

## Supporting information for the paper:

### Quantum Clusters of Gold Exhibiting FRET

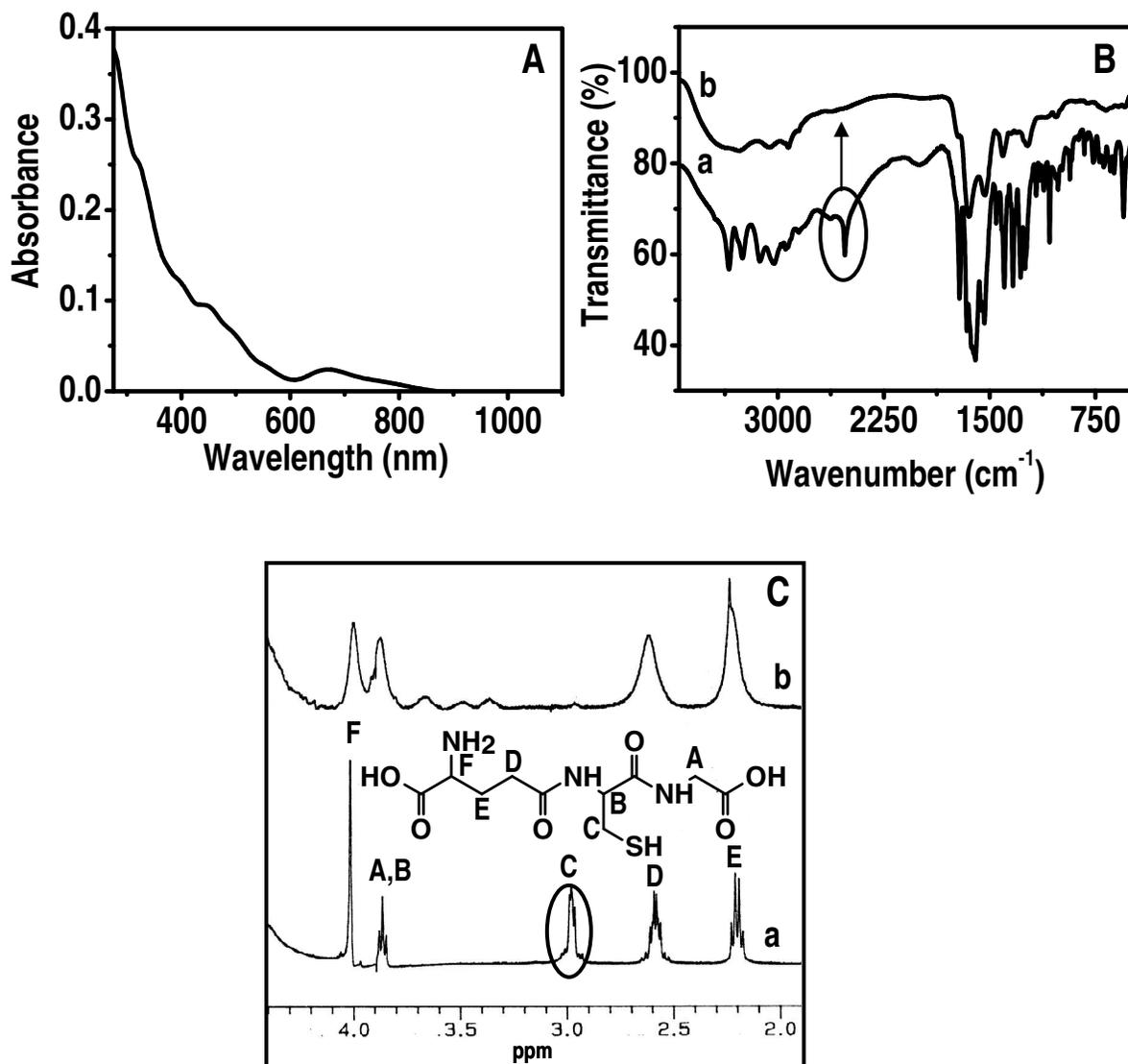
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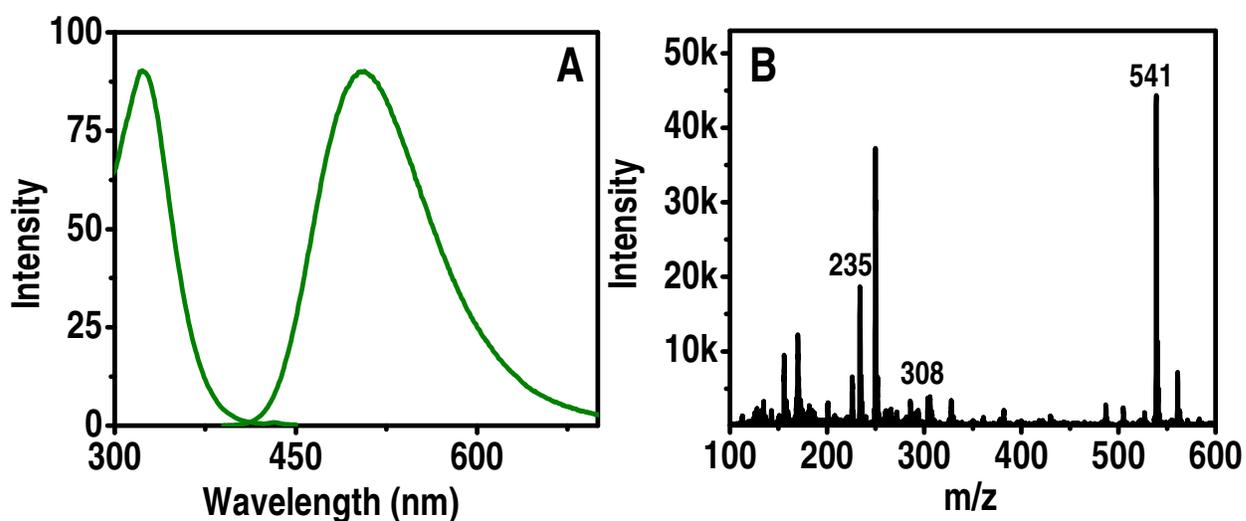
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#### Supporting information 1



