

Supporting Information

An insight into the optical property of sub nano size glutathione stabilized gold cluster

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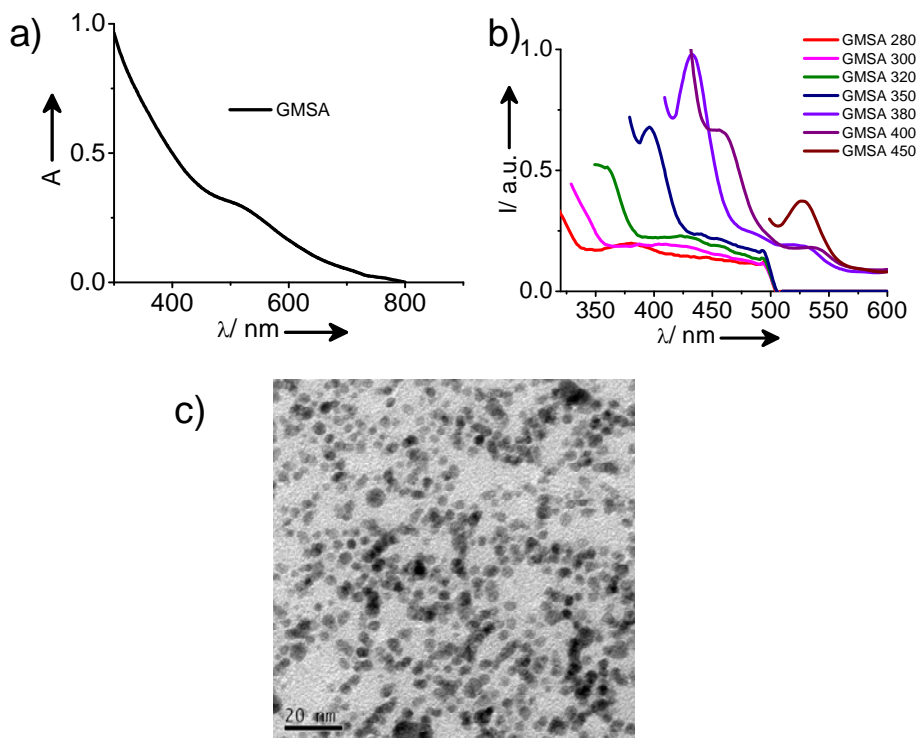


Fig. S1 (a) Absorbance, (b) fluorescence at different excitation and (c) TEM of GMSA

Name of the cluster	pH	Temperature		Emission @ 450 nm excitation (nm)	(λ_{\max}) 750/ (λ_{\max}) 530 @ 450 nm excitation
		GSH	Reaction @ 12 h		
AuC1	1.5	27°	27°	750	1.2
AuC2	1.5	27°	70°	750	2.5
AuC3	1.5	0°	70°	750	50.42
AuC4	10	27°	70°		

Table S1: Comparison of reaction condition on fluorescence property

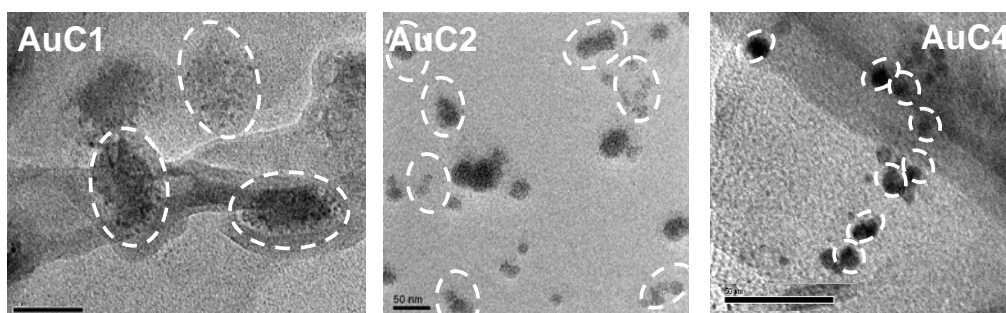


Fig.S2 Lower magnification TEM image of AuC1, AuC2 and AuC4. All the scale bars are 50 nm

