Electronic Supplementary Material

Two Distinct Fluorescent Quantum Clusters of Gold Starting from Metallic Nanoparticles by pH-Dependent Ligand Etching

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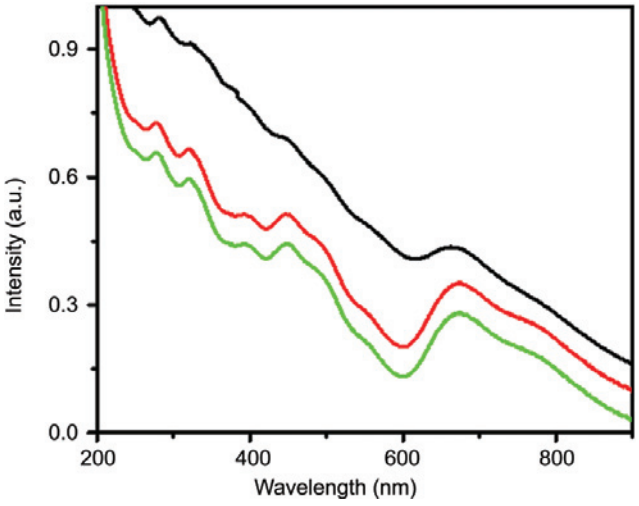

Figure S-1 Comparison of the optical absorption spectra of Au_{25} obtained after first etching (black trace), second etching (green trace) and an authentic $Au_{25}SG_{18}$ sample prepared using polyacrylamide gel electrophoresis (PAGE) (red trace). The experimentally obtained spectra are corrected using the Jacobian factor

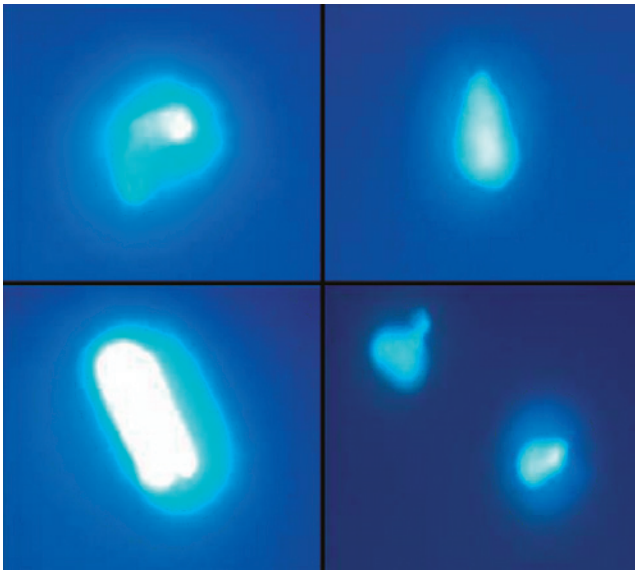

Figure S-2 Epifluorescence images of Au_8 film deposited on a glass plate when irradiated by a UV lamp emitting in the range 330–380 nm. The image was collected with a 100× objective

