

Supporting Information of

Influence of surface ligand chemistry for synthesis of blue fluorescent gold nanoclusters for detection of serotonin in biofluids

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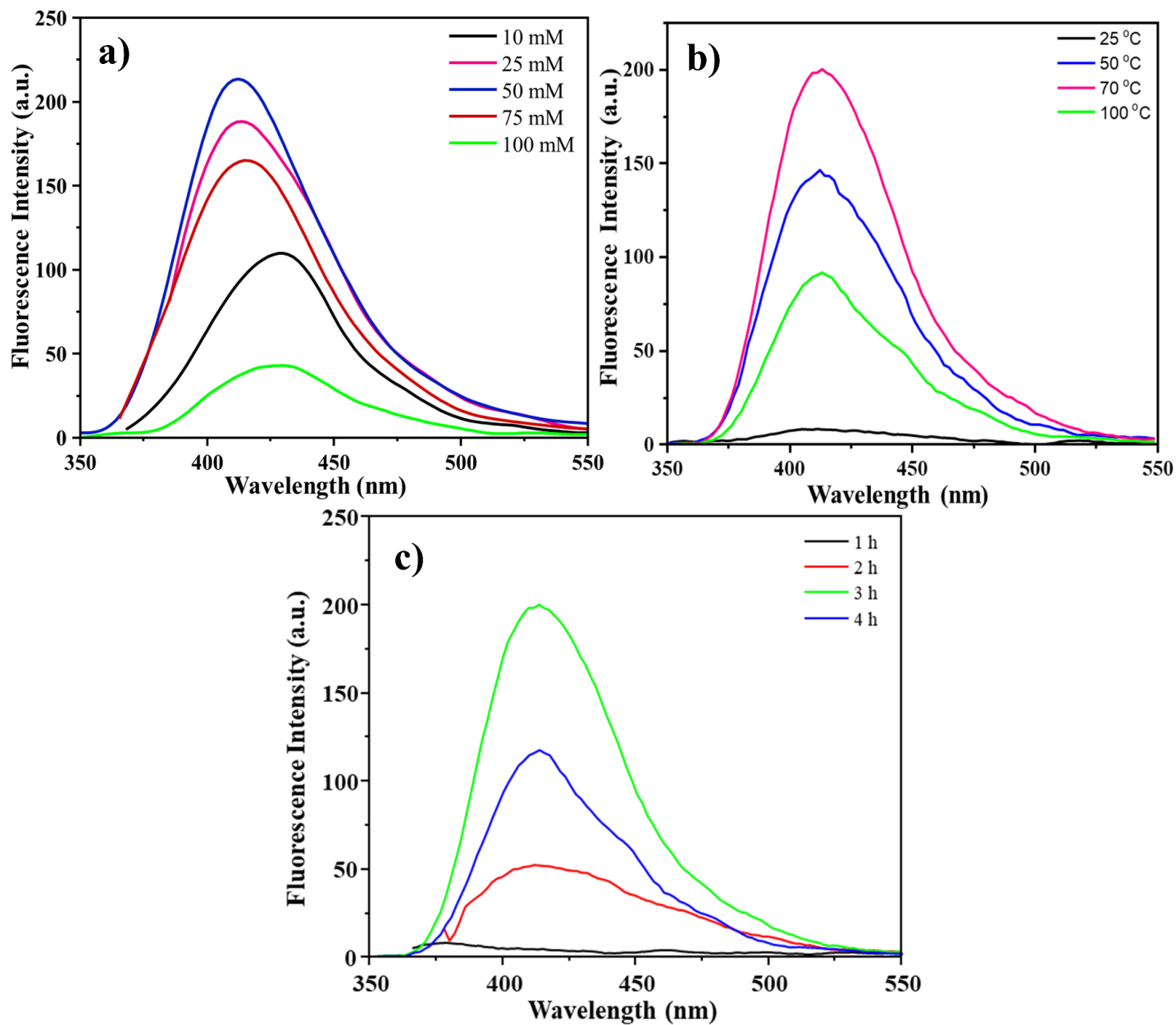


Figure S1. Investigation of optimum parameters a) concentration of 6-TG, b) temperature and c) reaction time for the synthesis of 6-TG-Au NCs.

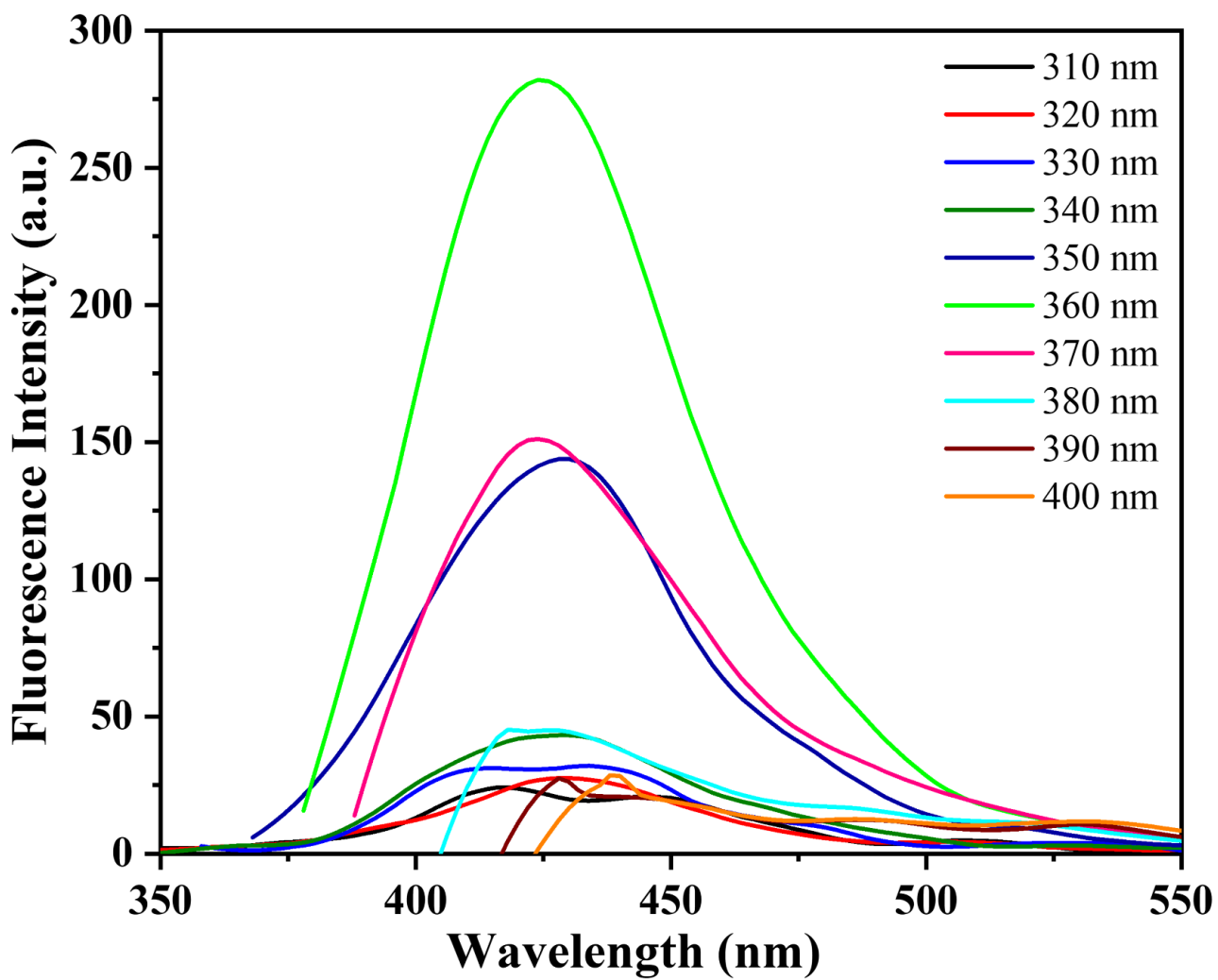


Figure S2. Excitation dependent emission spectra of 6-TG-Au NCs.

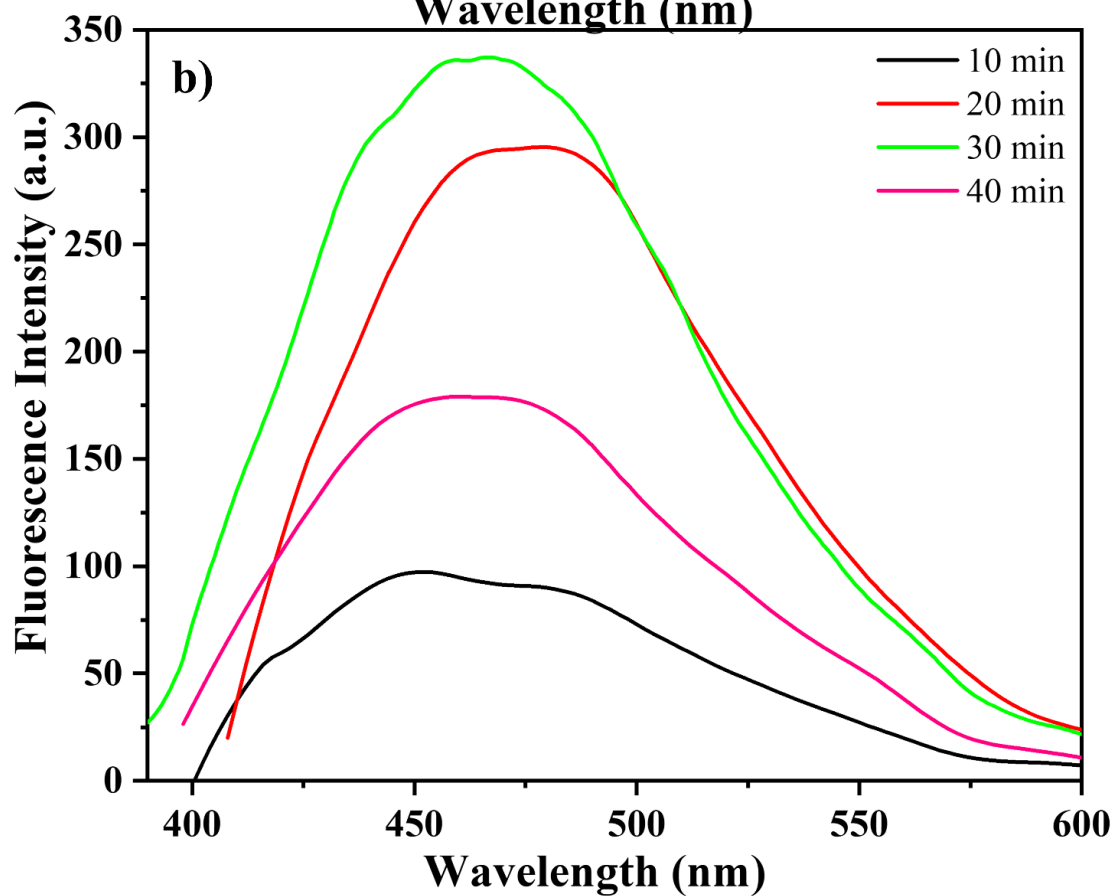
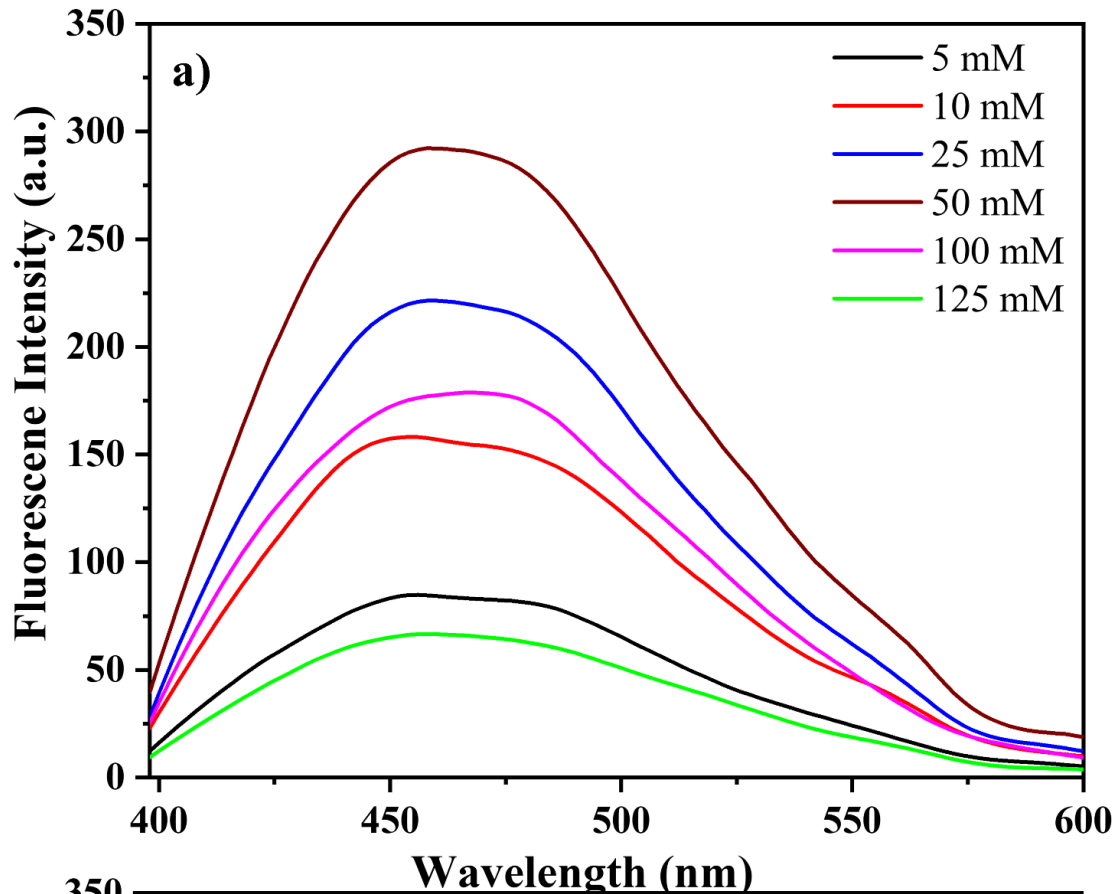