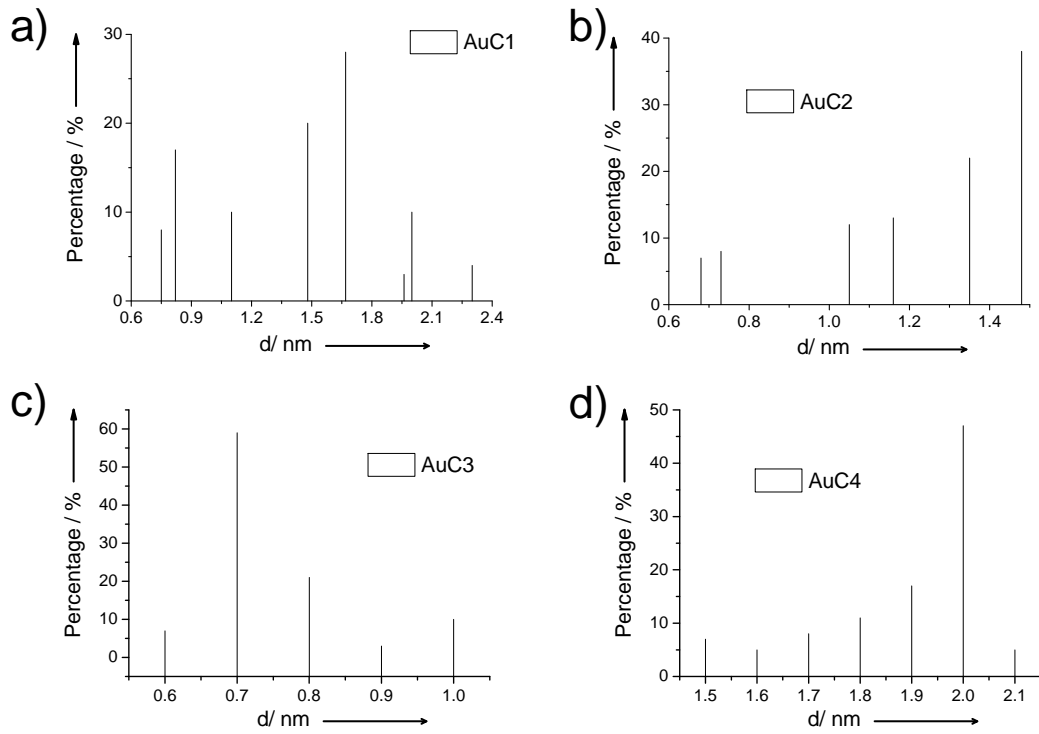


Fig. S3 Size distribution of the cluster from TEM.

