

## Electronic Supporting Information

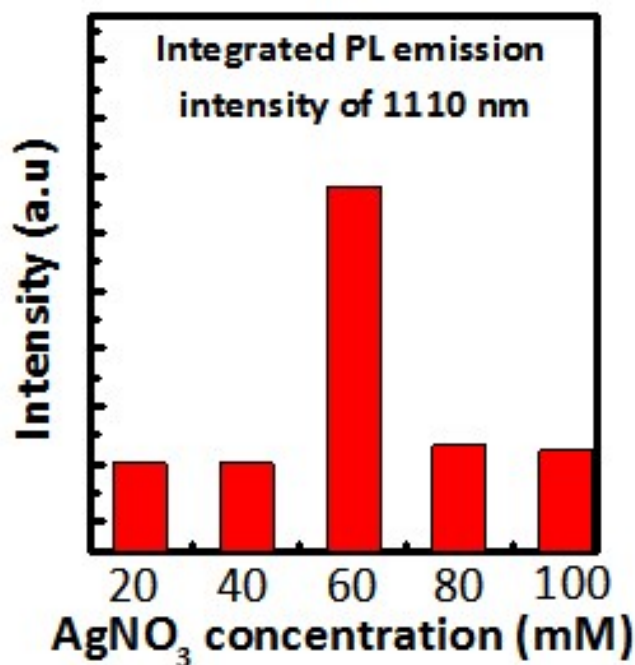
### Facile Synthesis of Noncytotoxic PEGylated Dendrimer Encapsulated Silver Sulfide

#### Quantum Dots for NIR-II Biological Imaging

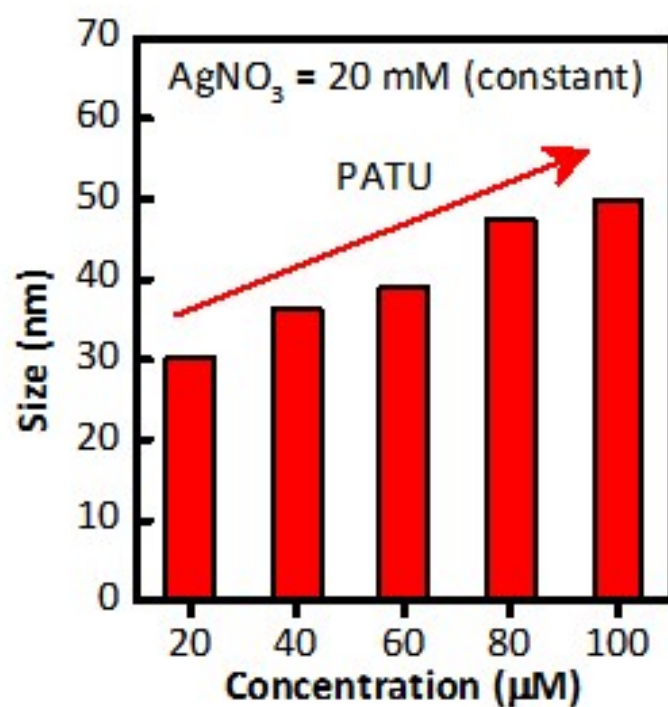
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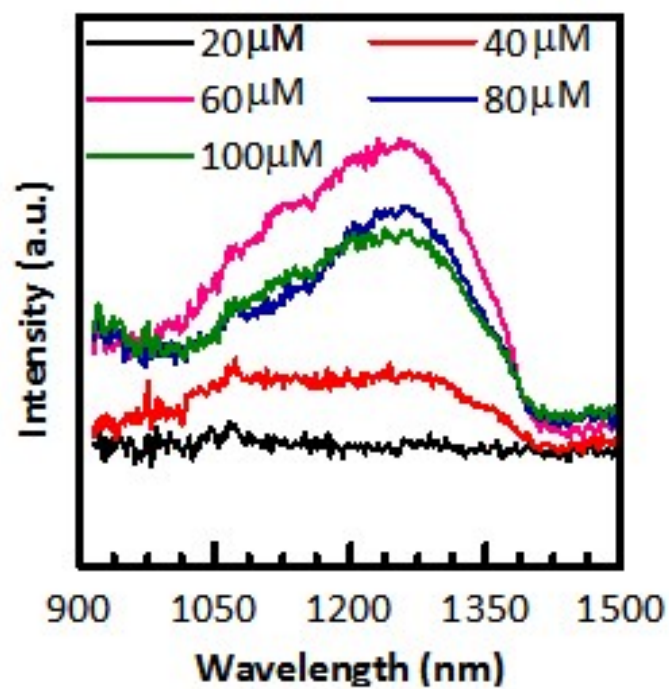
<sup>b</sup>CAS Key Laboratory of Nano-Bio Interface, Division of Nanobiomedicine and *i*-Lab, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, P.R. China 215123