Figure S3. Study of optimum parameters a) Trp concentration and b) ultrasonication time for synthesis of 6-TG-Trp-Au NCs.

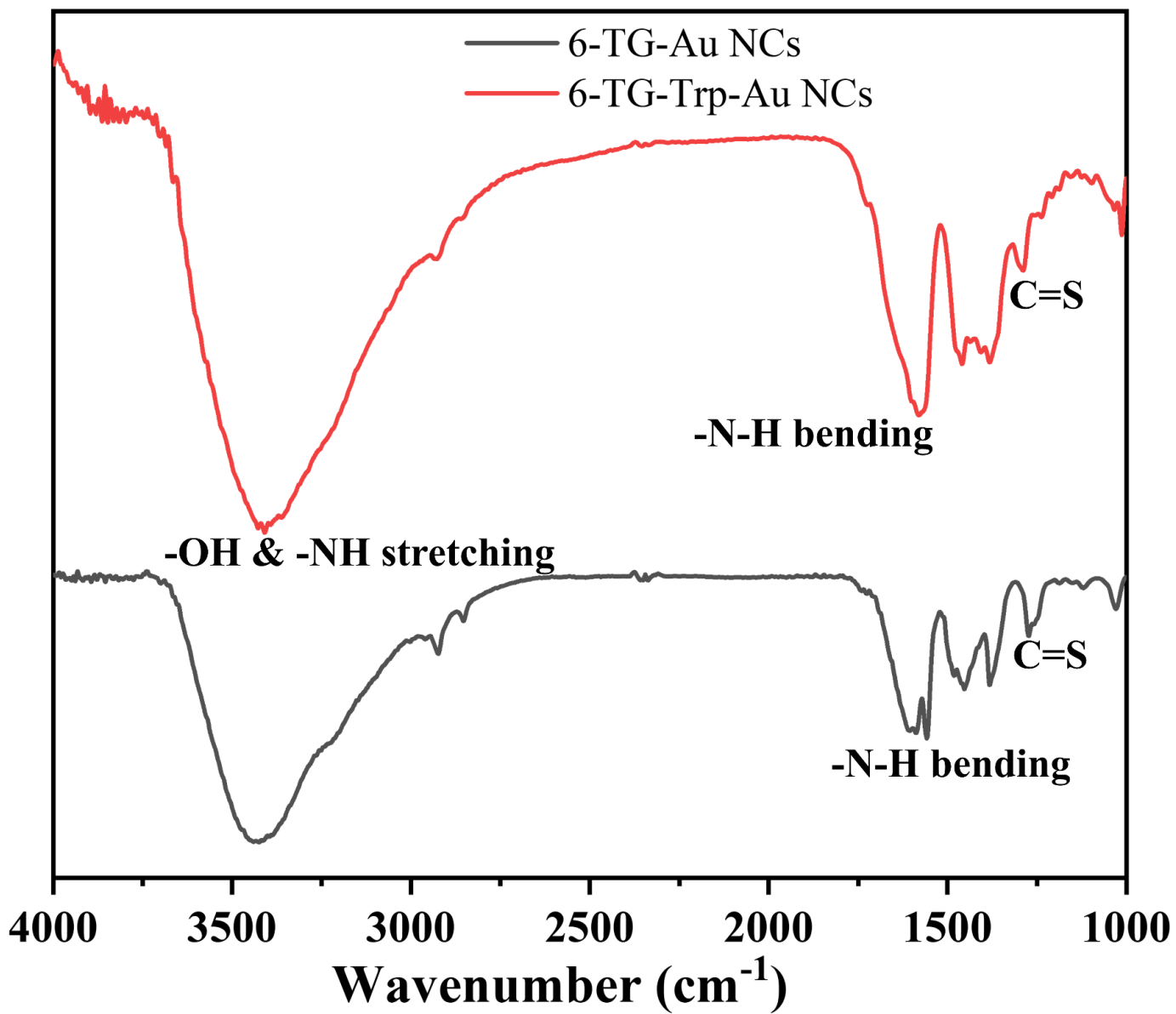


Figure S4. FT-IR spectra of 6-TG-Au NCs and 6-TG-Trp-Au NCs.

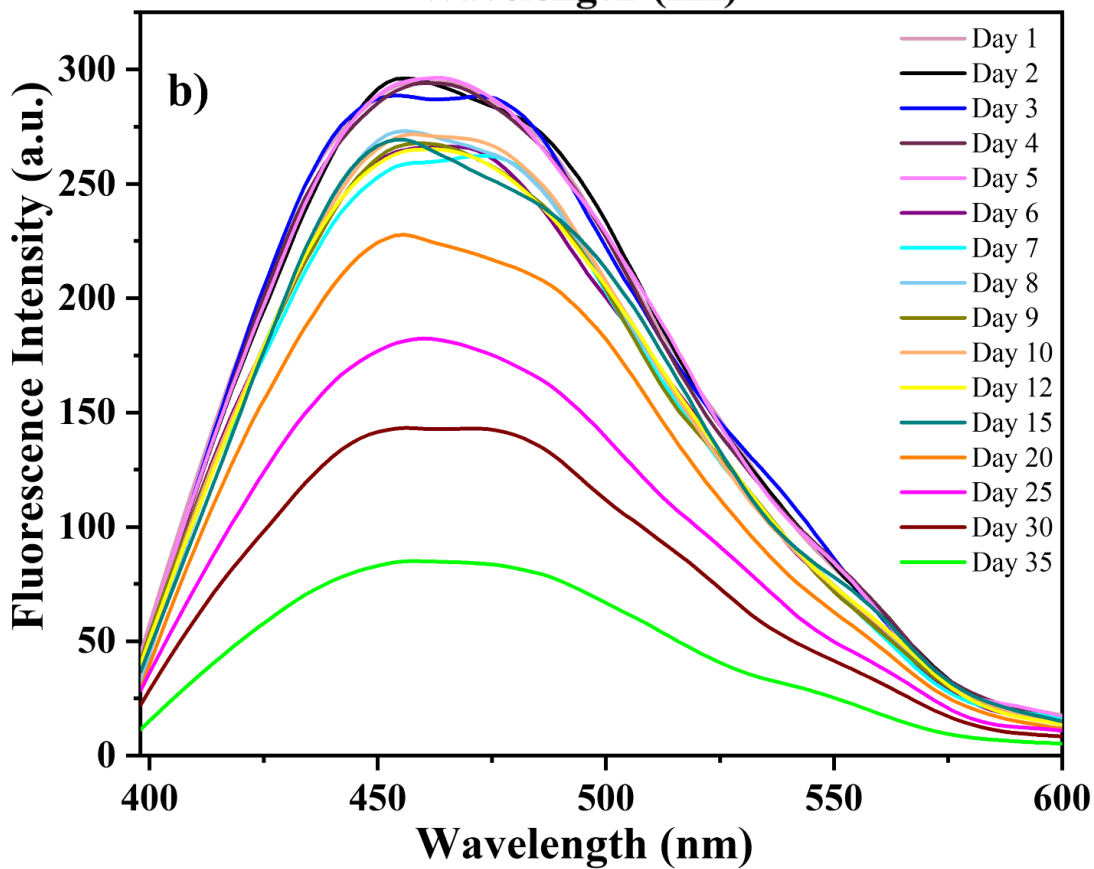
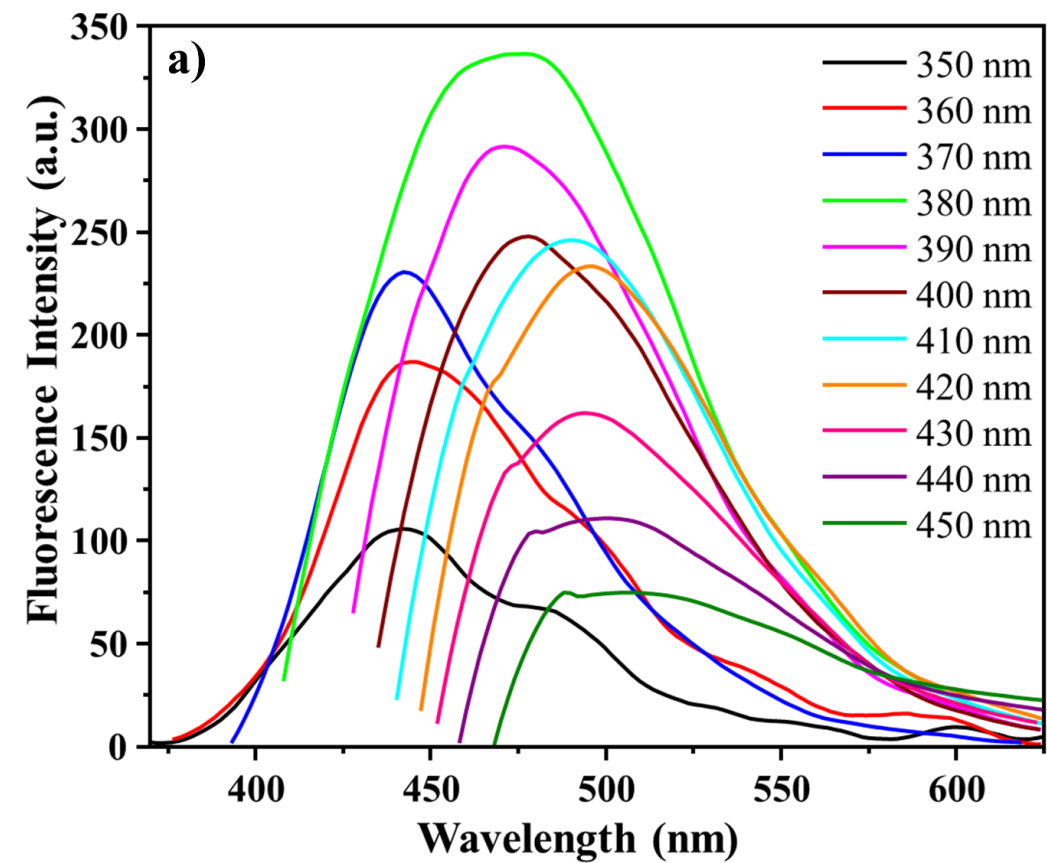