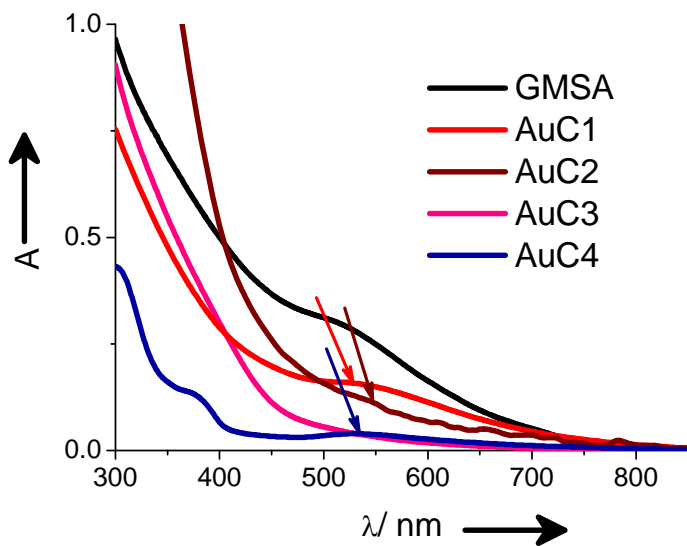


Fig.S4 UV- Visible absorbance spectra of developed nano materials

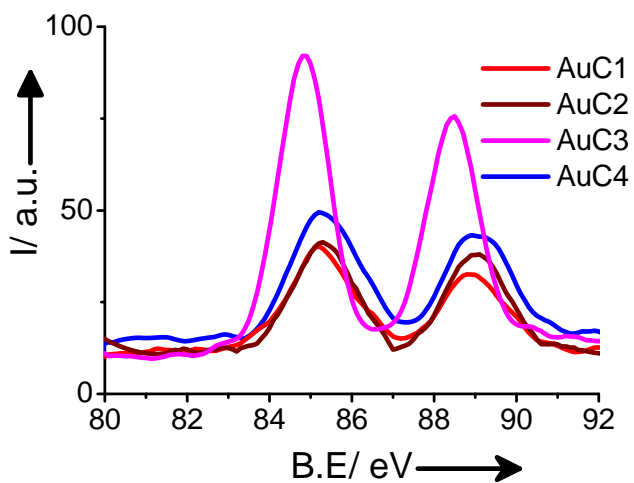


Fig. S5XPS spectra of the developed clusters

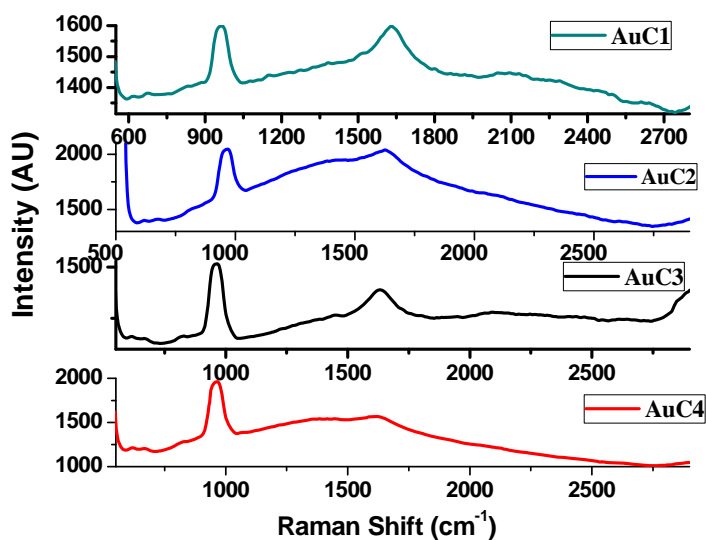
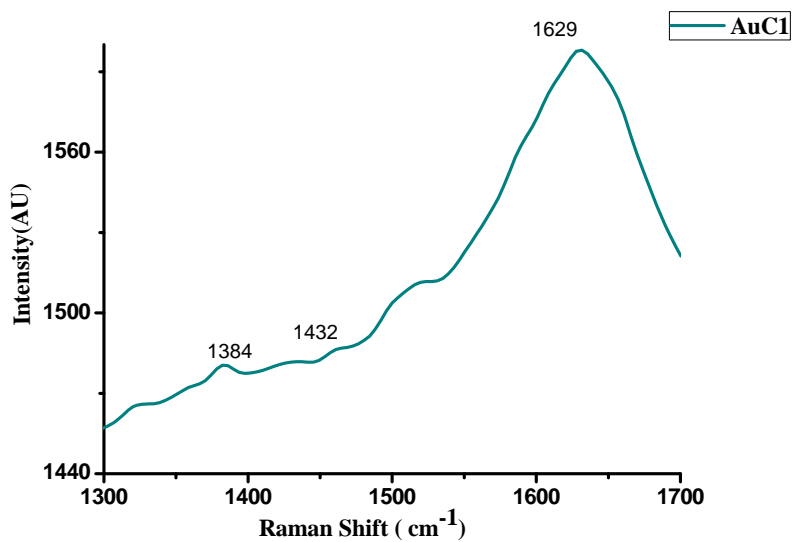
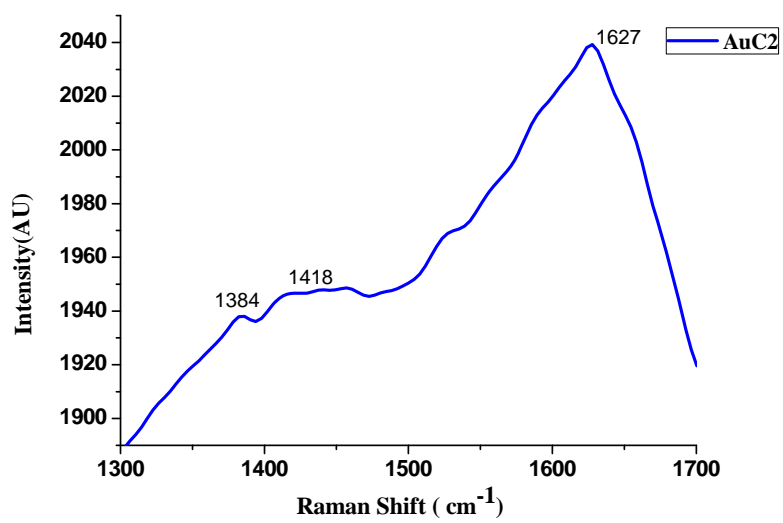