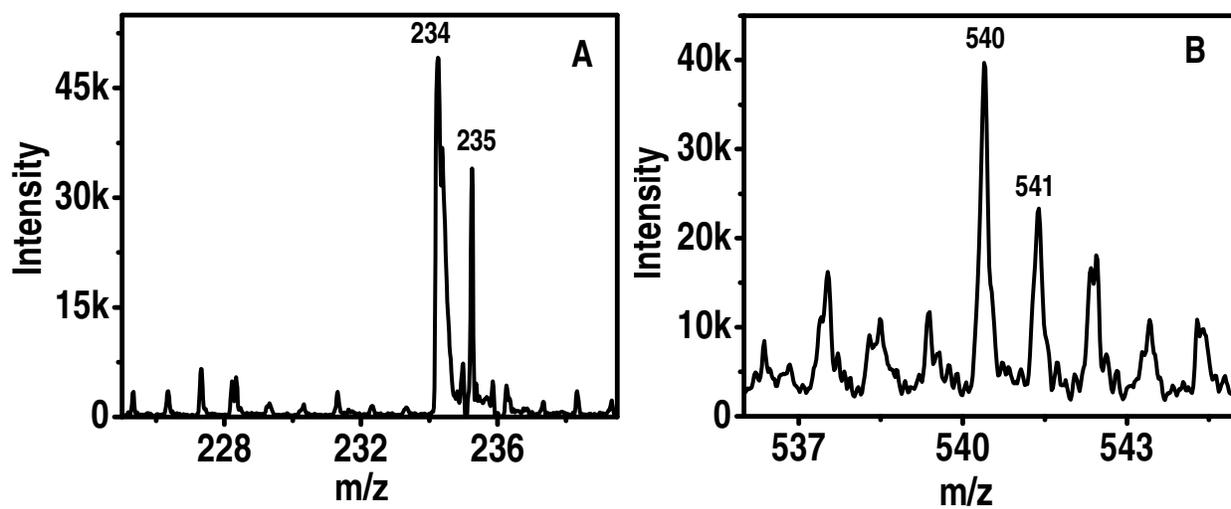
**Figure S1.** A) UV/Vis. absorption spectrum of Au<sub>25</sub>SG<sub>18</sub> showing the characteristic features. B) FT-IR spectra of a) glutathione and b) Au<sub>25</sub>SG<sub>18</sub>. The peak at 2526 cm<sup>-1</sup> of glutathione which corresponds to S-H stretching vibration mode marked with arrow, disappears in the Au<sub>25</sub>SG<sub>18</sub>. C) <sup>1</sup>H NMR of a) pure GSH and b) Au<sub>25</sub>SG<sub>18</sub> in D<sub>2</sub>O. The resonances are labeled. There is one-to-one correspondence between the two spectra, except that the βCH<sub>2</sub> resonance (marked with circle) disappears completely in the cluster. Other peaks are broadened.