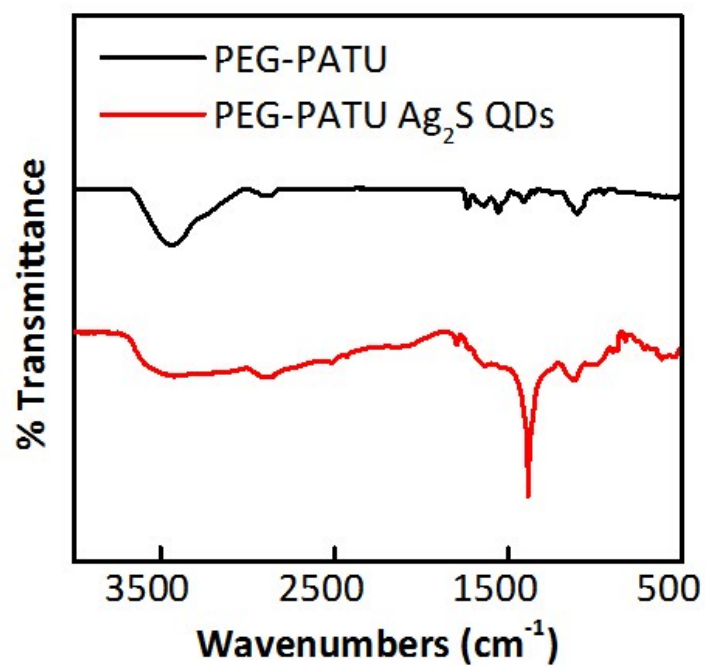
**Figure S1.** The integrated fluorescence emission intensity of the PEG-PATU Ag<sub>2</sub>S QDs formed at different AgNO<sub>3</sub> concentrations, 60  $\mu$ M PEG-PATU and 100 mM Na<sub>2</sub>S for 300 min reaction time.



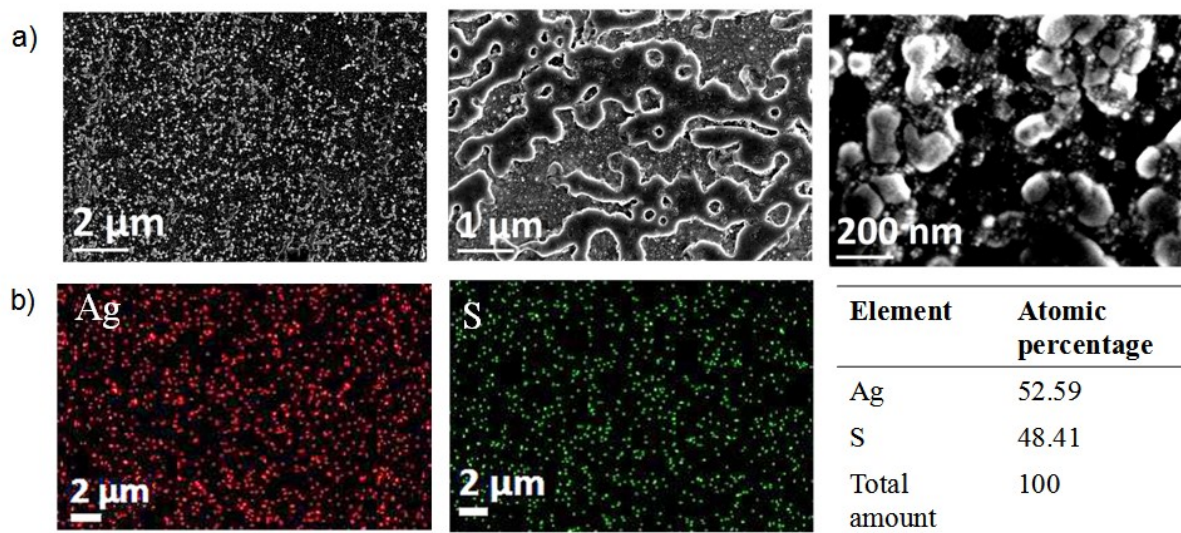
**Figure S2.** PEG-PATU Ag<sub>2</sub>S QDs size measured by DLS formed at different PEG-PATU concentrations, 20 mM AgNO<sub>3</sub> and 100 mM Na<sub>2</sub>S for 300 min reaction time.