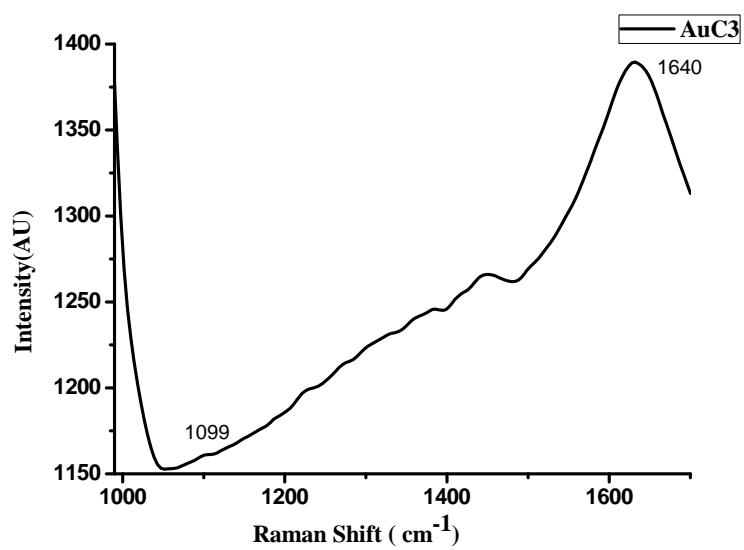
Fig. S6 Raman Spectra of AuC1, AuC2, AuC3 and AuC4 , Individual and magnified spectra of AuC1,AuC2,AuC3 and AuC4 in the range 1000 to 1700 cm^{-1} are shown in Fig S6a-d