Figure S5. a) Excitation dependent emission spectra of 6-TG-Trp-Au NCs b) stability study of synthesized 6-TG-Trp-Au NCs.

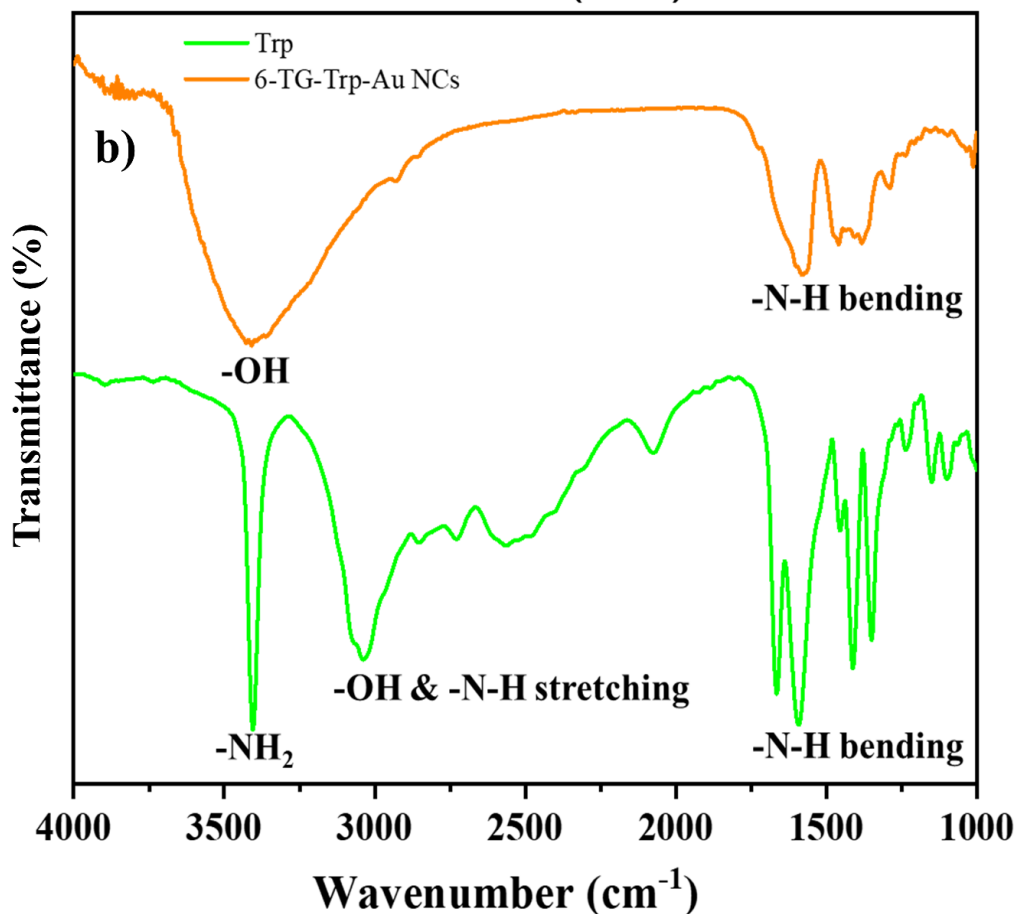
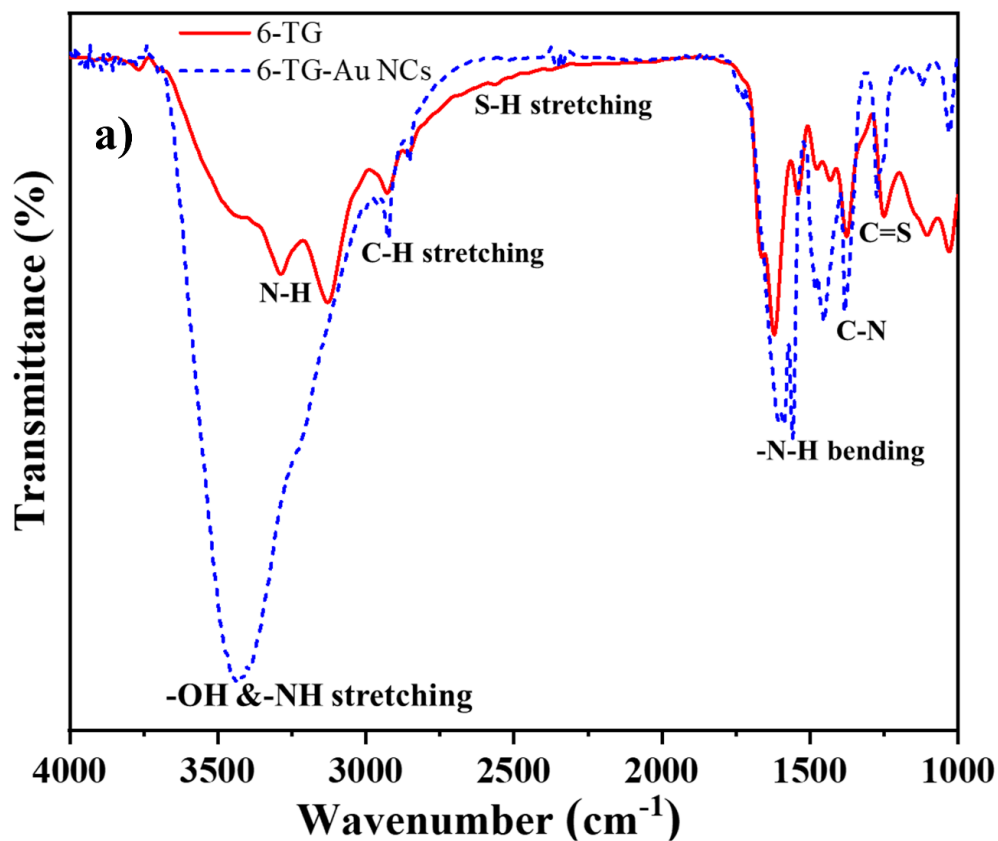


Figure S6. FT-IR spectra of a) 6-TG and 6-TG-Au NCs and b) pure Trp and 6-TG-Trp-Au NCs.

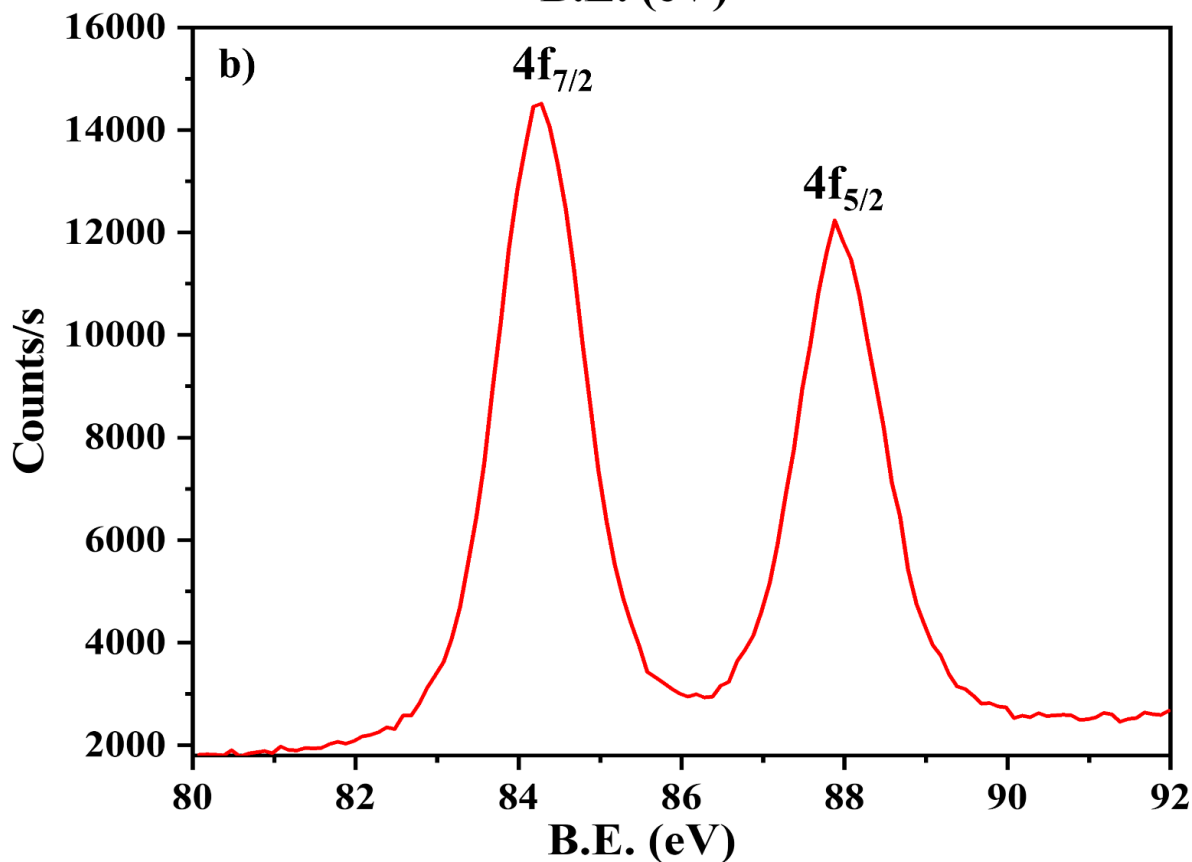
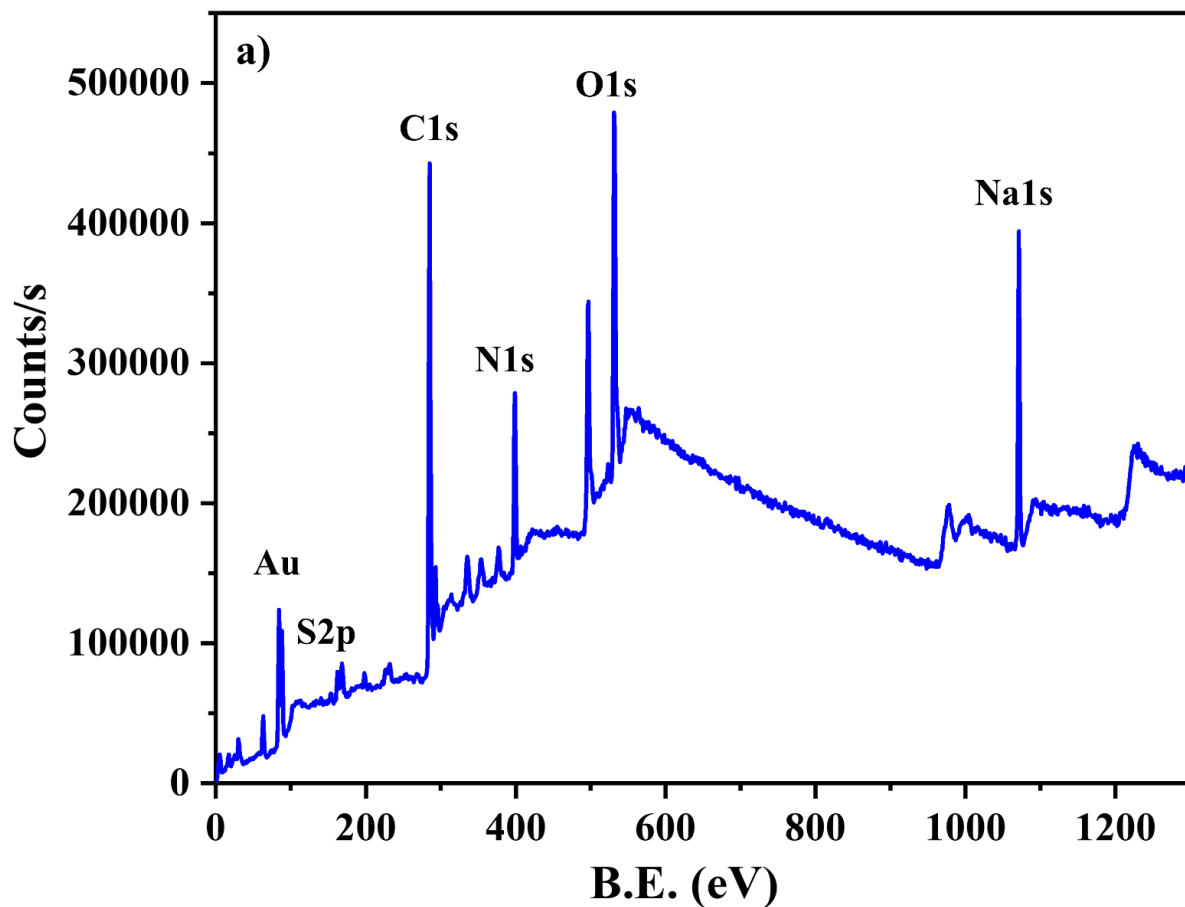