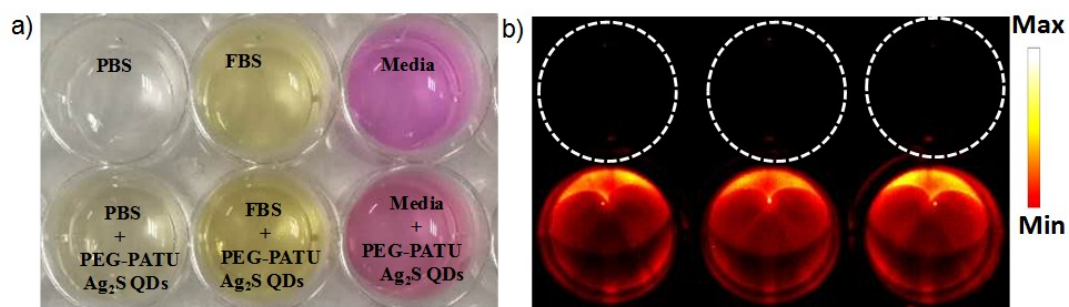
**Figure S3.** The fluorescence of the PEG-PATU Ag<sub>2</sub>S QDs formed at different PEG-PATU concentration, 20 mM AgNO<sub>3</sub> and 100 mM Na<sub>2</sub>S for 300 min reaction time.



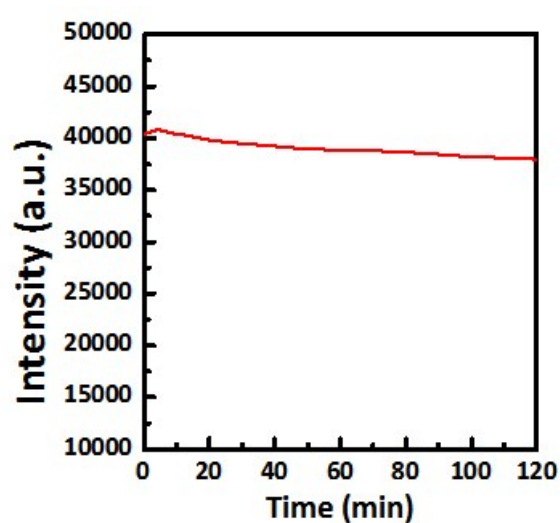
**Figure S4.** FT-IR spectrum of the PEG-PATU  $\text{Ag}_2\text{S}$  QDs.



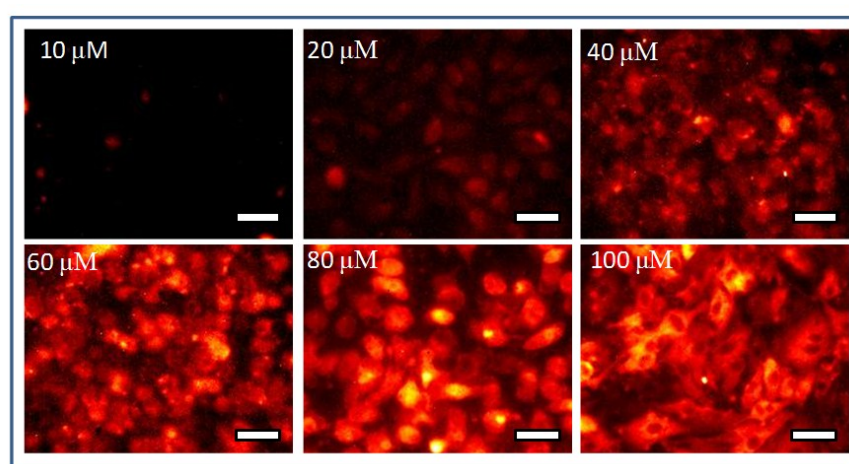
**Figure S5.** (a) Field emission scanning electron microscopy (FESEM) images of PEG-PATU  $\text{Ag}_2\text{S}$  QDs and (b) its corresponding EDS mapping images.