S6a



S6b



S6c

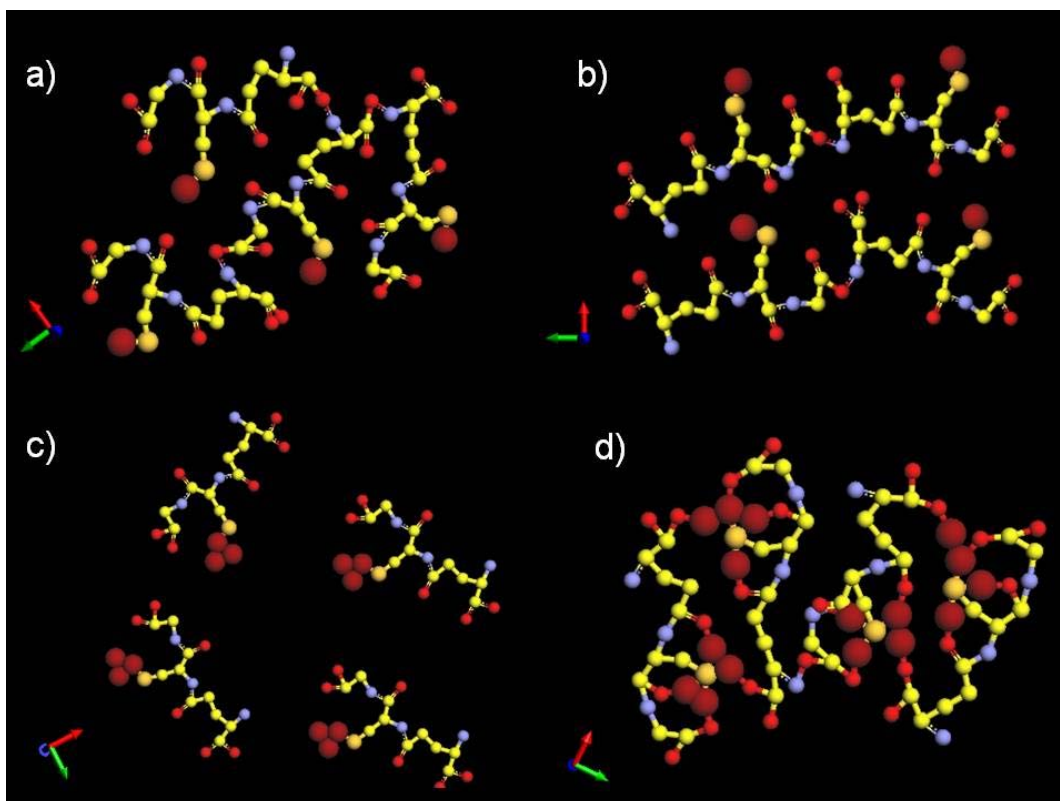
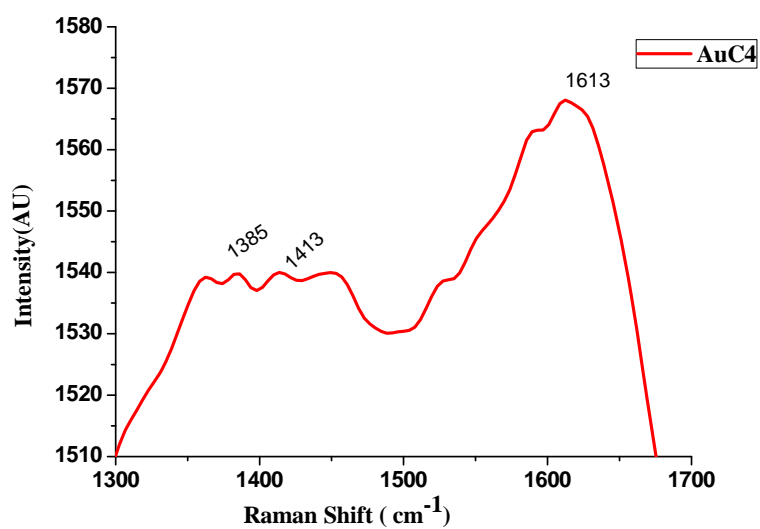


Fig. S7 Optimized geometry of self assembled structures, AuC1 (a), AuC2 (b), AuC3 (c) and AuC4 (d). In all the cases 4 repeated units are shown. Au, S, C, O and N are represented in brown, orange, yellow, red and blue respectively.