Figure S7 a) XPS survey of 6-TG-Trp-Au NCs b) XPS graph showing 4f state of Au in 6-TG-Trp-Au NCs.

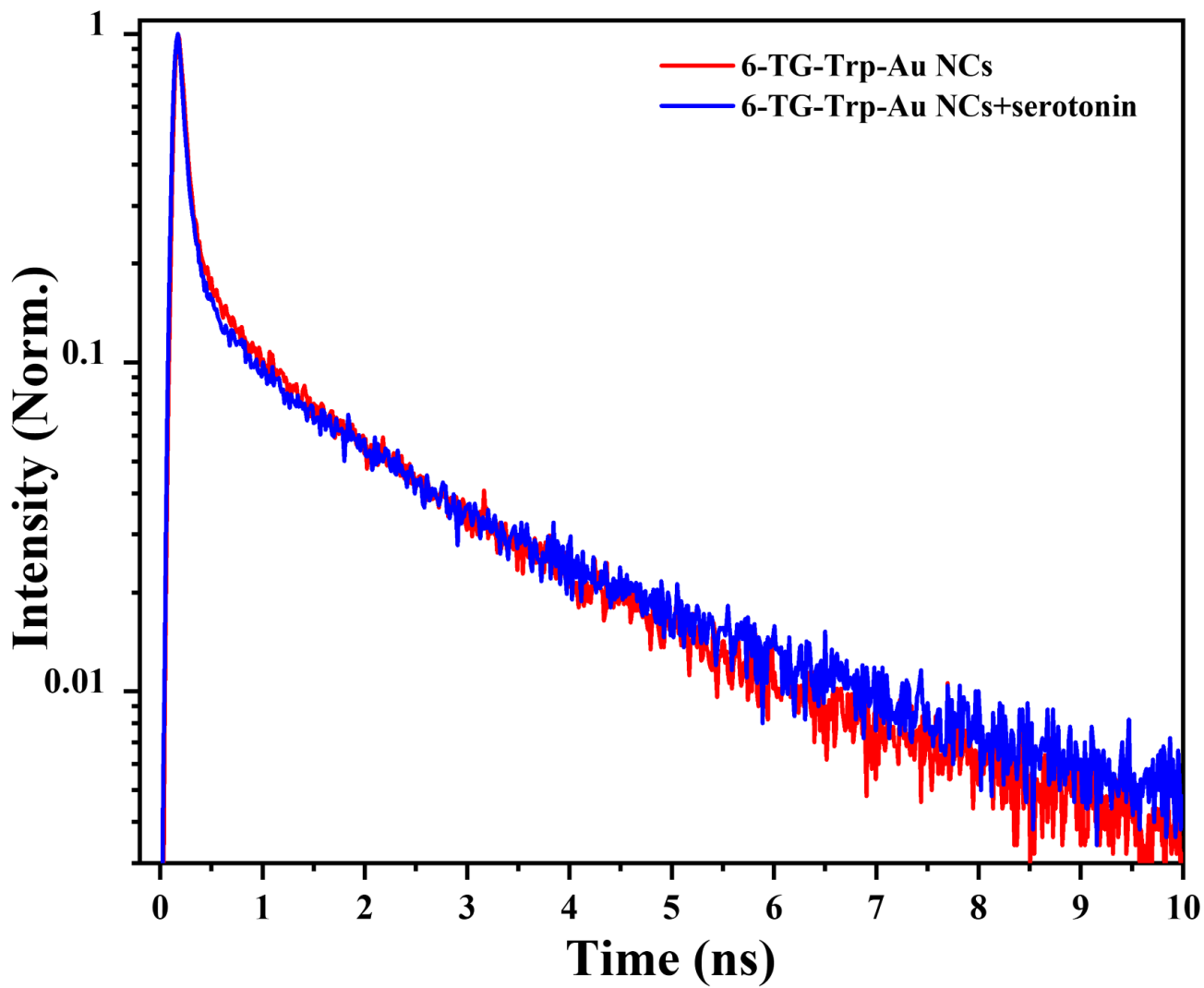


Figure S8. Fluorescence lifetime spectra of 6-TG-Trp-Au NCs and with serotonin.

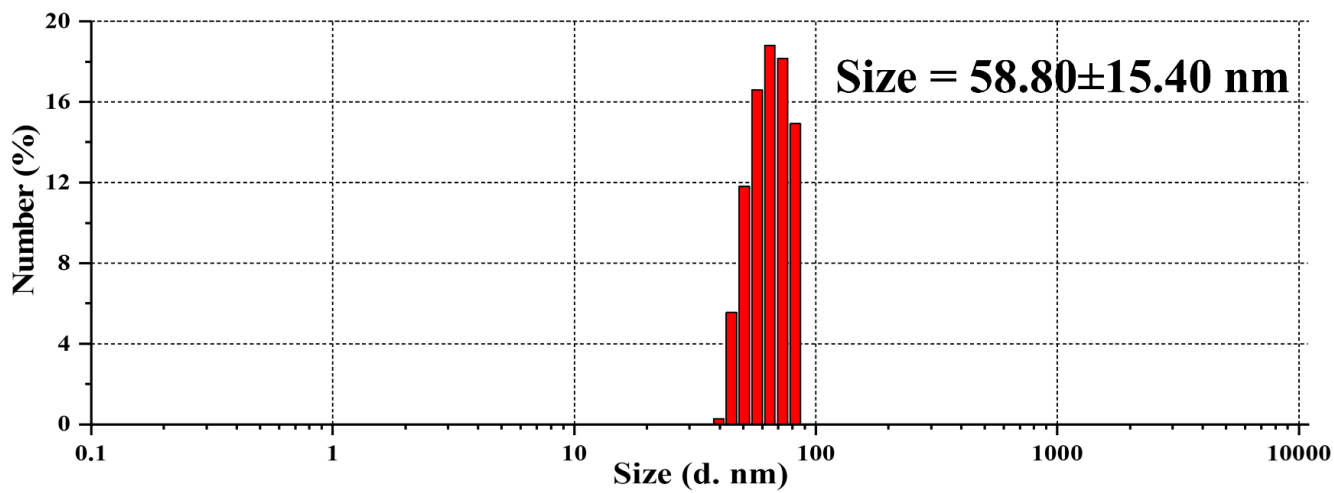
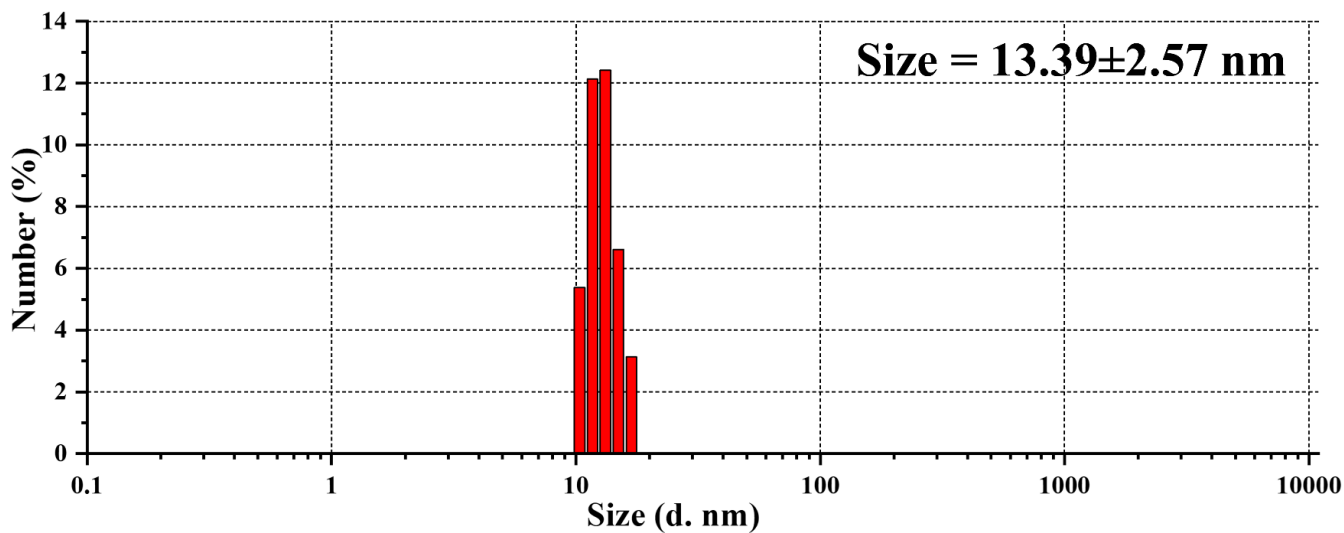


Figure S9. DLS data of a) 6-TG-Trp-Au NCs and b) 6-TG-Trp-Au NCs with serotonin.

