

## Supporting information

### **Micromolar Hg(II) induced the morphology of gold nanoparticles: A novel luminescent sensor for femtomolar Hg(II) using triazole capped gold nanoparticles fluorophore**

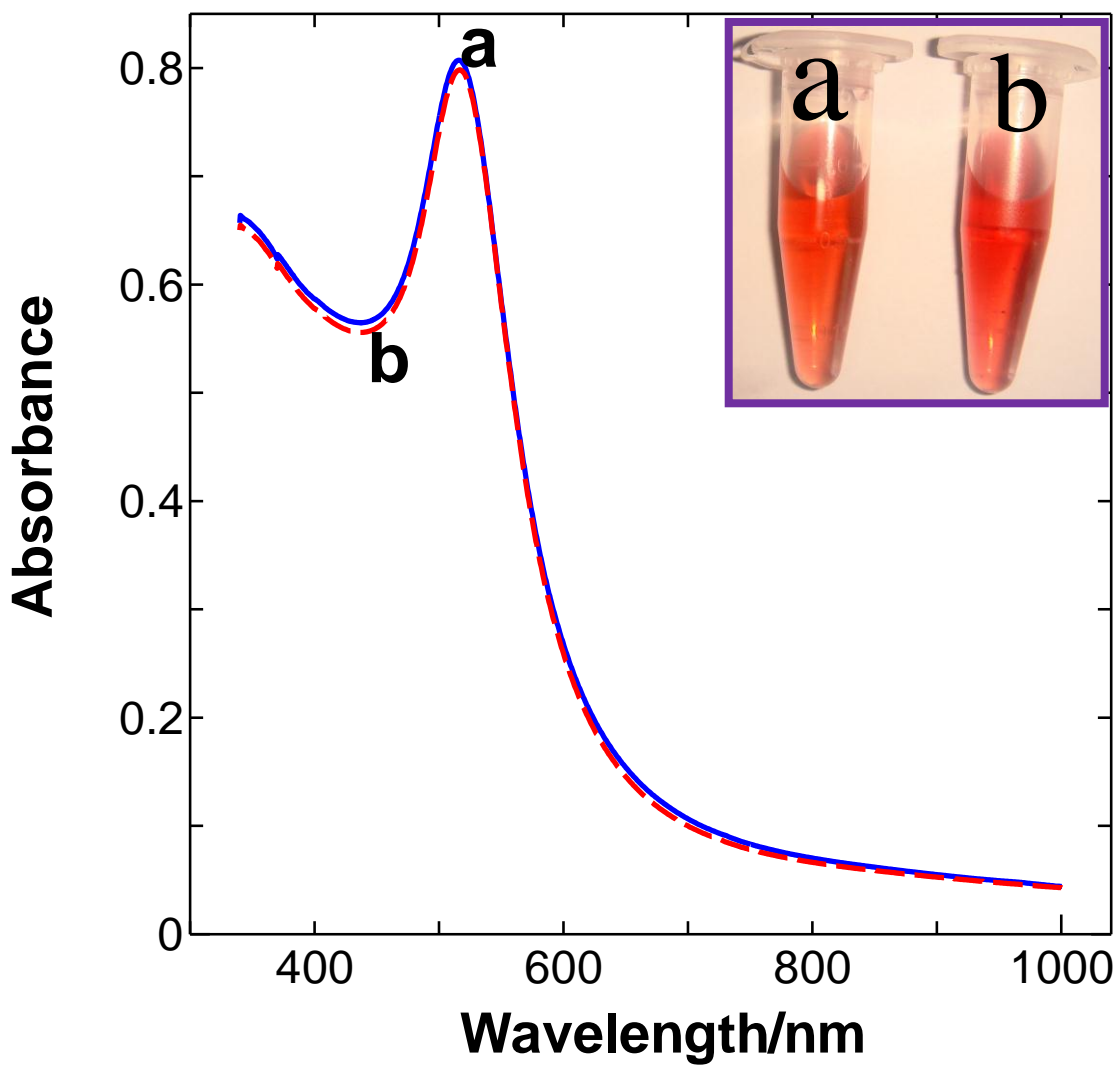
**N. Vasimalai and S. Abraham John\***

*Centre for Nanoscience and Nanotechnology  
Department of Chemistry, Gandhigram Rural Institute  
Gandhigram – 624 302, Dindigul, Tamilnadu, India.  
E-mail: [abrajohn@yahoo.co.in](mailto:abrajohn@yahoo.co.in)*

