

Supporting information for

Fluorescence correlation spectroscopy reveals strong fluorescence quenching of FITC adducts on PEGylated gold nanoparticles in water and the presence of fluorescent aggregates of desorbed thiolate ligands

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Figure S-1

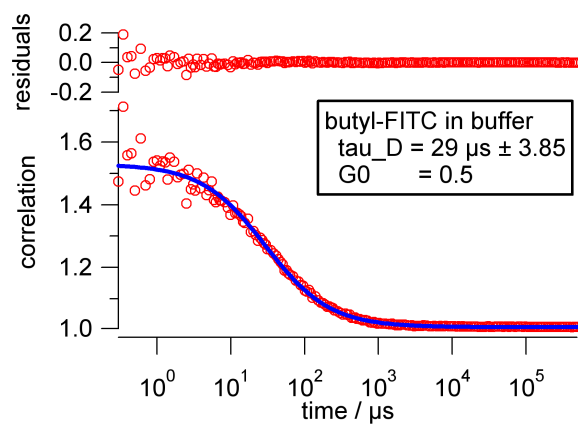


Figure S-1. Fluorescence correlation curve of butyl-FITC in carbonate buffer (pH 10.8), and fit using the 1-Spc model (single diffusing species, Eqn. 1). The diffusion time is found to be $29 \mu\text{s}$, corresponding to a hydrodynamic diameter of 1.2 nm.

Figure S-2

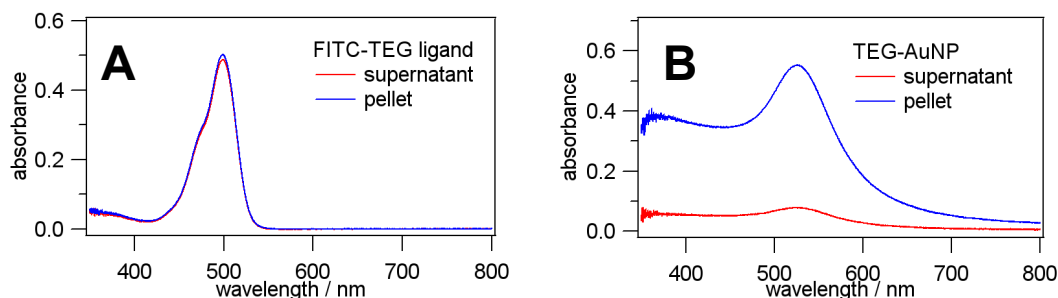


Figure S-2. UV/Vis analyses of the centrifugation of FITC-TEG in water (part A, left) and of TEG-AuNP in water (part B, right), demonstrating the difference in sedimentation between (slightly aggregated) free FITC-TEG ligands and functionalised TEG-AuNPs. Solutions in pure water were centrifuged during 3 hours (conditions identical to purification of FITC-TEG-AuNPs). Supernatant corresponds to the liquid in the top half of the Eppendorf tube, pellet to the bottom half. Before measurement, all samples were diluted with carbonate buffer to obtain pH 10.8 for spectroscopy.

Figure S-3

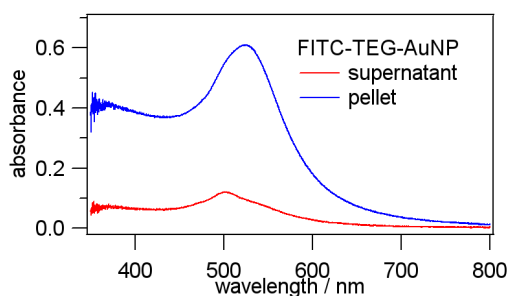


Figure S-3. UV/Vis analysis of the centrifugation of a solution containing FITC-TEG-AuNPs protected with 95% TEG and 5% FITC-TEG using a slight excess of ligands. Solutions were centrifuged during 3 hours. Supernatant corresponds to the liquid in the top half of the Eppendorf tube, pellet to the bottom half. Before measurement, all samples were diluted with carbonate buffer to obtain pH 10.8 for spectroscopy.