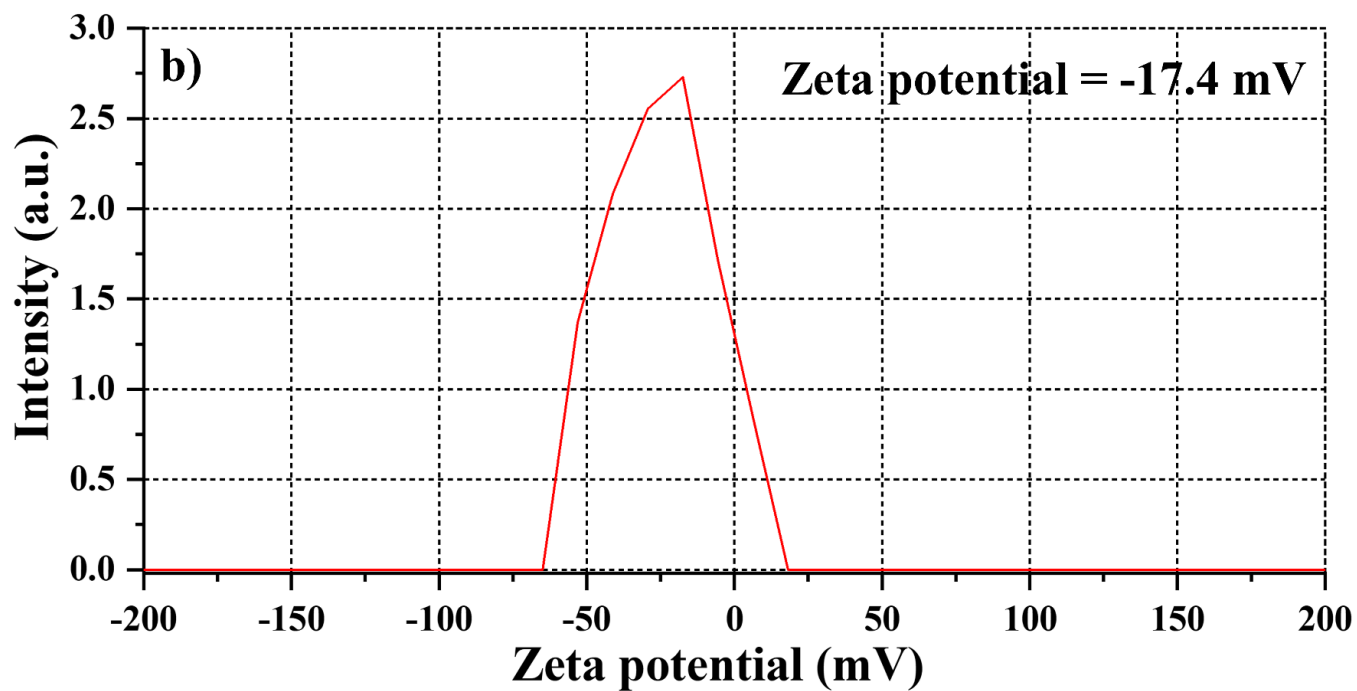
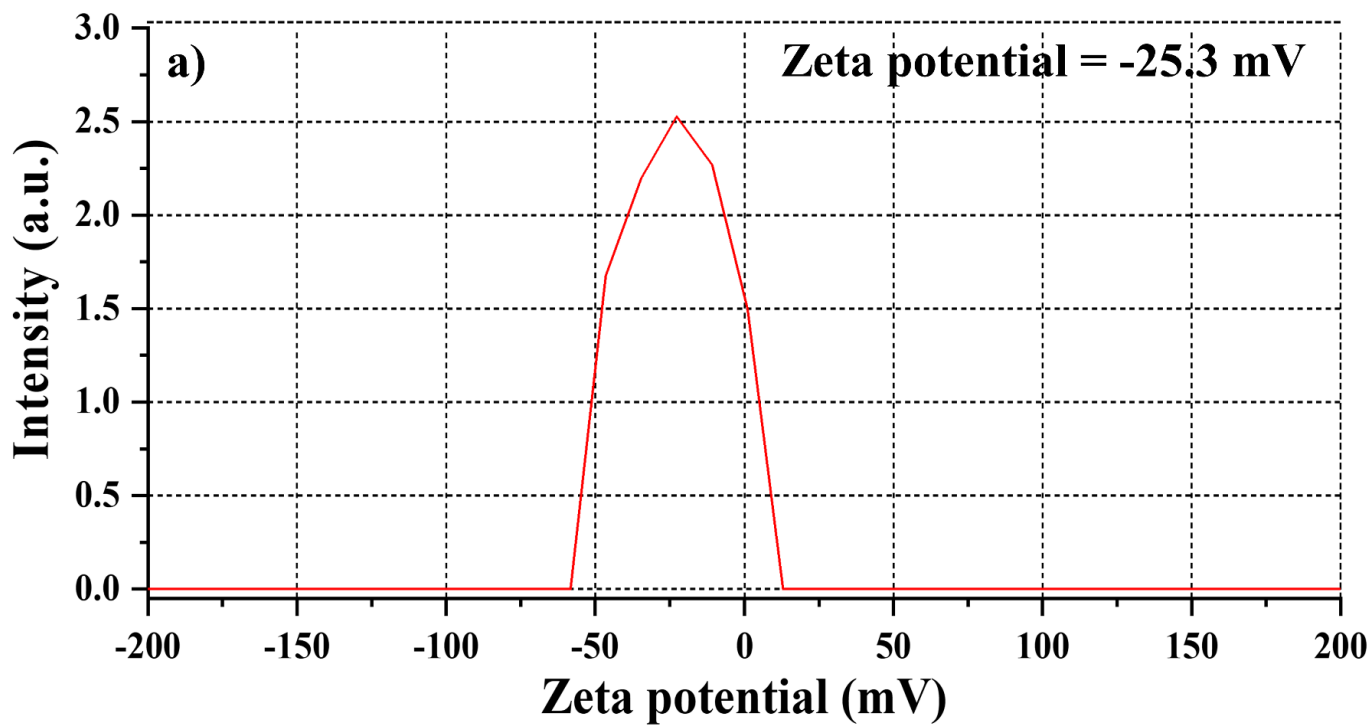


Figure S10. Zeta potential of a) 6-TG-Trp-Au NCs b) 6-TG-Trp-Au NCs with serotonin.

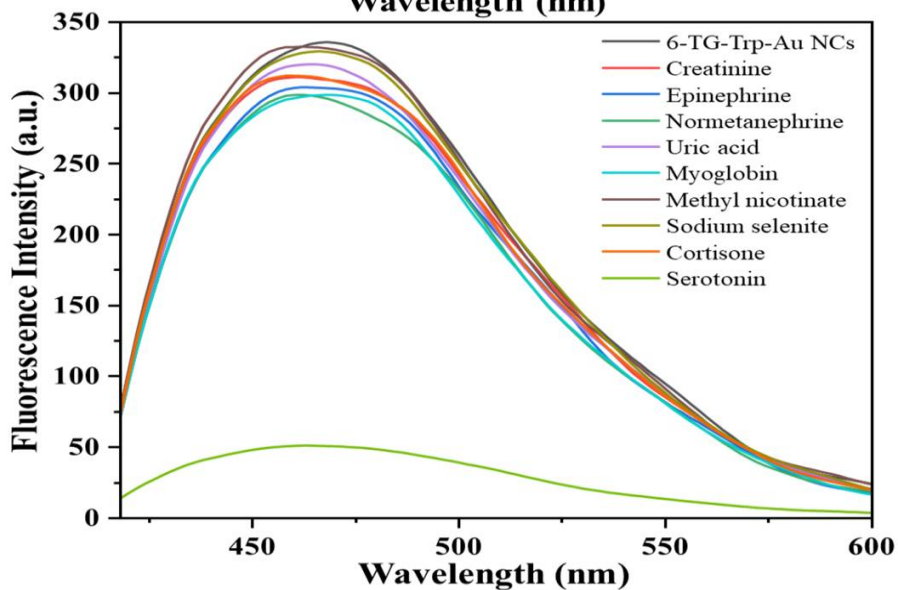
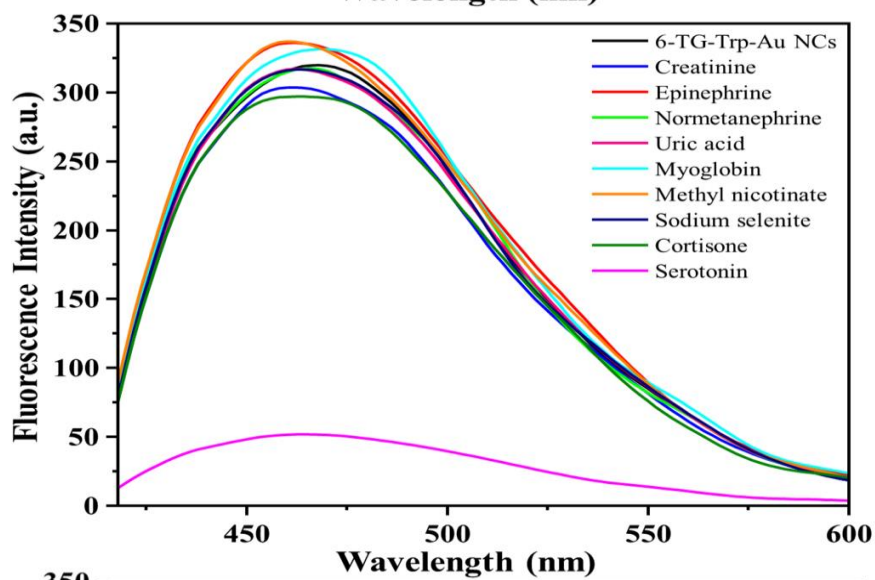
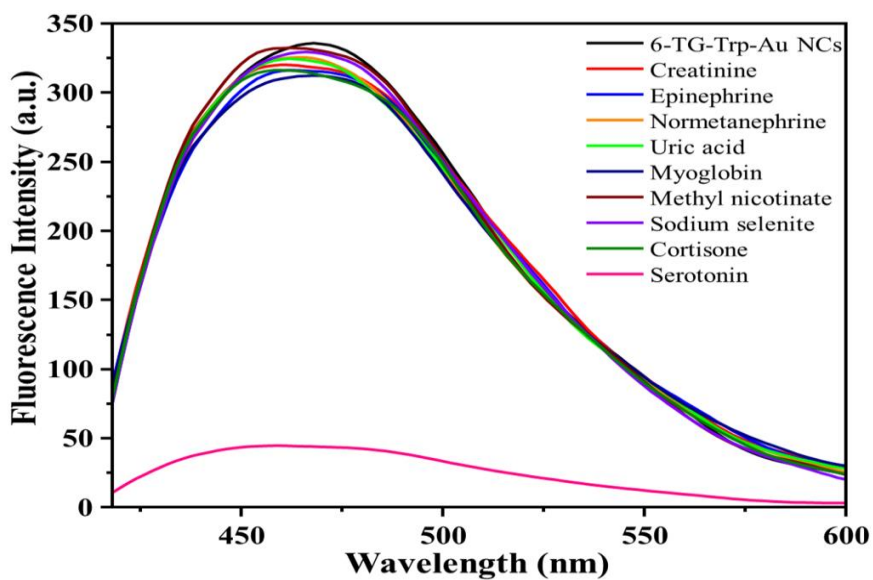


Figure S11. Serotonin detection repeated study (n=3) for repeatability.