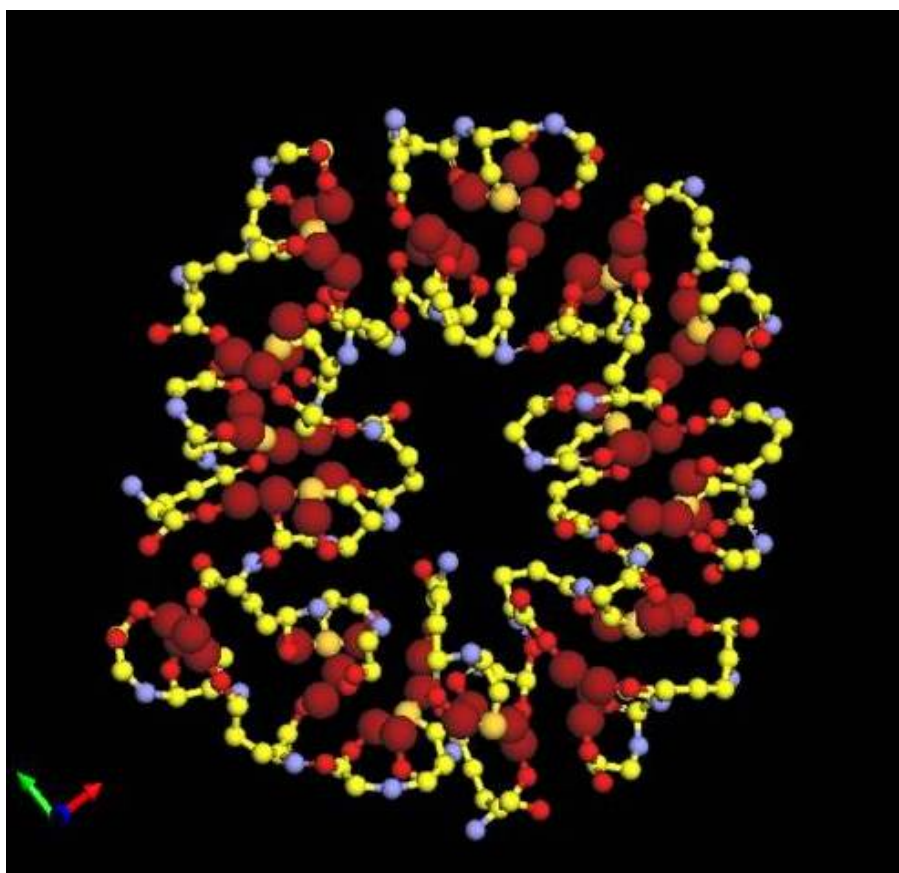


Fig. S8 Optimized geometry of self assembled structures AuC4 showing the pattern similar to the one observed in the TEM image. Note the central gap.

