Supplementary Documents

# Development and Characterization of Functionalized Glyco Thiolate Capped Gold Nanoparticles for Biological Applications

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## Background

Glyco goldnanoparticle synthesized via direct method and ligand exchange exhibited excellent stability than the known citrate gold nanoparticles. Glyco goldnanoparticles modified with acetyl groups exhibits efficient biological activity due to the hydrophobic nature of the acetyl group that might enhance transfection efficiency of the particles.

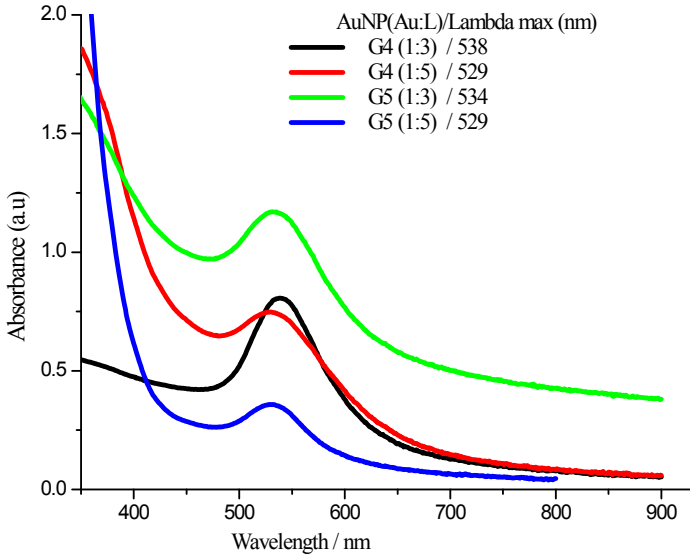



**Figure S1.** UV-vis spectrum of *n*-gluconamidoalkyl thiol AuNPs (**G4** and **G5**)

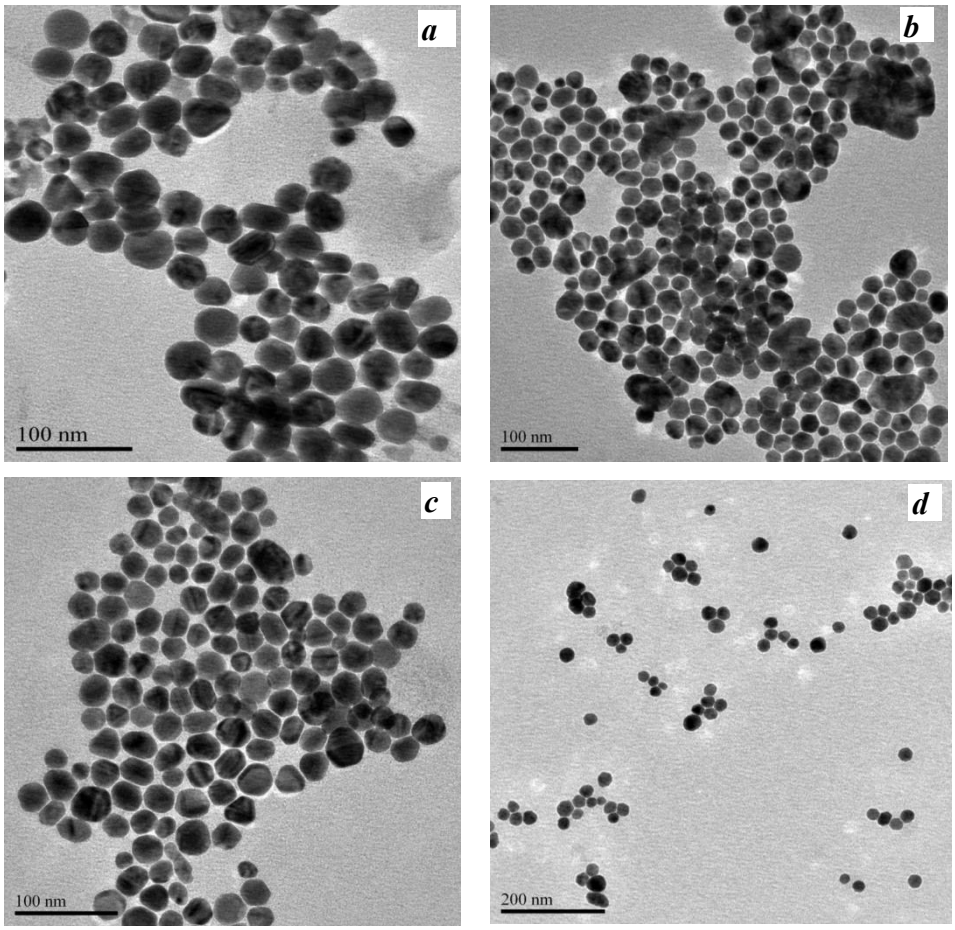



**Figure S2.** TEM image of AuNP **G3** from potassium salt of **L3** of various Au: ligand ratio (a) 1:3 (b) 1:4 (c) 1:5 (d) 1:6