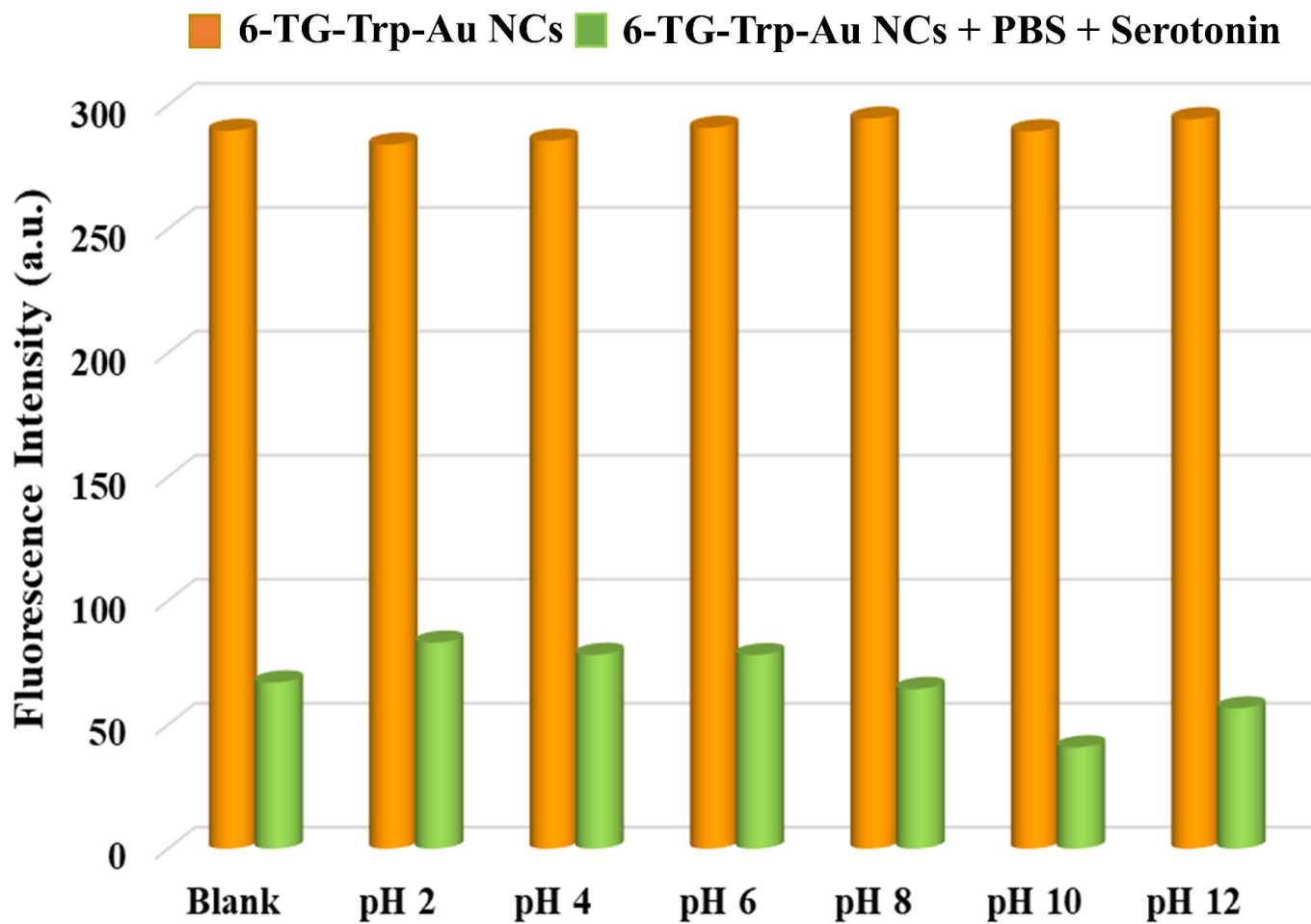


Figure S12. Effect of PBS pH from 2 to 12 on fluorescence spectra of 6-TG-Trp-Au NCs with and without addition of serotonin.

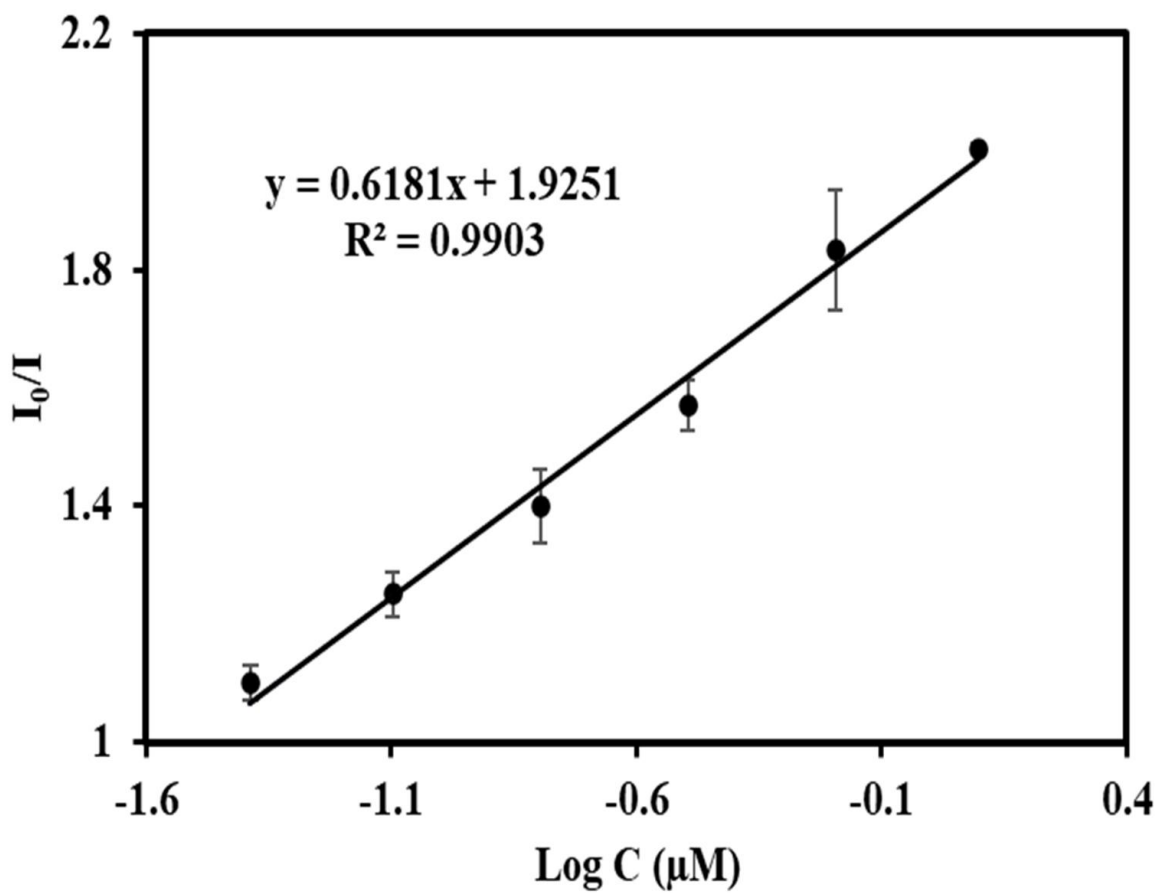


Figure S13. Calibration curve constructed between I_0/I and concentration of serotonin (0.041-1.25 μM).

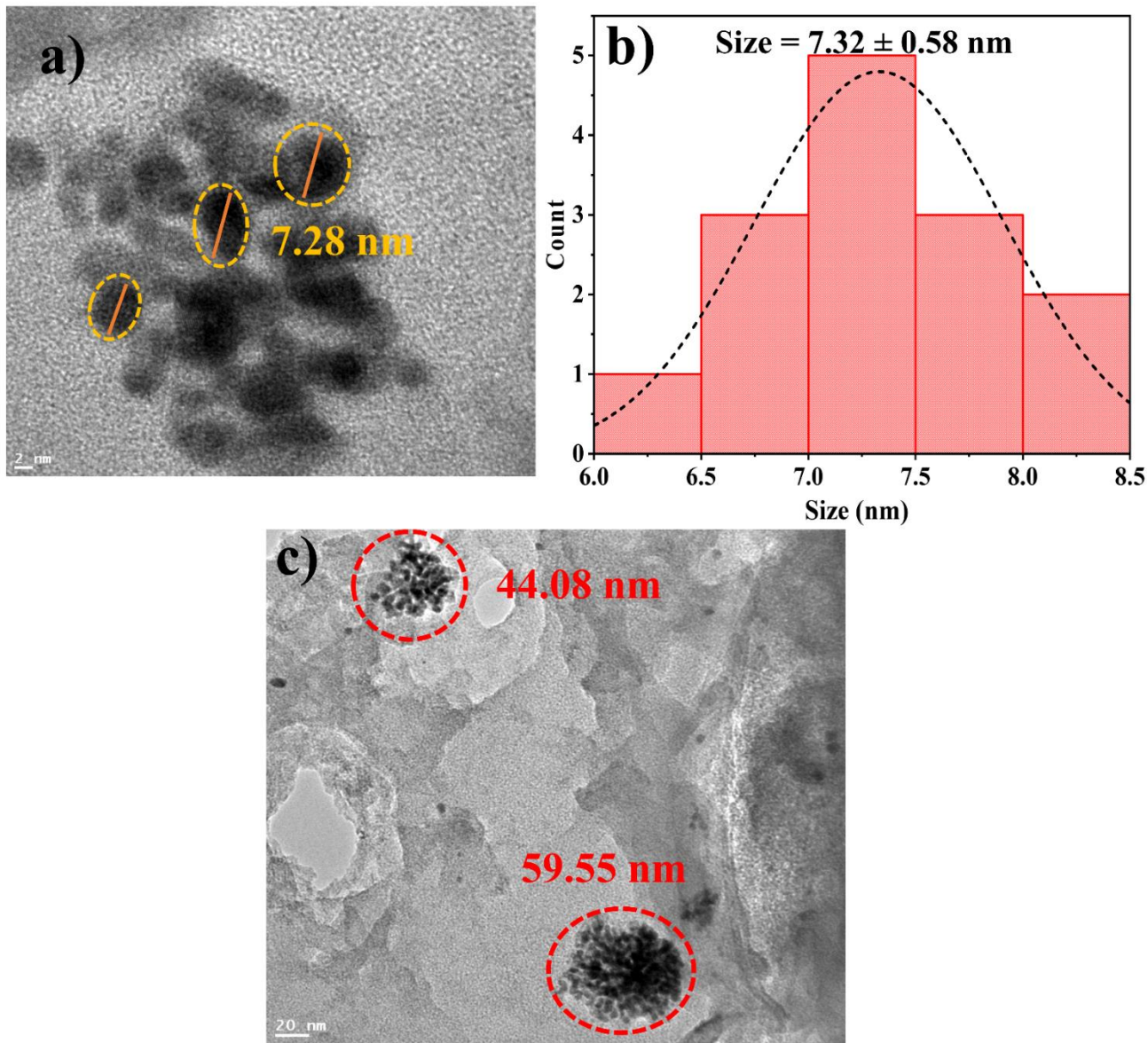


Figure S14. HRTEM images showing aggregation of 6-TG-Trp-Au NCs in presence of serotonin a) at 2 nm scale bar b) histogram showing increased size of 6-TG-Trp-Au NCs c) 6-TG-Trp-Au NCs-serotonin nano-aggregates at 20 nm scale bar.