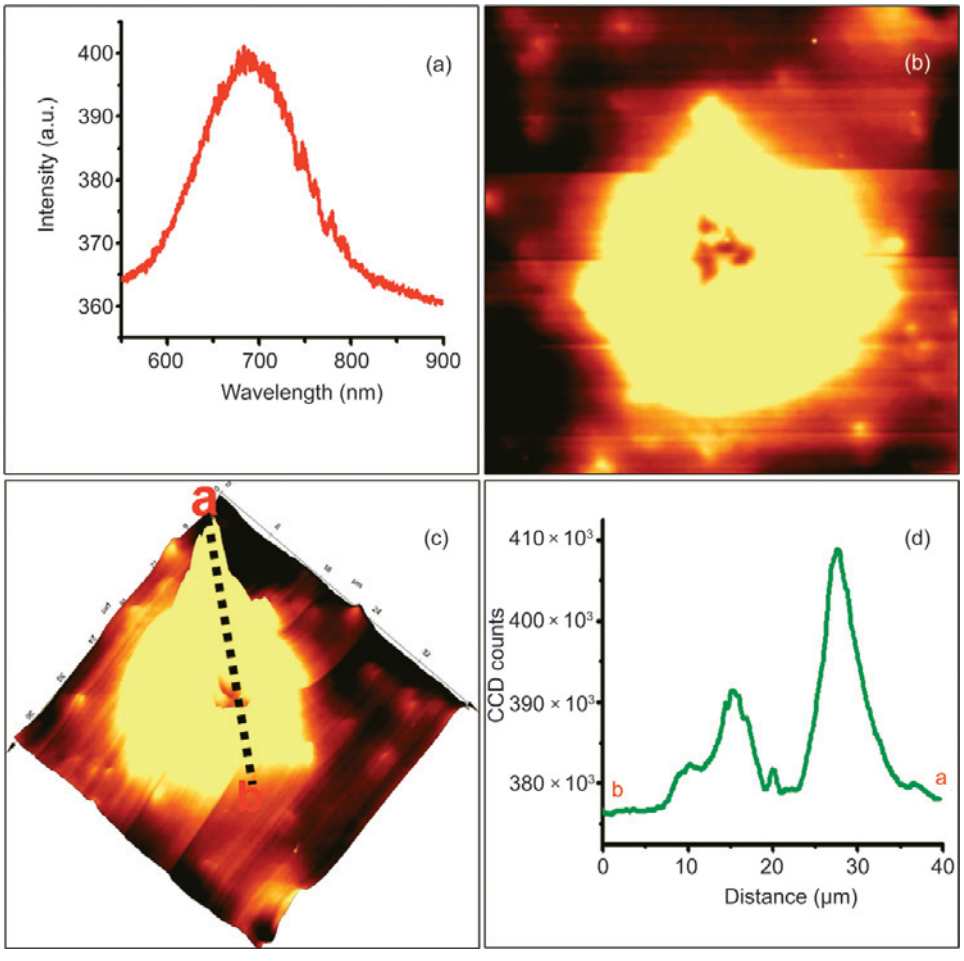

Figure S-3 (a) solid state emission spectrum of Au_{25}, collected at 514.5 nm excitation. (b) Inherent fluorescence image of Au_{25} collected by the spectroscopic mapping of an area 40 μm × 40 μm at an excitation wavelength of 514.5 nm. (c) 3D View of the image and (d) fluorescence intensity profile from point 'a' to 'b' along the line drawn in the 3D image. Regions coded yellow represent the pixels where the signal (used for mapping) is a maximum, the minima being represented with red/black colors