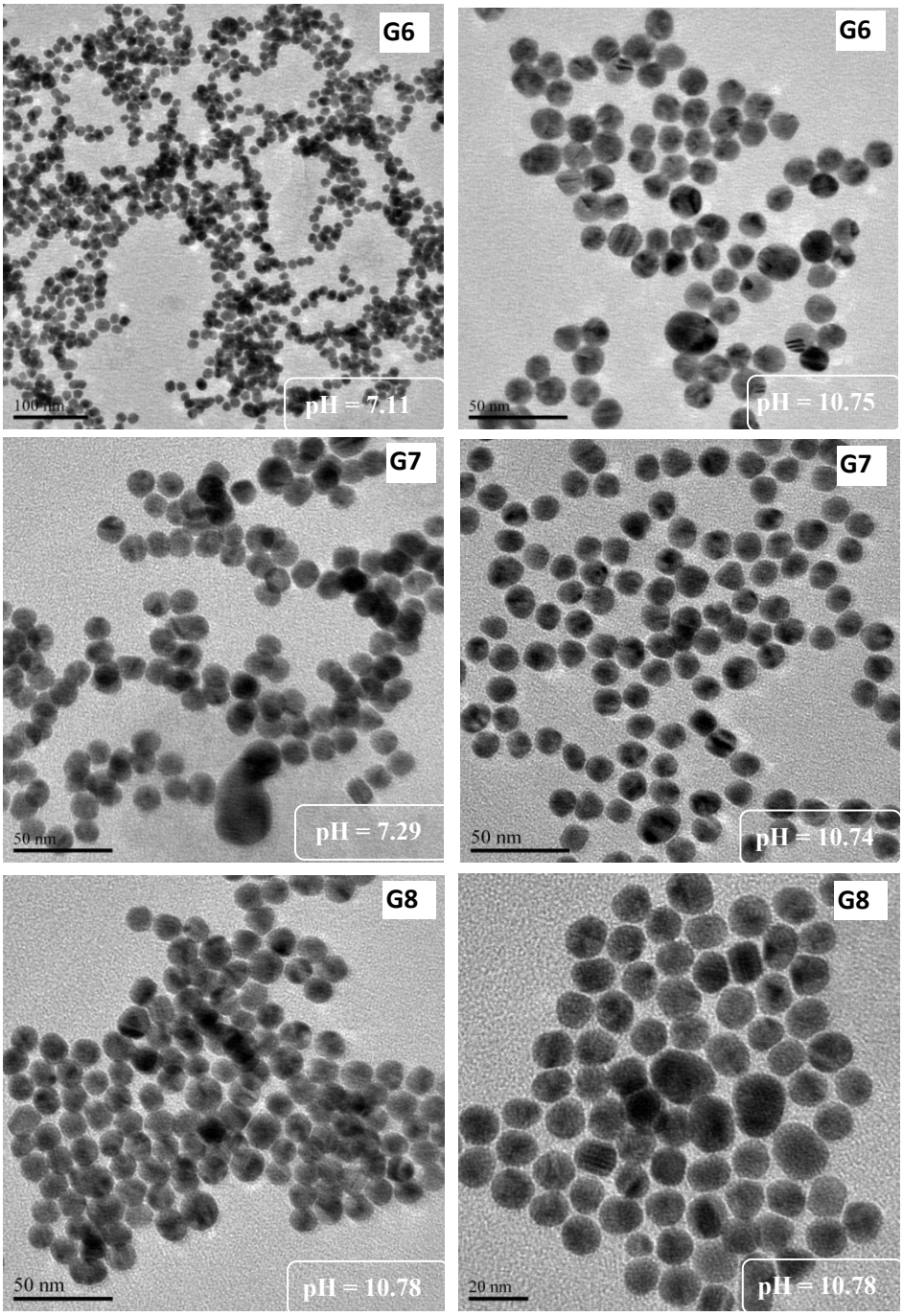



**Figure S3.** TEM image of **AuNP G6**, **G7** and **G8** (pH = 10.78)

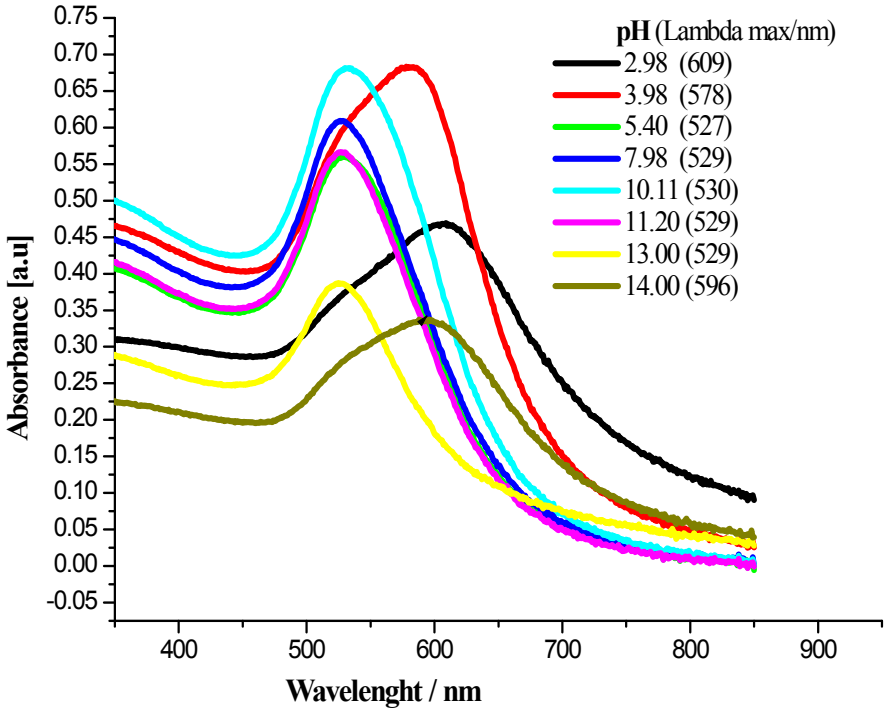
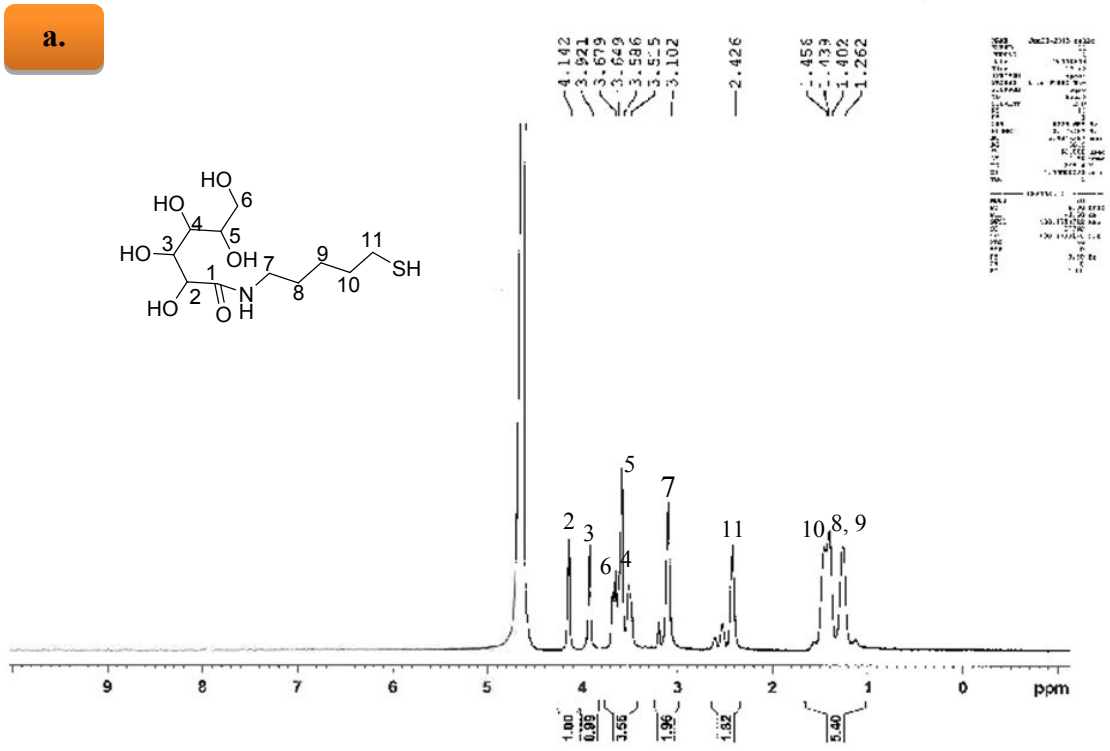