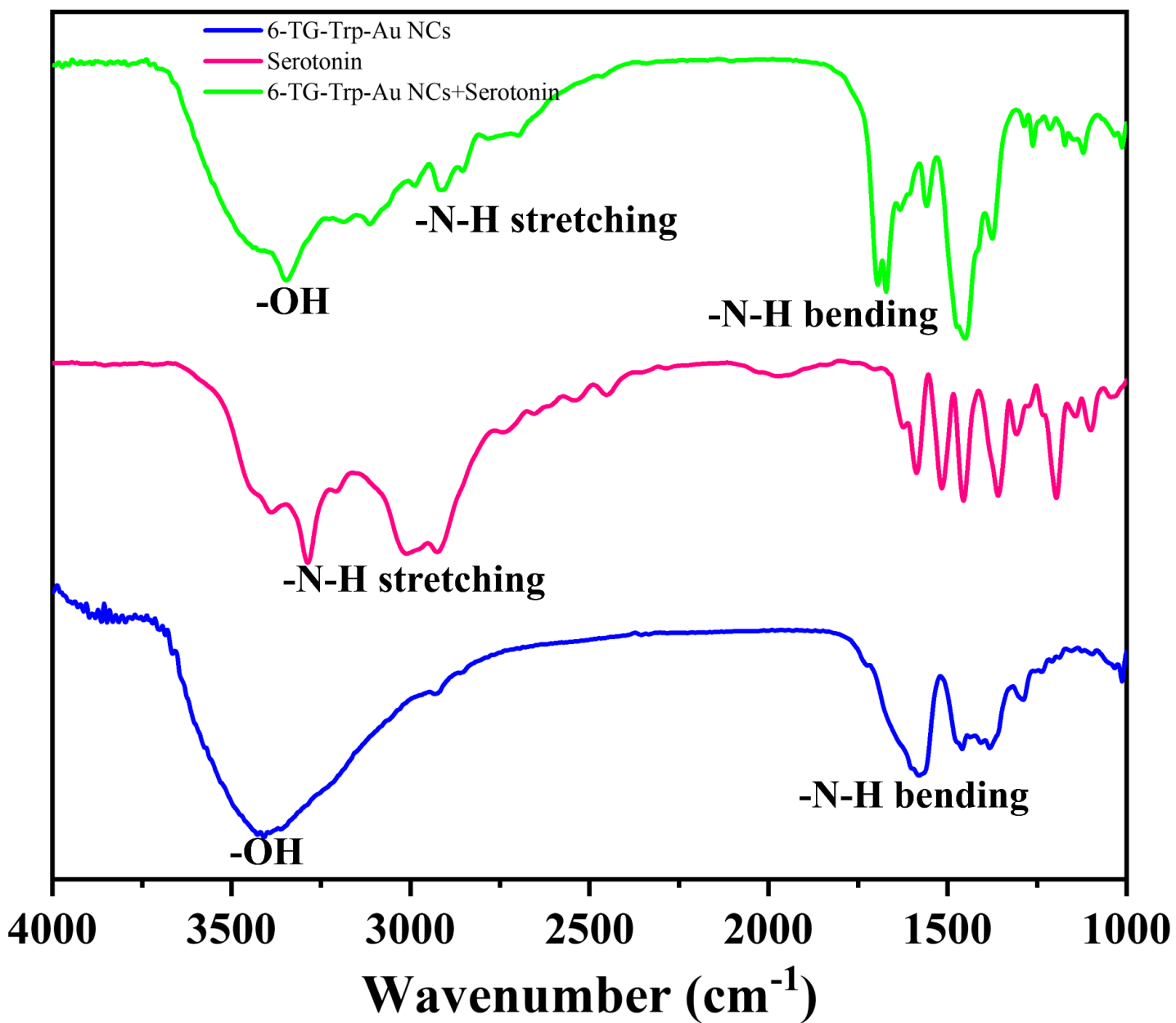


Figure S15. FT-IR spectra of 6-TG-Trp-Au NCs, serotonin and 6-TG-Trp-Au NCs with serotonin.

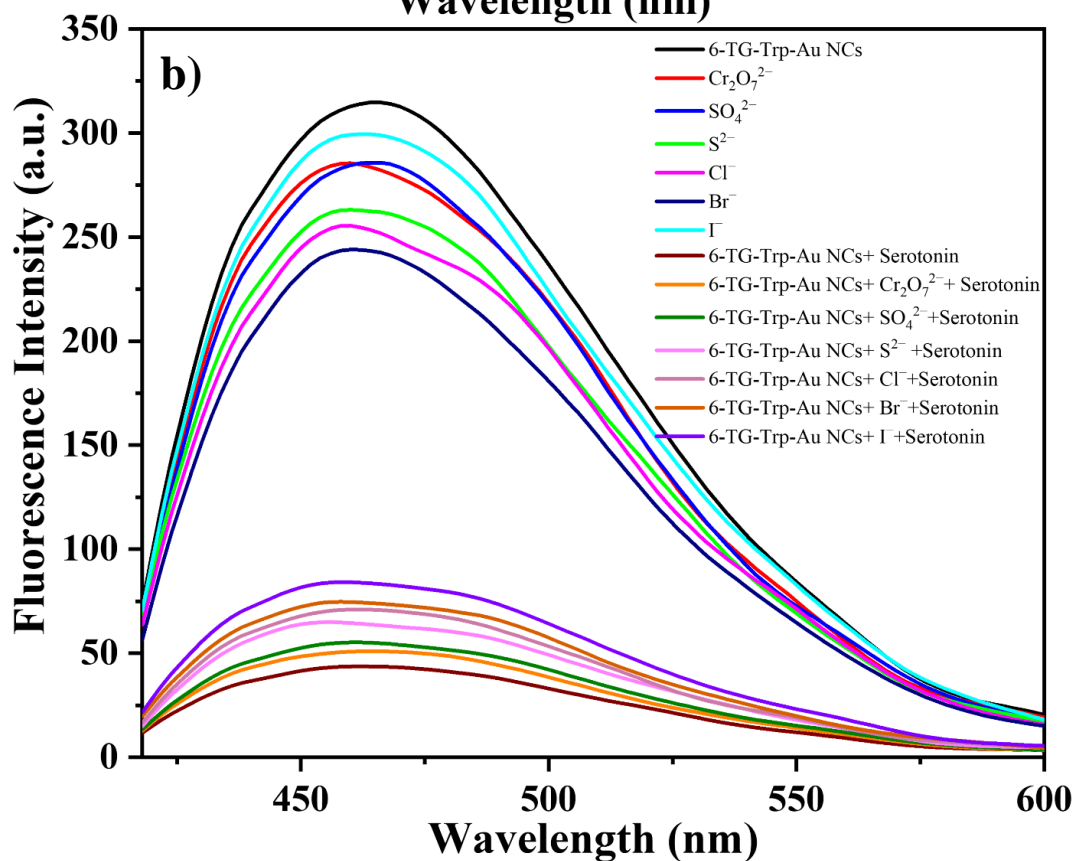
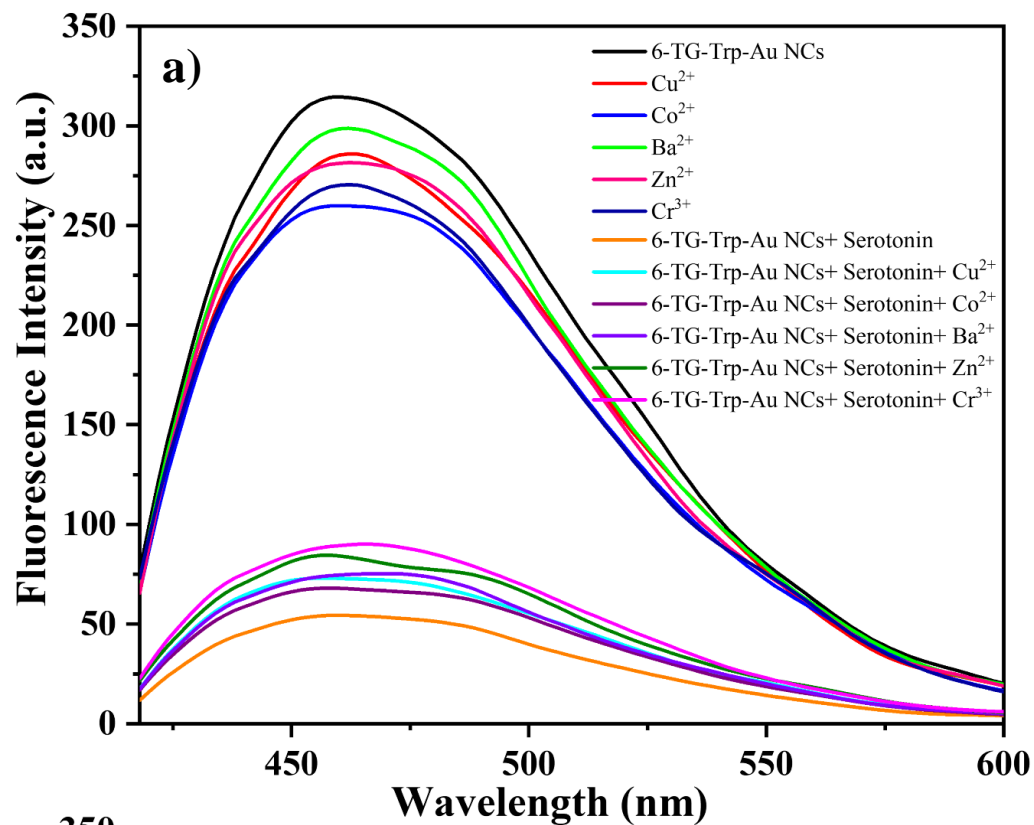


Figure S16. Fluorescence emission spectra of 6-TG-Trp-Au NCs in presence of interfering agents a) cations b) anions.