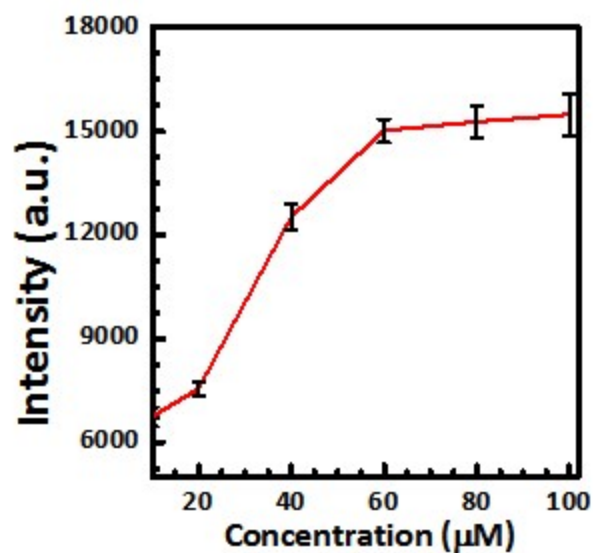
**Figure S6.** (a) The optical and (b) NIR-II fluorescent images (0.1 mg/ml) of PEG-PATU Ag<sub>2</sub>S QDs in PBS, fetal bovine serum (FBS) and cell culture medium (RPMI 1640) at room temperature.



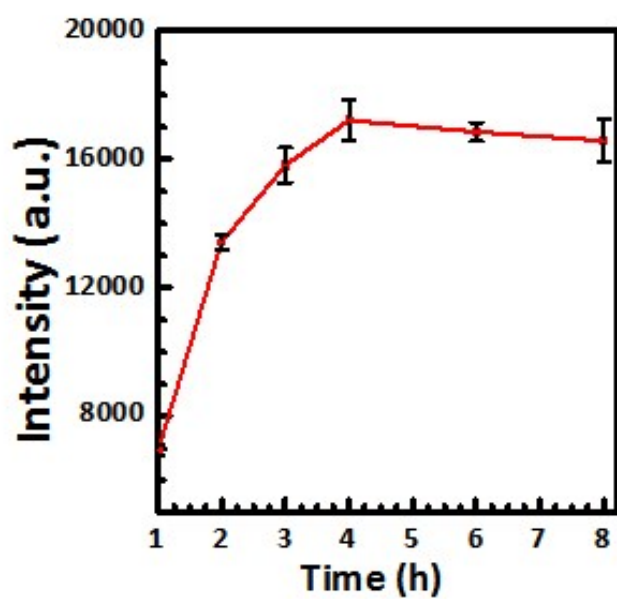
**Figure S7.** Stability of PEG-PATU Ag<sub>2</sub>S QDs. Fluorescence emission intensity of the PEG-PATU Ag<sub>2</sub>S QDs as-prepared with laser light irradiation (808 nm) for 120 min.



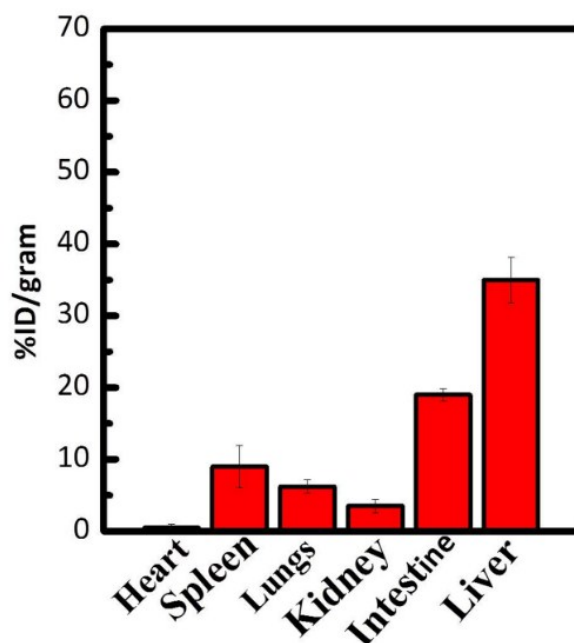
**Figure S8.** NIR-II fluorescence images of A549 cancer cells incubated for 4 h with different concentrations of PEG-PATU Ag<sub>2</sub>S QDs. Scale bar: 50  $\mu$ m.