**Figure S-1.**

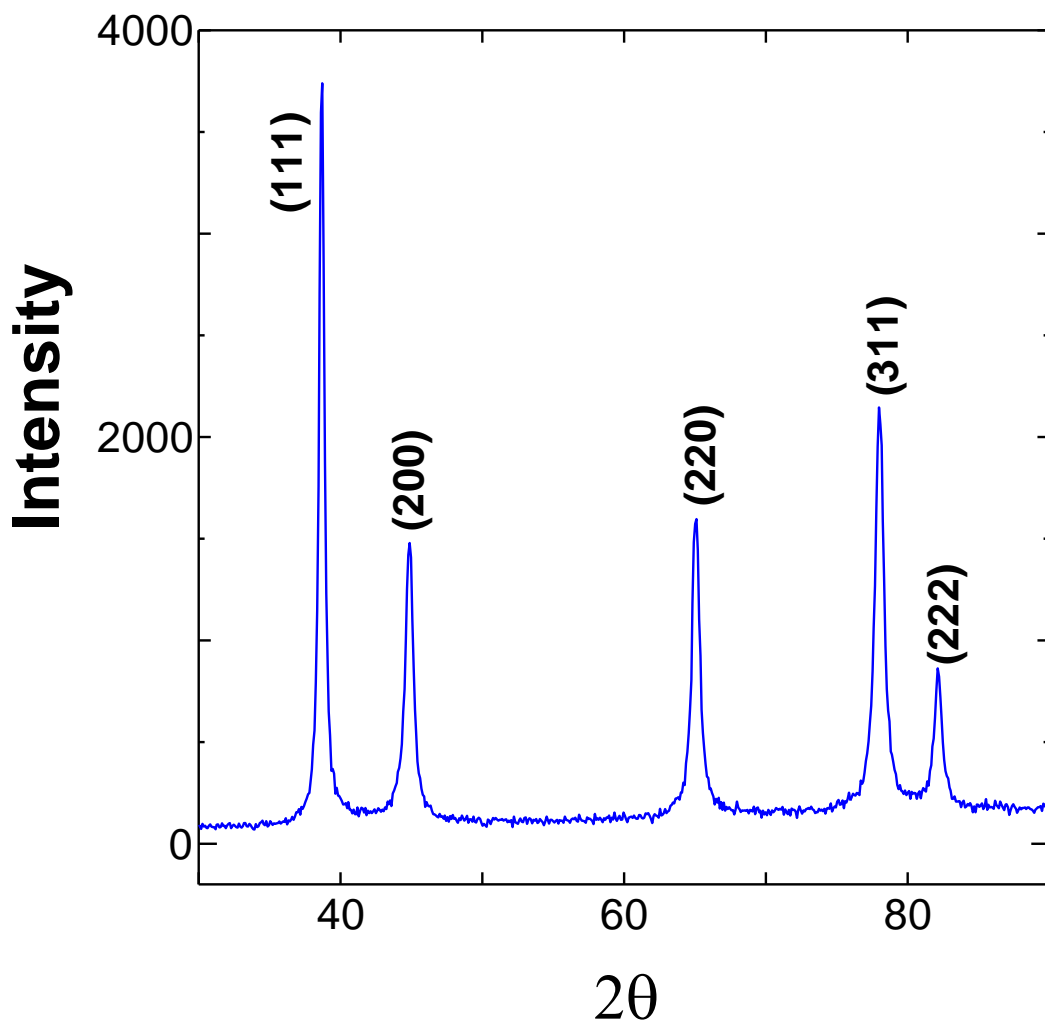
UV-visible spectra obtained for (a) freshly prepared and (b) six months aged DAT-AuNPs.

