Electronic Supplementary Information

One-step Facile Synthesis of Fluorescent Gold Nanoclusters for Rapid Bio-imaging of Cancer Cells and Small Animals

Wanjun Zhang, Jing Ye, Yuanyuan Zhang, Qiwei Li, Xiawei Dong, Hui Jiang, Xuemei Wang*

State Key Laboratory of Bioelectronics, School of Biological Science and Medical Engineering, Southeast University, Nanjing 210096, China *Corresponding to: xuewang@seu.edu.cn

† Electronic Supplementary Information (ESI) available: [details of any supplementary information available should be included here]. See DOI: 10.1039/x0xx00000x/

Figure S1. TEM images of the Au-BSA NCs. Inset: high resolution image with the crystallinity of the metallic structure.

Figure S2. Optical characterization of the Au-BSA NCs. Curves a, b show the UV/vis absorption spectrum and the emission spectrum (Em) of the Au-BSA NCs. Inset: photographs of (c) BSA

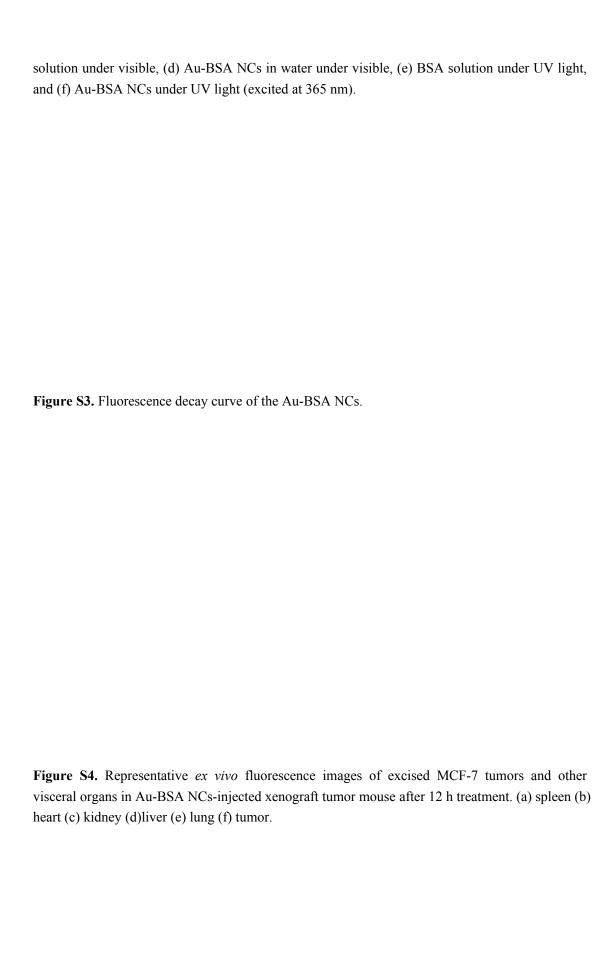


Figure S5. The viabilities of cells after incubation 24 h with Au-BSA NCs. Two kinds of cancer cells were tested for studying the toxicity of the as-obtained materials against the cells: (A) U87 cell, (B) A549 cell.

Fluorescence quantum yield:

The quantum yield of the as-prepared Au-BSA NCs is measured using the comparative method, which relies on the use of fluorescence standards with known fluorescence quantum yields (Rhodamine B, QY = 95%). The formula as follows:

$$QY_u \!\!= QY_s * [D_u \, / \, D_s] * [A_s \, / \, A_u] \Box * [n_u \, / \, n_s]^2 \ (\, A \! \leq \! 0.05 \,)$$

where the Quantum Yield of Rhodanmine B in enthnol is taken as 0.95. A_s and A_u are the UV absorption of the standard s and the sample u. D_s and D_u are the integrated area of the standard s and the sample u under the corrected fluorescence emission spectrum. Meanwhile, the integrated areas under the fluorescence emission spectrum curves were calculated by means of Origin software. The n is the index of refraction with $n_s=1.36$ for ethanol and $n_u=1.33$ for water. Briefly, series of diluted samples Au-BSA NCs in water and Rhodamine B at specific concentration (5 μ g/mL) were prepared and fluorescence emission scans and UV absorption were performed. In summary, We use the equation cited above to determine the quantum yield of Au-BSA NCs.