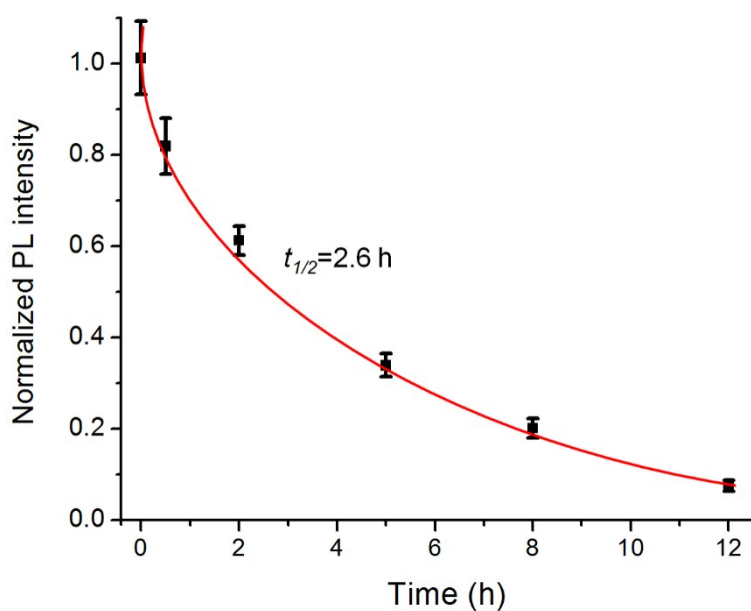
**Figure S9.** Fluorescence emission intensity of A549 cancer cells incubated with different concentrations of PEG-PATU Ag<sub>2</sub>S QDs for 4 h.



**Figure S10.** Fluorescence emission intensity of A549 cancer cells incubated with PEG-PATU Ag<sub>2</sub>S QDs (100 μM Ag<sub>2</sub>S) for different time points.

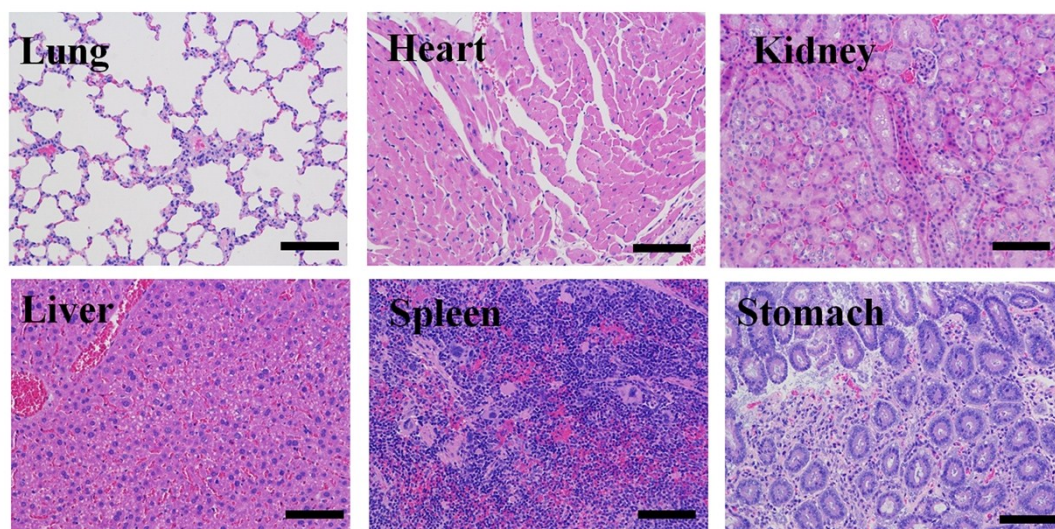


**Figure S11.** The biodistribution of PEG-PATU Ag<sub>2</sub>S QDs in various organs after 4 h of injection of A549 cancer cells incubated with PEG-PATU Ag<sub>2</sub>S QDs (100  $\mu$ M Ag<sub>2</sub>S) for 4 h. The (%ID/gram) denotes the percent injected dose per gram.



**Figure S12.** Blood retention study of PEG<sub>1000</sub>-PATU Ag<sub>2</sub>S QDs by NIR-II fluorescence imaging of the blood samples obtained at different time point.





**Figure S13.** H&E- stained images of the major organs of the mouse after 24 h of intravenous injection of PEG-PATU Ag<sub>2</sub>S QDs (2 mg mL<sup>-1</sup> Ag<sub>2</sub>S, 100 μL). (Scale bar: 100 μm).