**Inset:** Photographs of freshly prepared (a) and after (b) six month aged DAT-AuNPs.



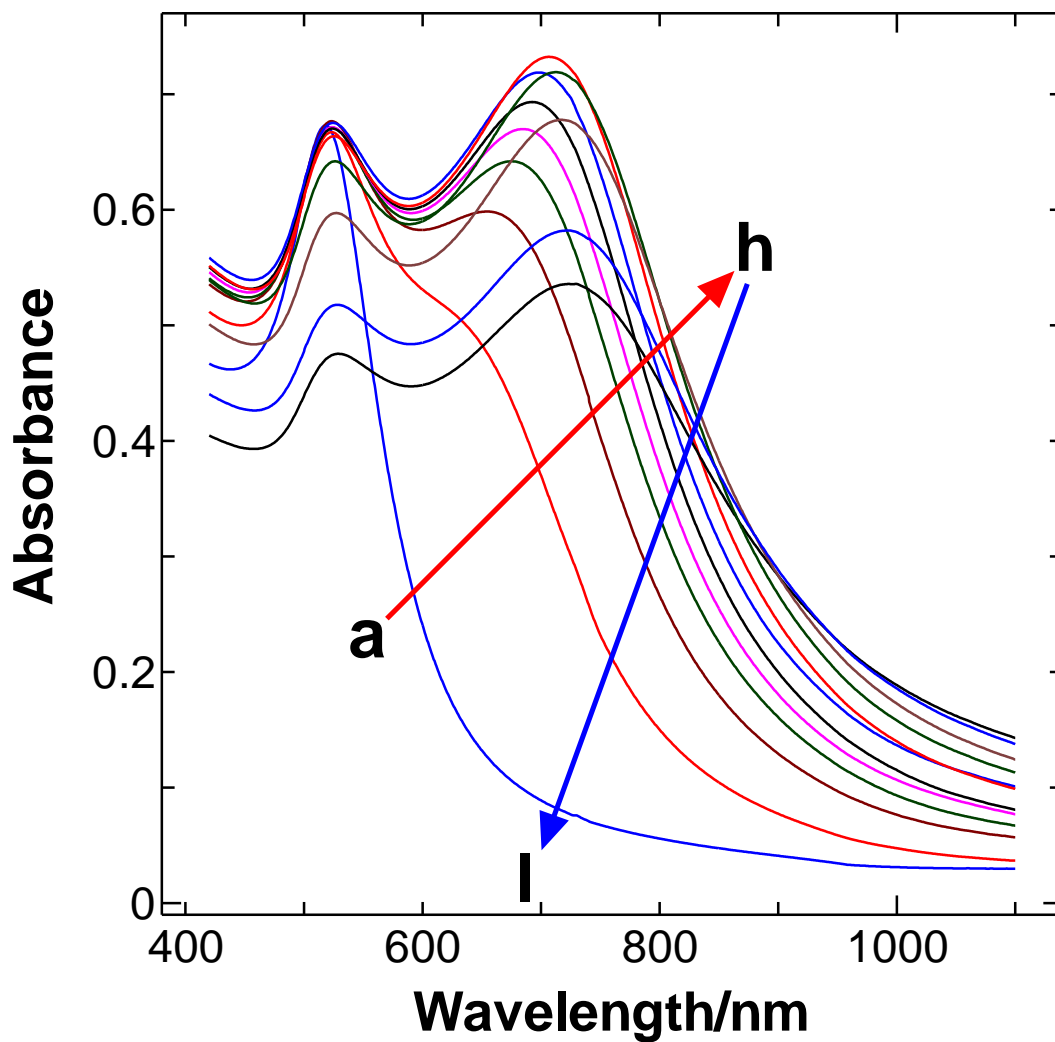
**Figure S-2.**

X-ray diffraction pattern obtained for DAT-AuNPs.