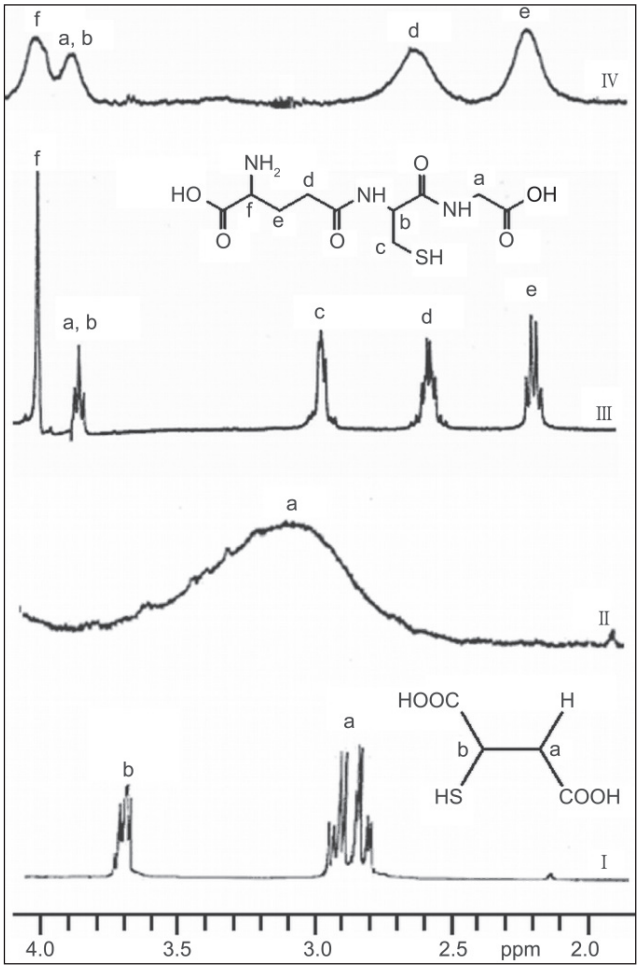

Figure S-4 ^{1}H NMR spectra of (I) MSA, (II) Au@MSA, (III) GSH, and (IV) Au_{25} from Au@MSA. The peaks are labeled with the chemical structure of MSA and GSH. Note that the peak labeled 'b' of MSA and 'c' of GSH disappear when the ligands are on the nanoparticle and cluster surfaces, respectively. The peaks of the ligands are broadened and shifted slightly to higher ppm values when bound on the nanoparticle or cluster surfaces

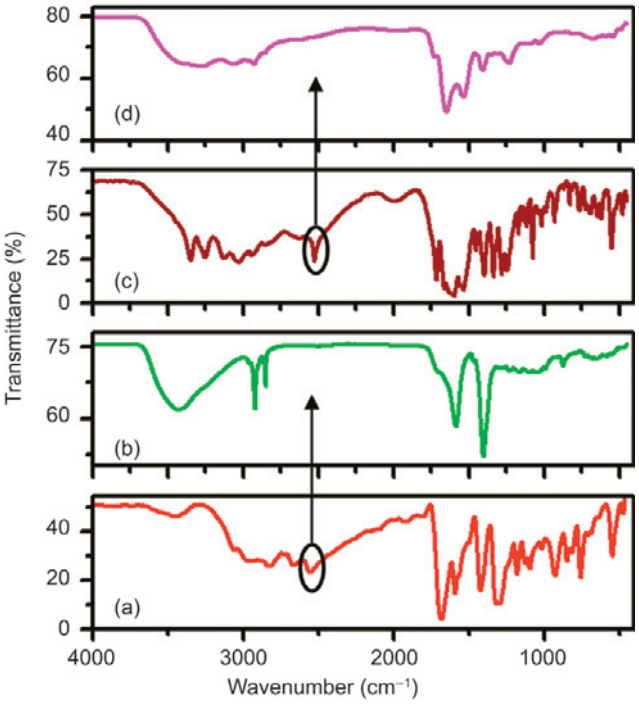

Figure S-5 FT-IR spectra of (a) MSA, (b) Au@MSA, (c) GSH and (d) Au_{25} from Au@MSA. Note that the –SH stretching frequencies (marked with circles) of MSA and GSH are absent when the ligands are bound on the nanoparticle and the cluster surfaces, respectively

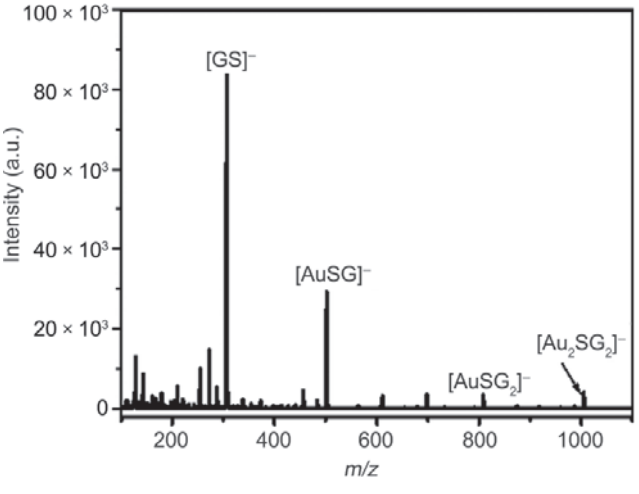

Figure S-6 ESI-MS (negative mode) of $Au_{25}SG_{18}$ showing features due to glutathione and gold