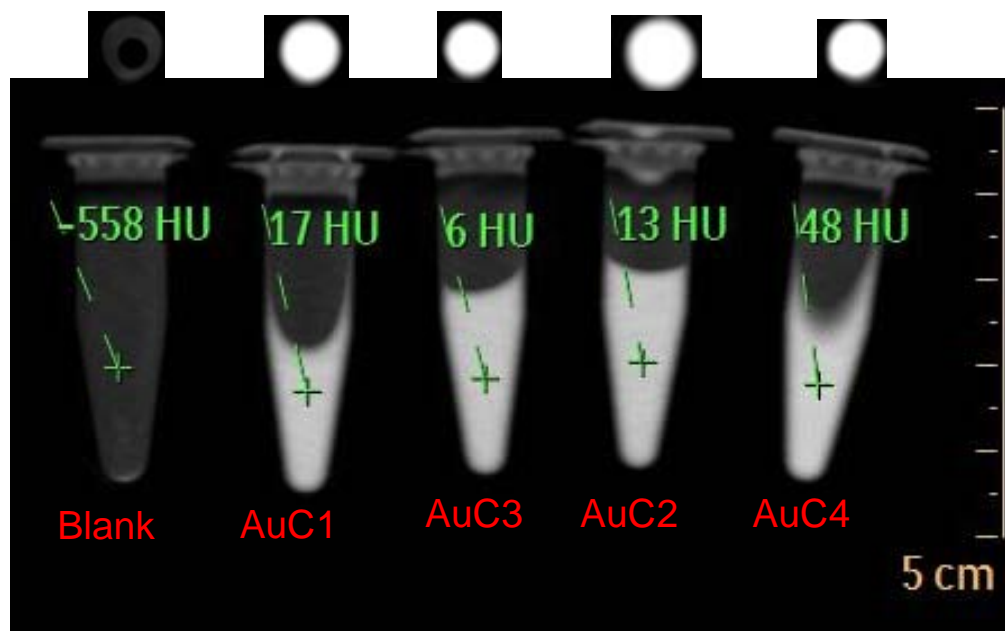


Fig.S9 CT image of the developed cluster

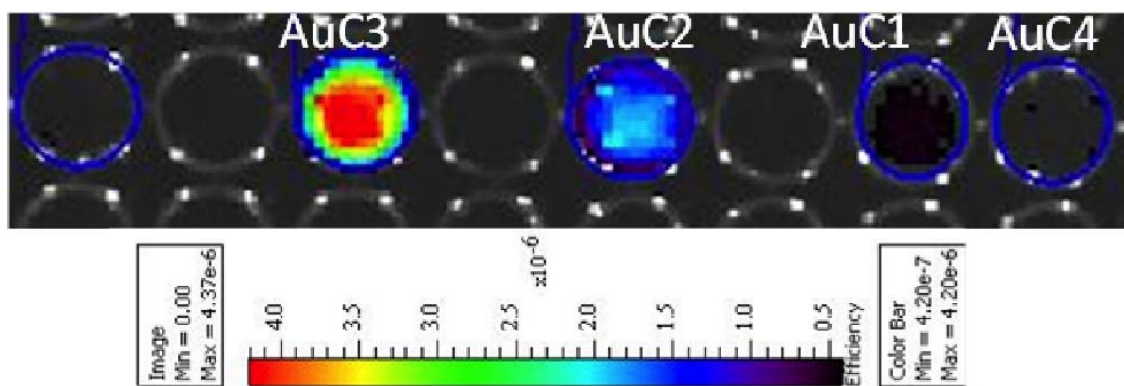


Fig. S10: Optical imaging of the developed clusters shown along with the color coded efficiency bar.

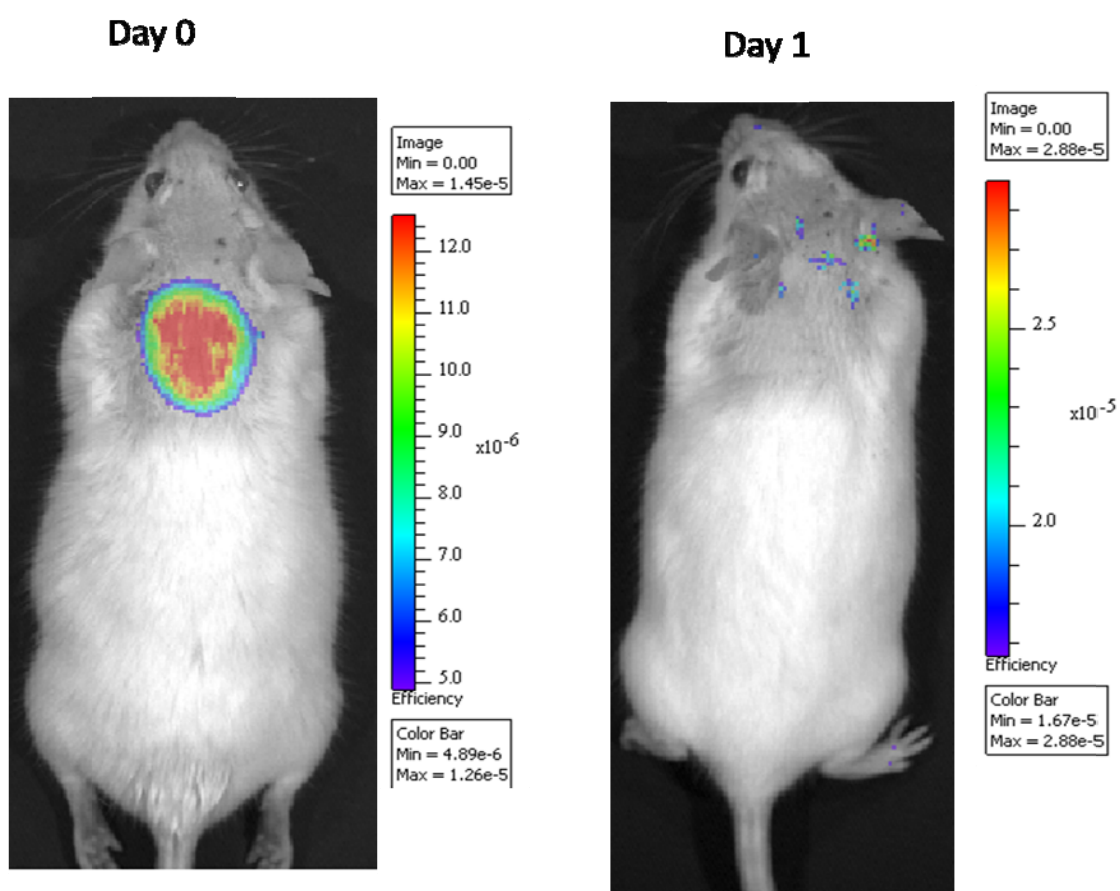


Fig. S11: *In vivo* optical imaging potential of AuC3 in mouse and its clearance from the body on the next day shown along with the color coded efficiency bar.