

**Supporting Information to**

**Sputtering Synthesis and Optical Investigation of  
Octadecanethiol–Protected Fluorescent Au  
Nanoparticles**

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## **Experimental details**

UV-Vis extinction spectra were measured using a spectral photometer (JASCO, V-1630, 250 - 800 nm) with a quartz cell of 1 mm optical path.

Fluorescence spectra were measured using a fluorescence spectrophotometer (JASCO, FP-6600) with a quartz cell of 10 mm optical path. The filter (Sharp cut filter Y-50) which cut the emission less than 500 nm, was equipped in front of the detection window. Fluorescence quantum yields were recorded with JASCO ILF-533 integrating sphere unit with a quartz sample cell of 10 mm optical path. The measurement was carried out with a fixed excitation wavelength of each sample. The fluorescent wavelength was measured in the range of 200~950 nm. Au nanoparticle dispersion was used after diluted 5-fold with pure Si-oil.

TEM observation for the size and shape of Au NPs was carried out using JEOL 2010F (acceleration voltage of 200 kV). TEM samples were prepared by dropping gold dispersion onto collodion-coated copper grids. The grids were then soaked into methanol for 30 min in order to remove the excess Si-oil and dried under vacuum.

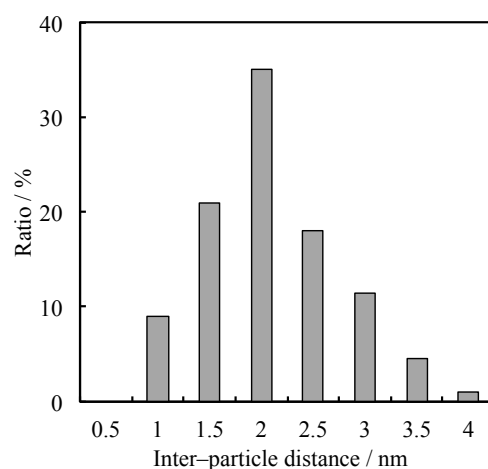


Figure S1. Histogram of edge to edge inter-particle distance for sample (c). 200 Inter-particle distances from over 5 TEM images were counted.

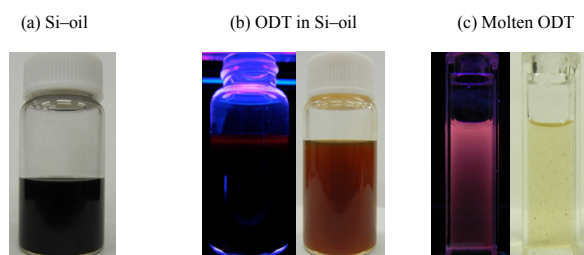


Figure S2. Photo images of obtained Au NPs dispersions under sunlight and UV irradiation at 365 nm. (c) was diluted with 5<sup>th</sup> times of acetonitrile.