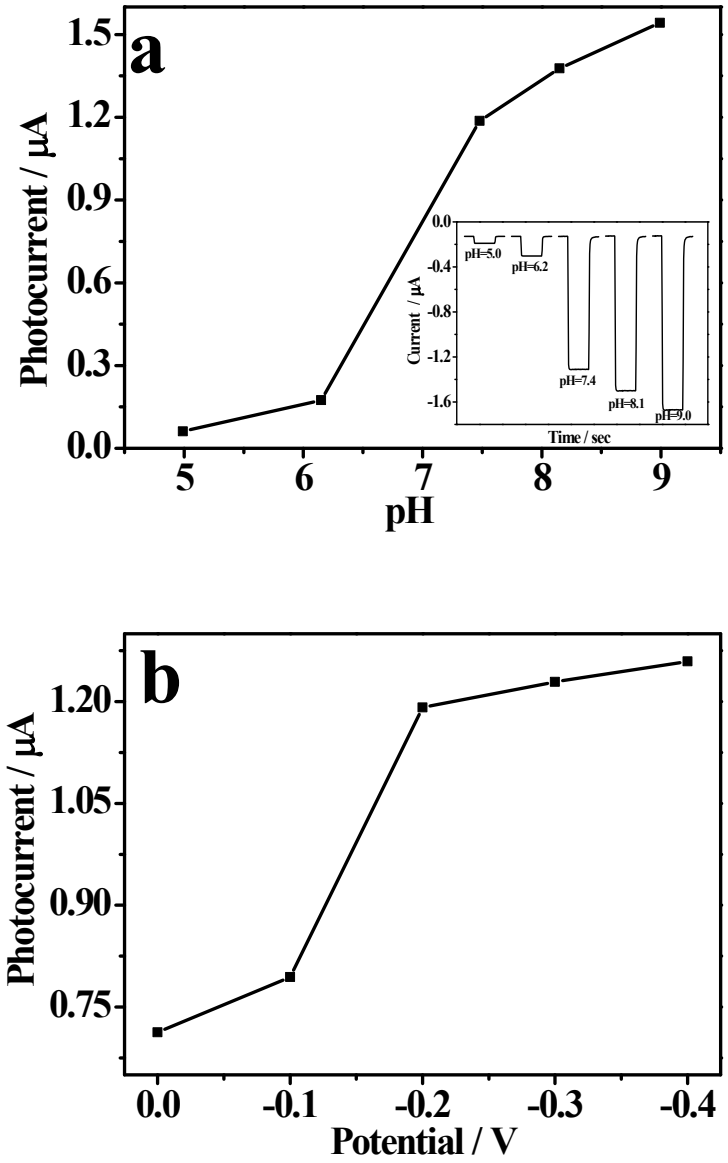

Figure S4. Effect of pH (a) value of buffer solution with 0.1 mM glucose (the insert Fig is the currents in different pH value), and the applied voltage (b) on the ITO/PbS/SiO_2/AuNPs electrode.

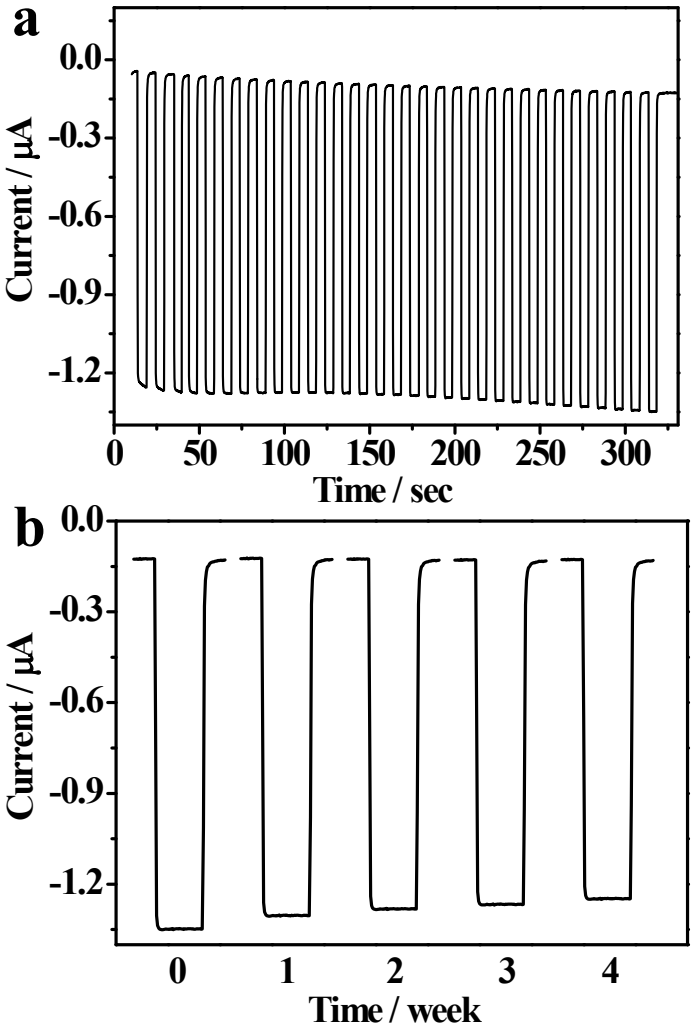

Figure S5. Time-based photocurrent response of the ITO/PbS/SiO_2/AuNPs electrode by repeated on/off illumination cycles (a); The storage stability of the ITO/PbS/SiO_2/AuNPs electrode (b).

Table S1. Detection of glucose in human serum (N=3)

Sample	Detected /μM	Added /μM	Founded /μM	Recovery /%	This method /mM	RSD /%	Hospital method /mM
1	52.0	50	103.5	103.0	5.20	1.7	5.32
2	56.3	50	104.3	96.0	5.63	2.3	5.74
3	59.2	50	108.2	98.0	5.92	1.2	5.93
4	29.4	25	53.2	97.8	2.94	1.8	2.92
5	92.0	100	192.6	100.3	9.20	1.4	9.25