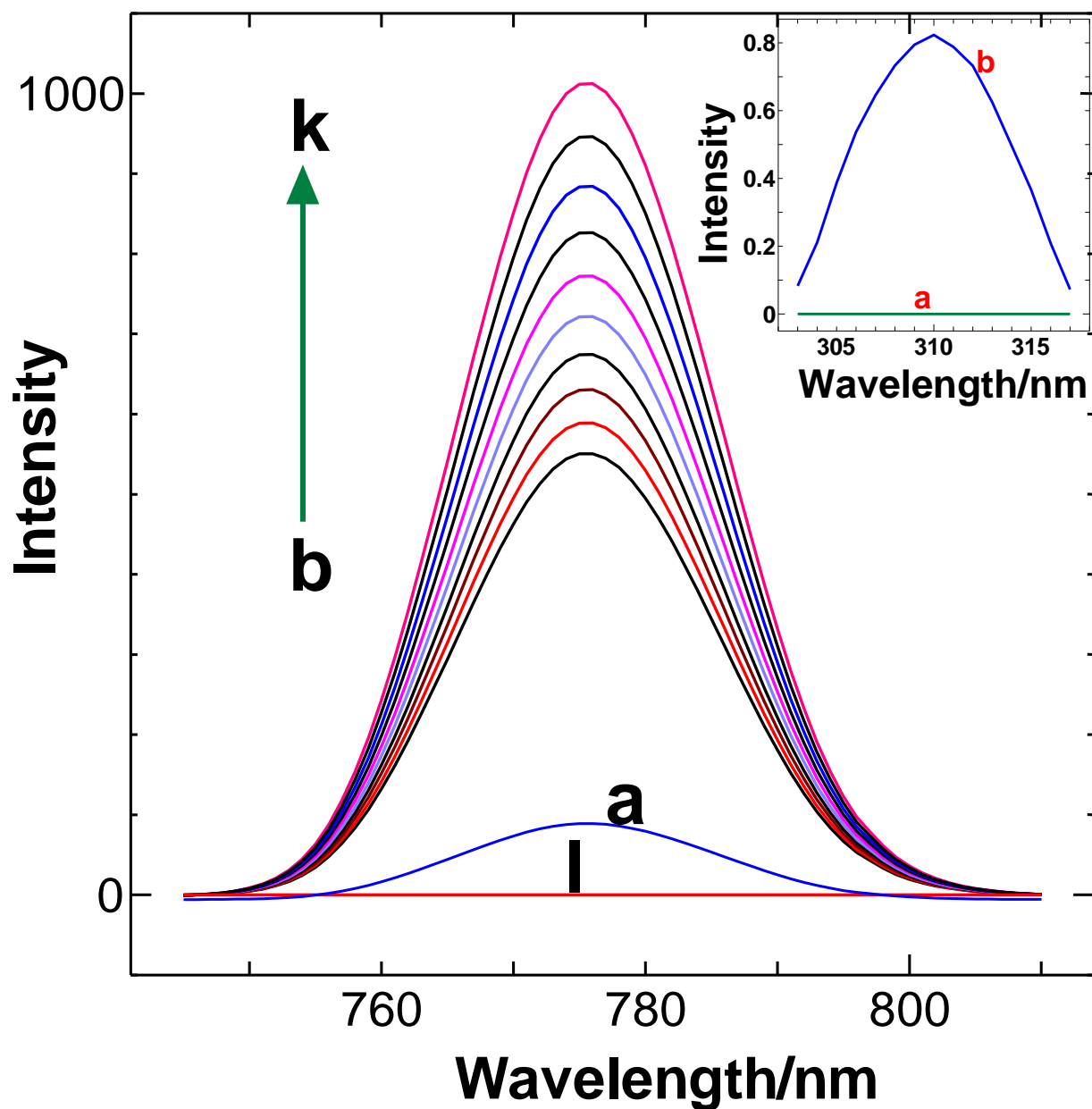
**Figure S-3.**

UV-visible spectra of DAT-AuNPs in different concentrations of Hg (II): (a) 0, (b) 1, (c) 2, (d) 3, (e) 4, (f) 5, (g) 6, (h) 7, (i) 8, (j) 9, (k) 10 and (l)  $11 \times 10^{-6}$  mol L<sup>-1</sup>.



**Figure S-4.**

Emission spectra of DAT-AuNPs in different concentrations of Hg(II) (a) 0, (b) 10, (c) 20, (d) 30, (e) 40, (f) 50, (g) 60, (h) 70, (i) 80, (j) 90 and (k)  $100 \times 10^{-9}$  mol L<sup>-1</sup> of Hg(II) and (l)  $100 \times 10^{-9}$  mol L<sup>-1</sup> of Hg(II) only ( $\lambda_{\text{ex}}$ :520 nm,  $\lambda_{\text{em}}$ :776 nm). **Inset:** Emission spectra of (a) DAT free AuNPs and (b) DAT capped AuNPs ( $\lambda_{\text{ex}}$ : 259 nm;  $\lambda_{\text{em}}$ : 310 nm).



**Figure S-5.**

Selectivity of DAT-AuNPs towards Hg(II). The emission response of Hg(II) ( $10 \times 10^{-9} \text{ mol L}^{-1}$ ) in DAT-AuNPs in the presence of  $0.5 \times 10^{-3} \text{ mol L}^{-1}$  of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ , EDTA,  $\text{Fe}^{3+}$ ,  $\text{SO}_4^{2-}$ ,  $\text{Cl}^-$ ,  $\text{NO}_3^-$  ions, 6, 5 and  $1 \times 10^{-6} \text{ mol L}^{-1}$  of  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$  and  $\text{Ag}^+$  respectively.