Figure S-4

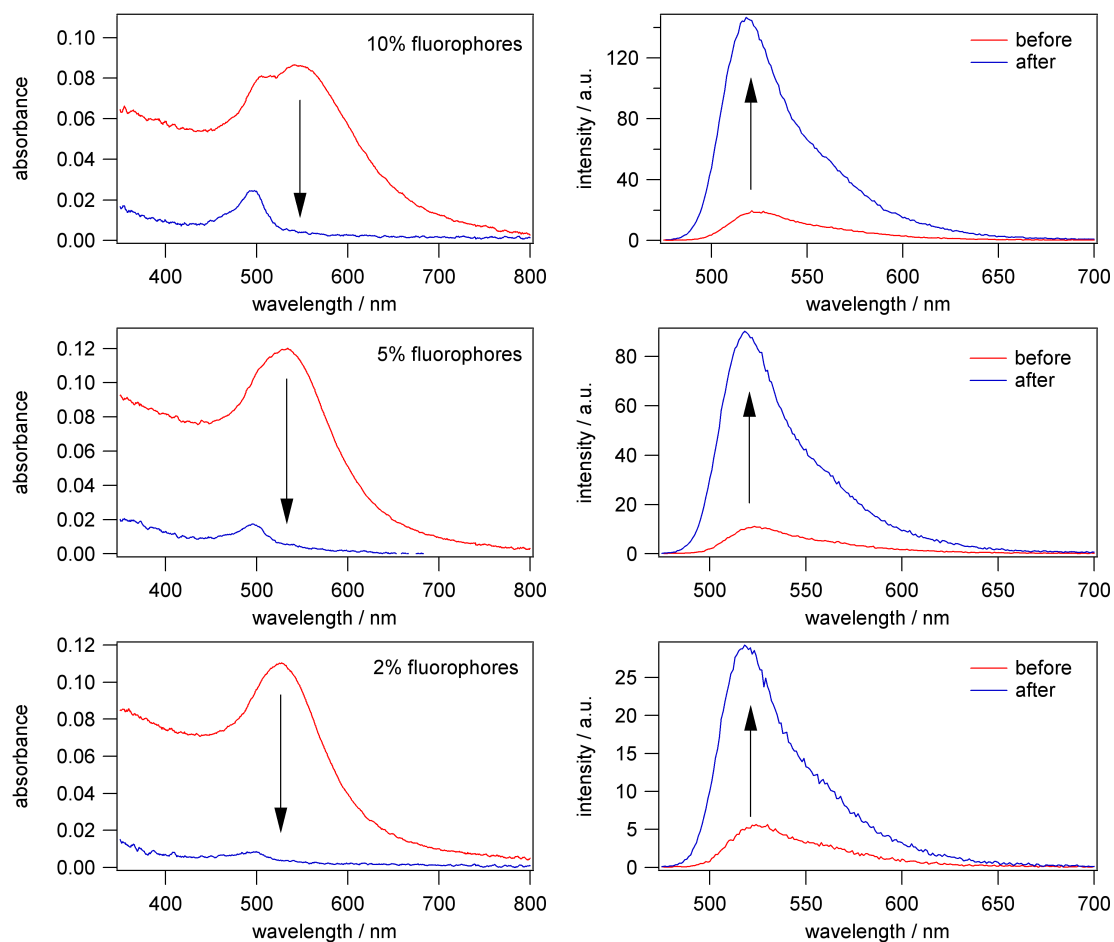


Figure S-4. Evolution of UV/Vis absorption and fluorescence emission ($\lambda_{\text{exc}} = 469$ nm) of solutions of freshly purified FITC-TEG-AuNPs in carbonate buffer (pH 10.8) upon addition of β -mercaptoethanol (70 mM, 3 days), at different fluorophore loading levels of the protecting monolayer.

Figure S-5

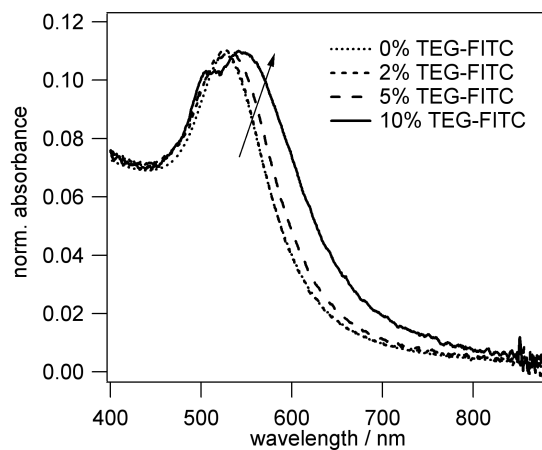


Figure S-5. UV/Vis absorption spectra of purified samples of TEG functionalised AuNP, in aqueous buffer (carbonate). The percentages of FITC are nominal values, based on the relative amount of TEG-FITC ligand initially present during functionalisation. The arrow indicates how the absorption spectrum evolves when the relative amount of TEG-FITC in the TEG functionalisation is increased.

Figure S-6

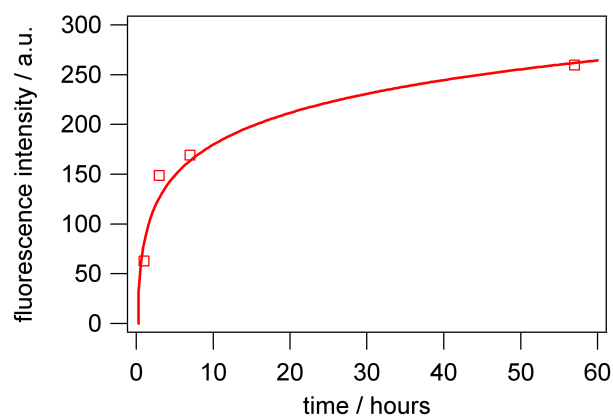


Figure S-6. Evolution of the fluorescence intensity ($\lambda_{\text{exc}} = 469$ nm, squares) of a sample of FITC-TEG-AuNP in time after purification. The solid line is a guide to the eye.