

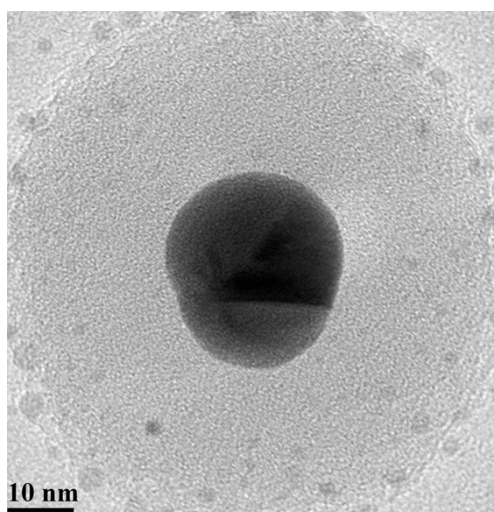
## Support Information

### Gold Nanoparticle-Enhanced Near Infrared Fluorescent

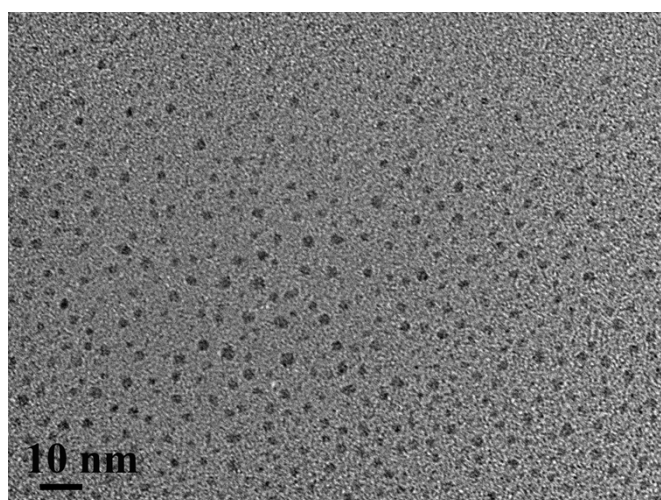
### Nanocomposites for Targeted Bio-imaging

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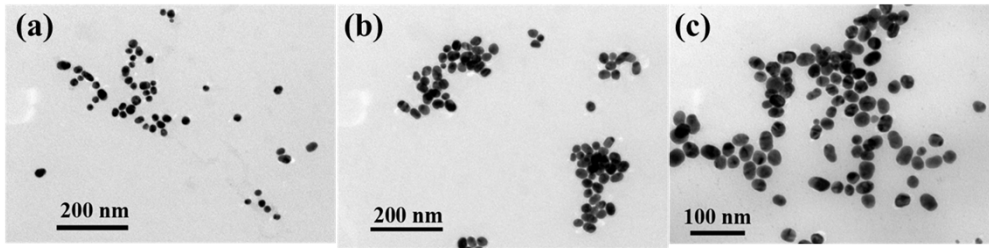
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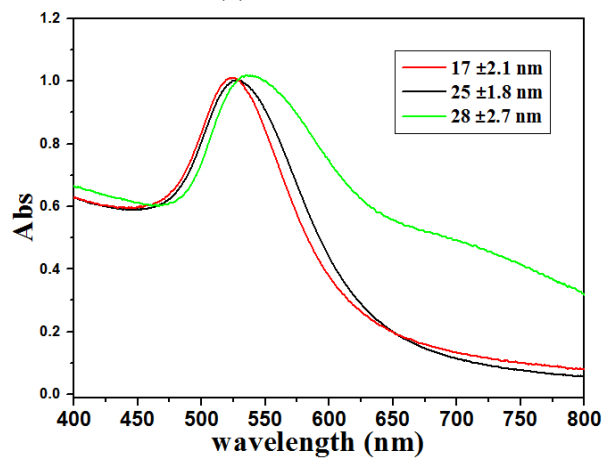
**Fig S1.** The typical TEM image of as-prepared Au/SiO<sub>2</sub>/Ag<sub>2</sub>S nanocomposites.



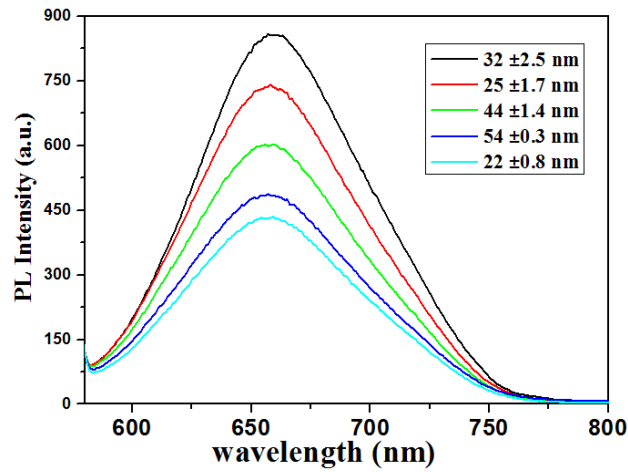
**Fig. S2** The typical TEM image of as-prepared Ag<sub>2</sub>S NCs; the average size was  $1.9 \pm 0.6$  nm.



**Fig. S3** TEM images of Au NPs with various size: (a)  $17 \pm 2.1$  nm; (b)  $25 \pm 1.8$  nm; (c)  $28 \text{ nm} \pm 2.7$  nm



**Fig. S4** The UV-vis spectra of different sized AuNPs



**Fig. S5** Photoluminescence spectra of the different thickness of the nanocomposites