## Supporting Information 2



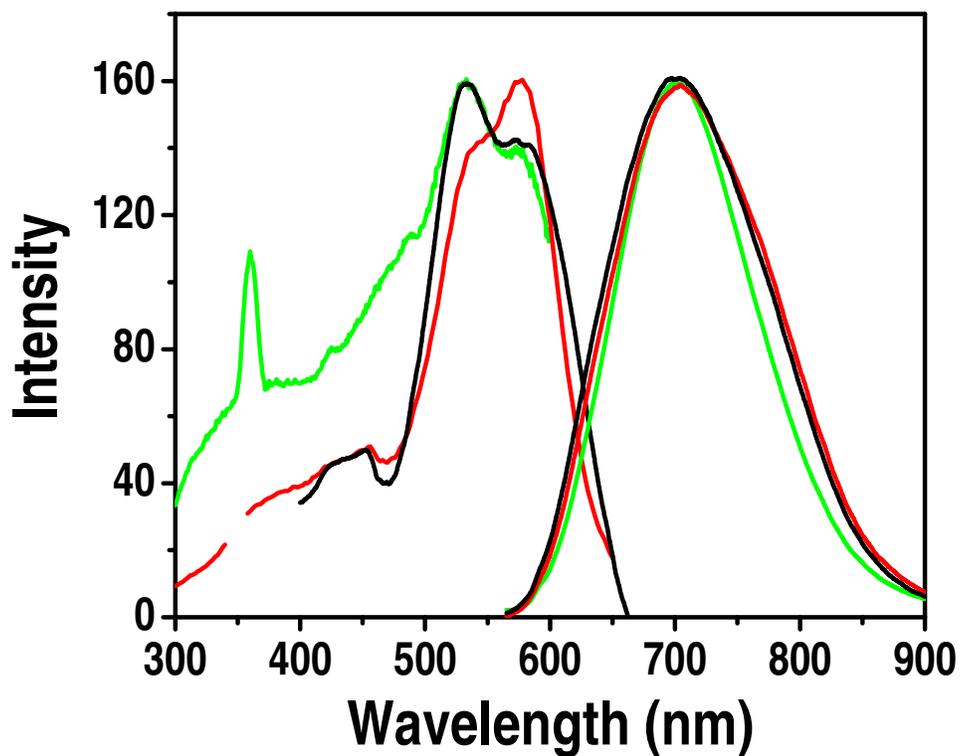
**Figure S2.** A) Photo excitation and emission spectra of as synthesized dansyl glutathione. The excitation and emission maxima are at 323 and 505 nm, respectively. B) Positive ion ESI-MS of the as synthesized dansyl glutathione showing the features of dansyl glutathione, glutathione and the dansyl fragment at m/z values 541, 308 and 235, respectively. Molecular mass of dansyl glutathione is 540 and that of the dansyl fragment is 234. ESI-MS (water: methanol 1:1, 20 ppm sample) shows the protonated ions.

Supporting information 3



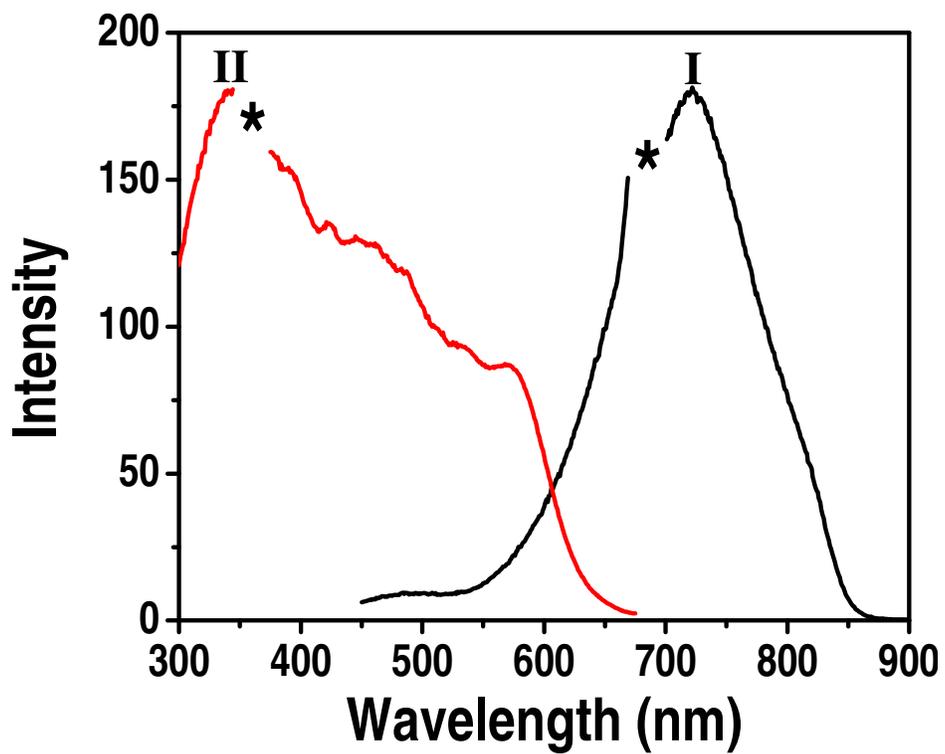
**Figure S3.** LDI-MS of the reaction product showing the features of the dansyl group (A) and dansyl glutathione (B).

Supporting information 4



**Figure S4.** Excitation and emission spectra of  $\text{Au}_{25}\text{SG}_{18}$  collected from three different instruments. Black trace- JOBIN VYON Fluorolog 3, red trace- JASCO FP 6600 and green trace- Cary Eclipse. As can be seen, there are minor differences between the spectra, attributed to the instrumental differences. The apparent differences with the spectra shown in Figure 4 are due to the intensity scaling.

Supporting information 5



**Figure S5.** Excitation and emission spectra of the exchange product. (I) Emission of Au<sub>25</sub> cluster when excited at 330 nm and (II) excitation spectrum collected for the emission at 700 nm. The donor emission is totally quenched. Asterisks represent second order lines of the grating.