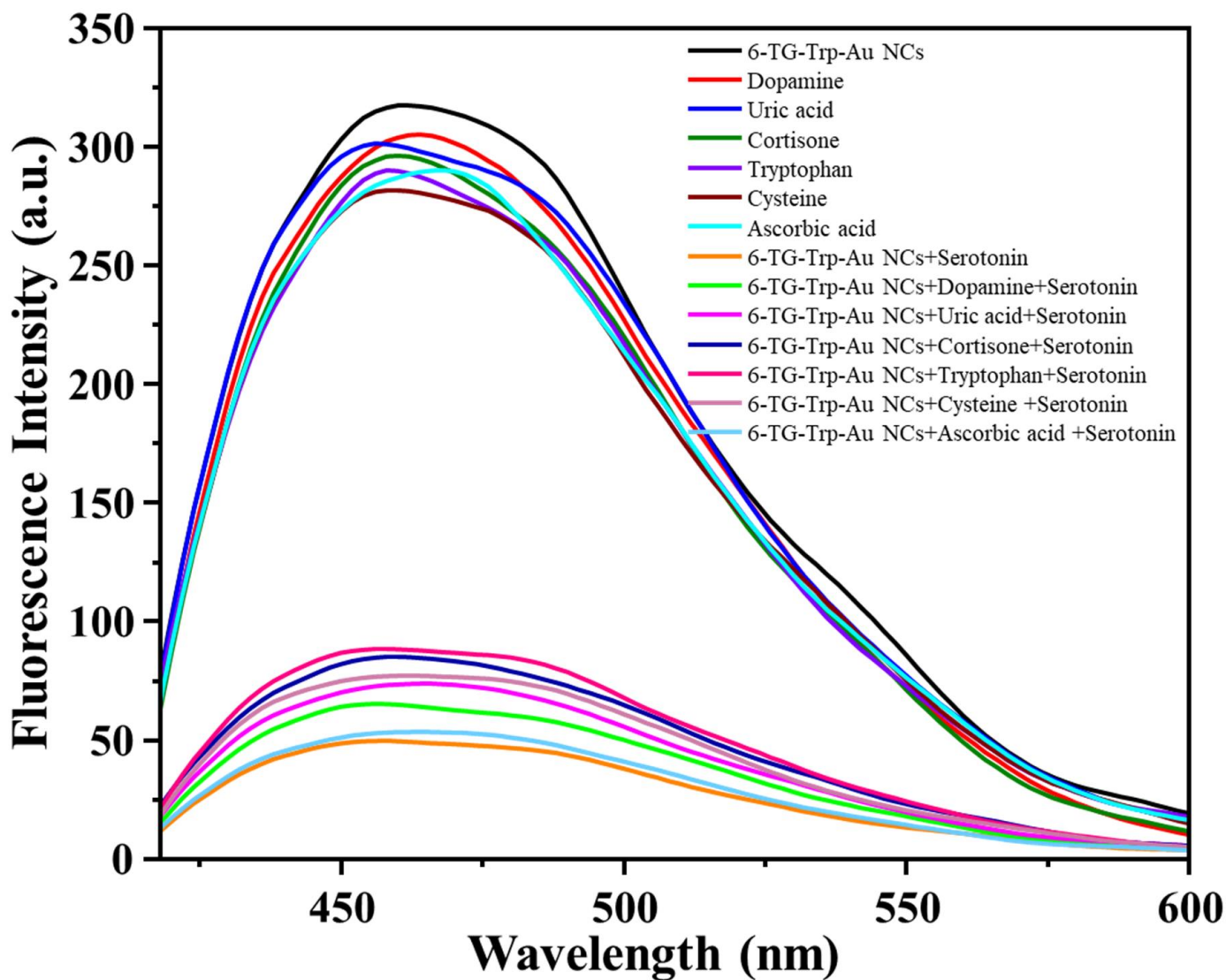


Figure S17. Fluorescence emission spectra of 6-TG-Trp-Au NCs in presence of biomarkers (dopamine, uric acid, cortisone, 500 μ M) and biomolecules (tryptophan, cysteine, ascorbic acid, 500 μ M).

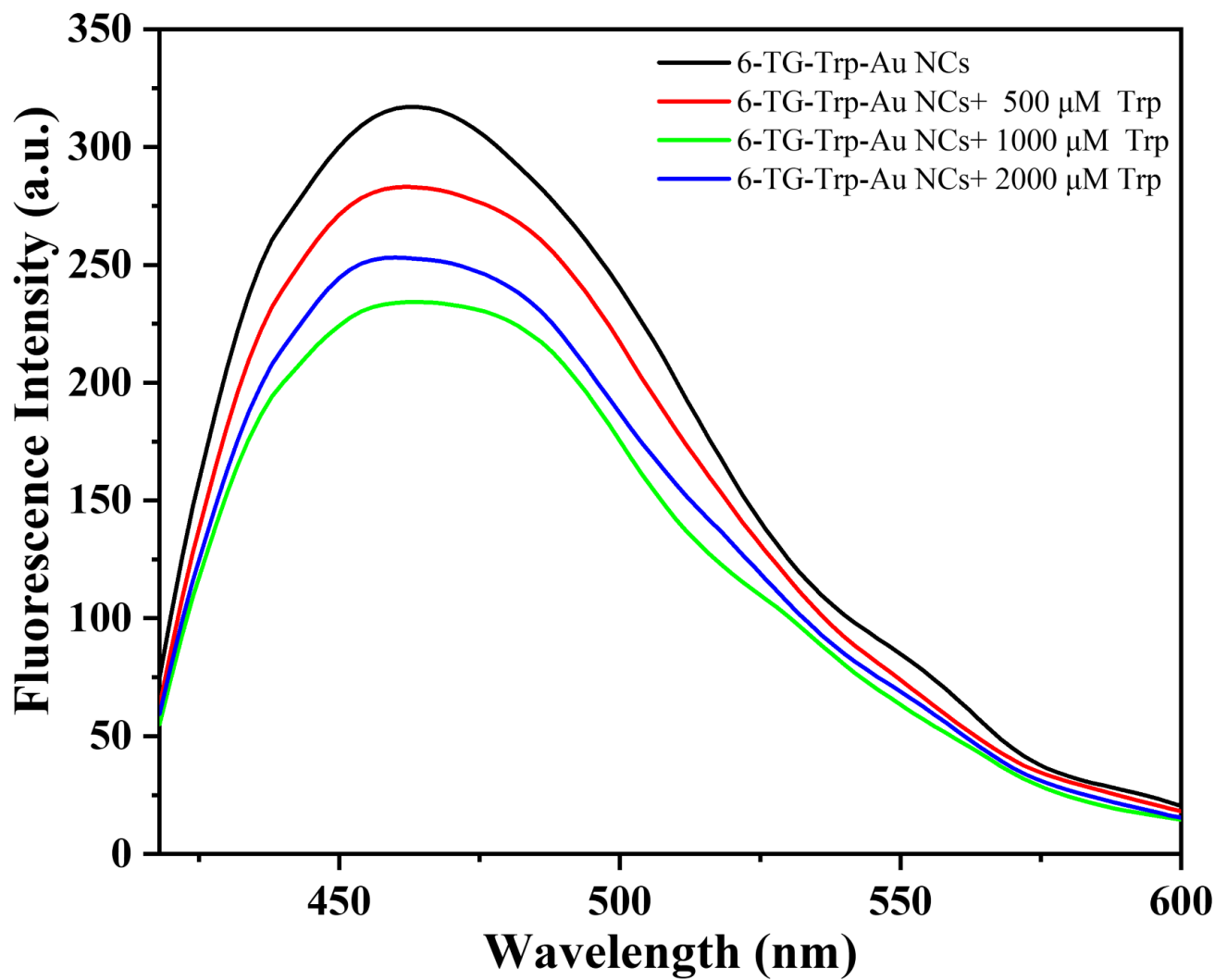


Figure S18. Fluorescence emission spectra of 6-TG-Trp-Au NCs in presence of different concentrations of tryptophan as interfering agent.

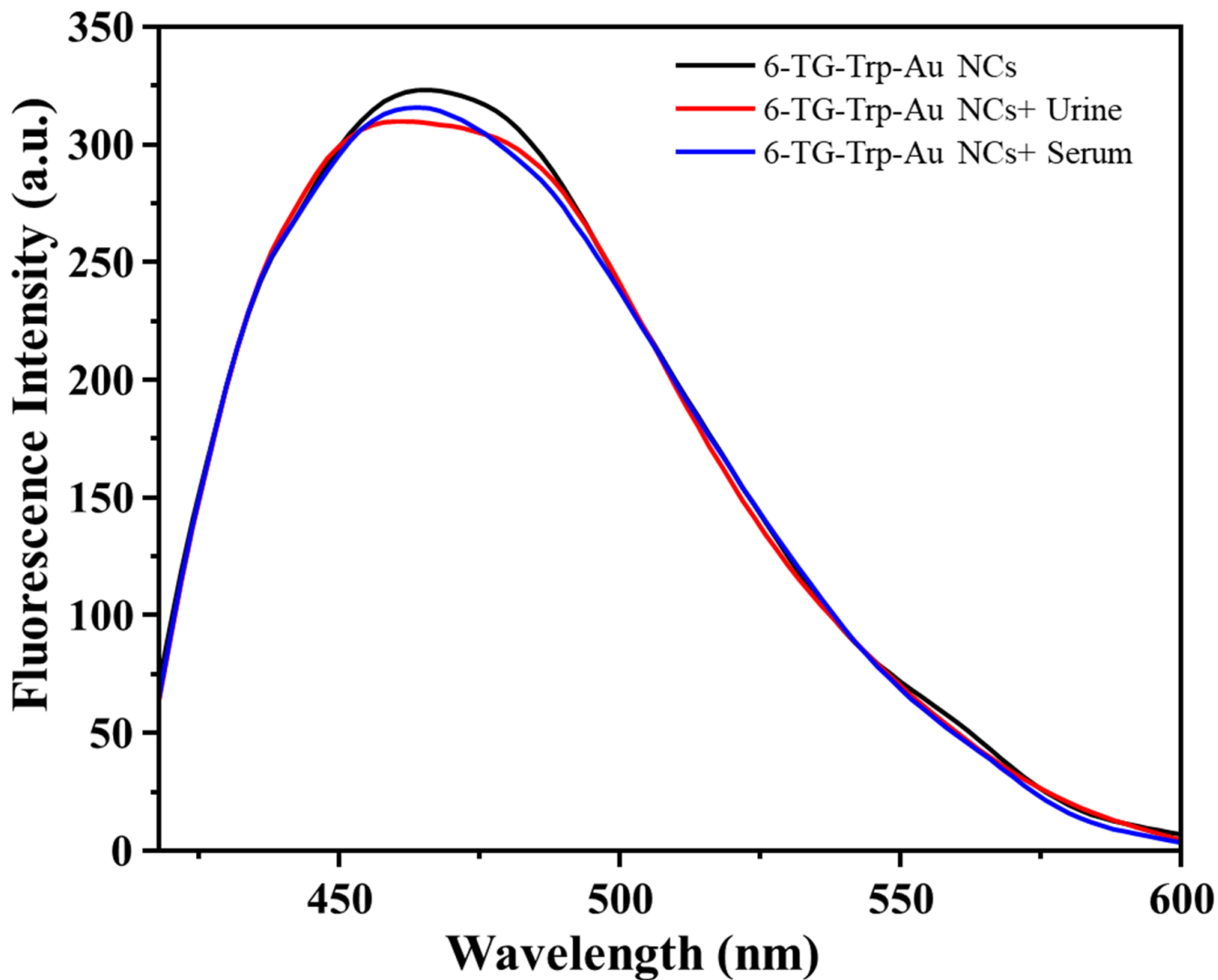


Figure S19. Fluorescence emission spectra of 6-TG-Trp-Au NCs in presence of 10 fold diluted urine and serum samples for real sample analysis.

Table S1. Serotonin assay in biofluids using 6-TG-Trp-Au NCs as a fluorescent probe

Biomarker	Sample	Added concentration (nM)	Found Concentration (nM)	% Recovery (n=3)	% RSD (n=3)
Serotonin	Urine	40	38.55	96.39	0.65
		80	74.80	93.50	0.14
		160	155.49	97.18	1.03
	Serum	40	38.75	96.88	0.35
		80	79.67	99.58	1.04
		160	163.02	101.89	0.27