**Figure S4.** UV-vis spectrum of AuNP **G4** of various Ph



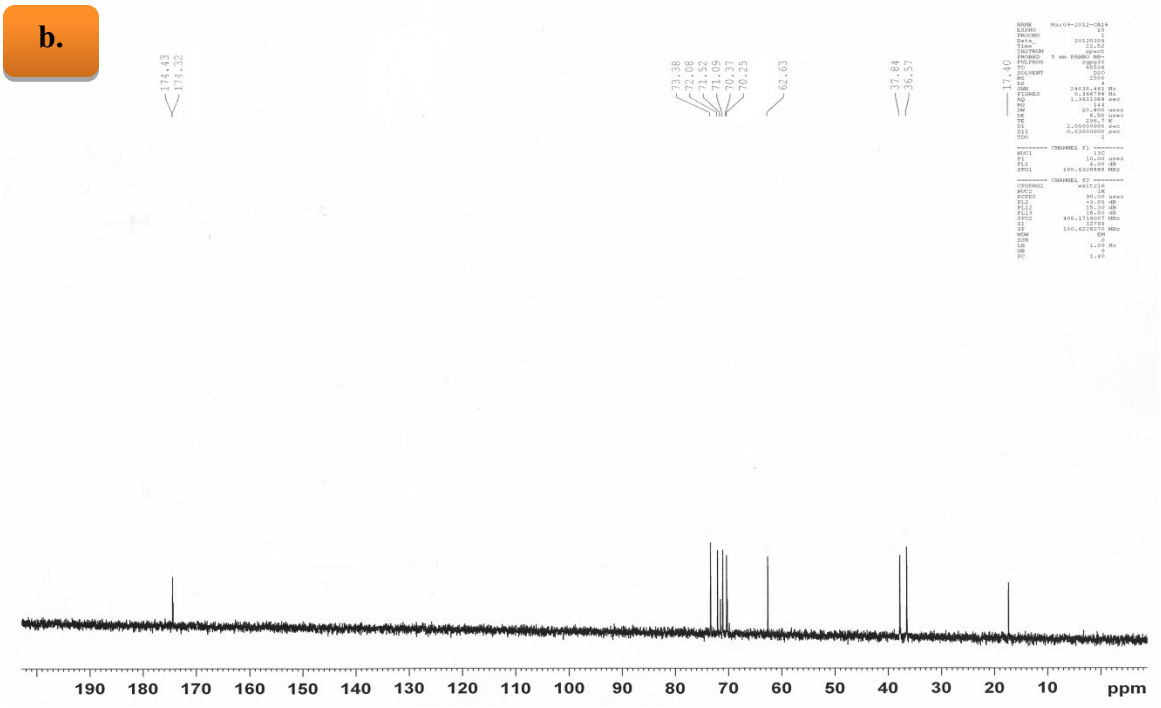



**Figure S5a**: Spectra of compound **L4** (a)$^{1}$H NMR (b) $^{13}$C NMR

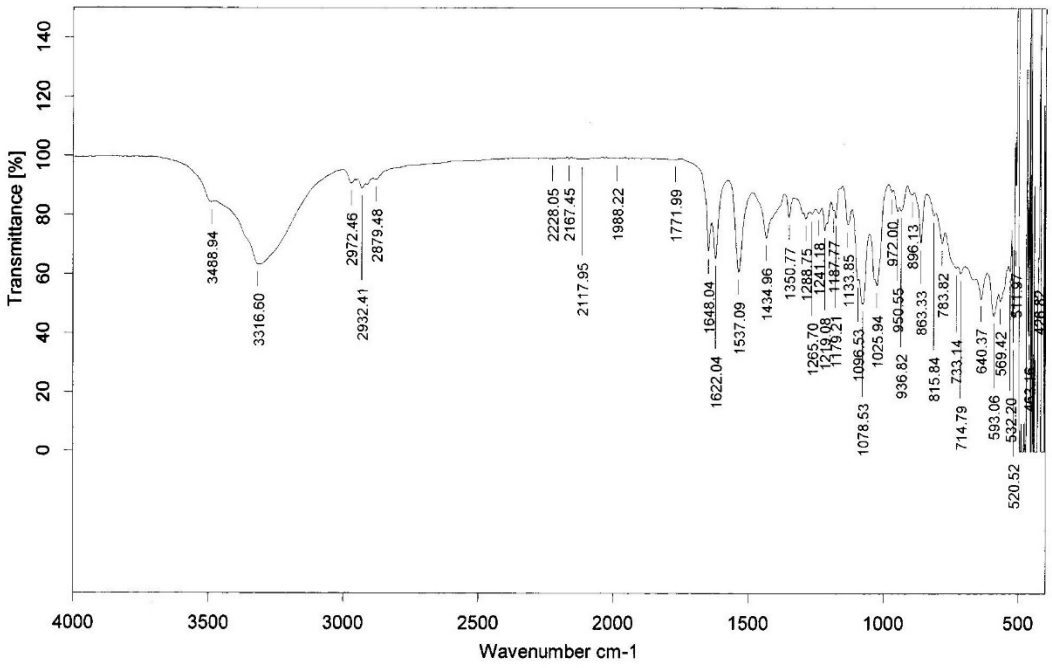



**Figure S5b**: FTIR spectrum of compound **L4**

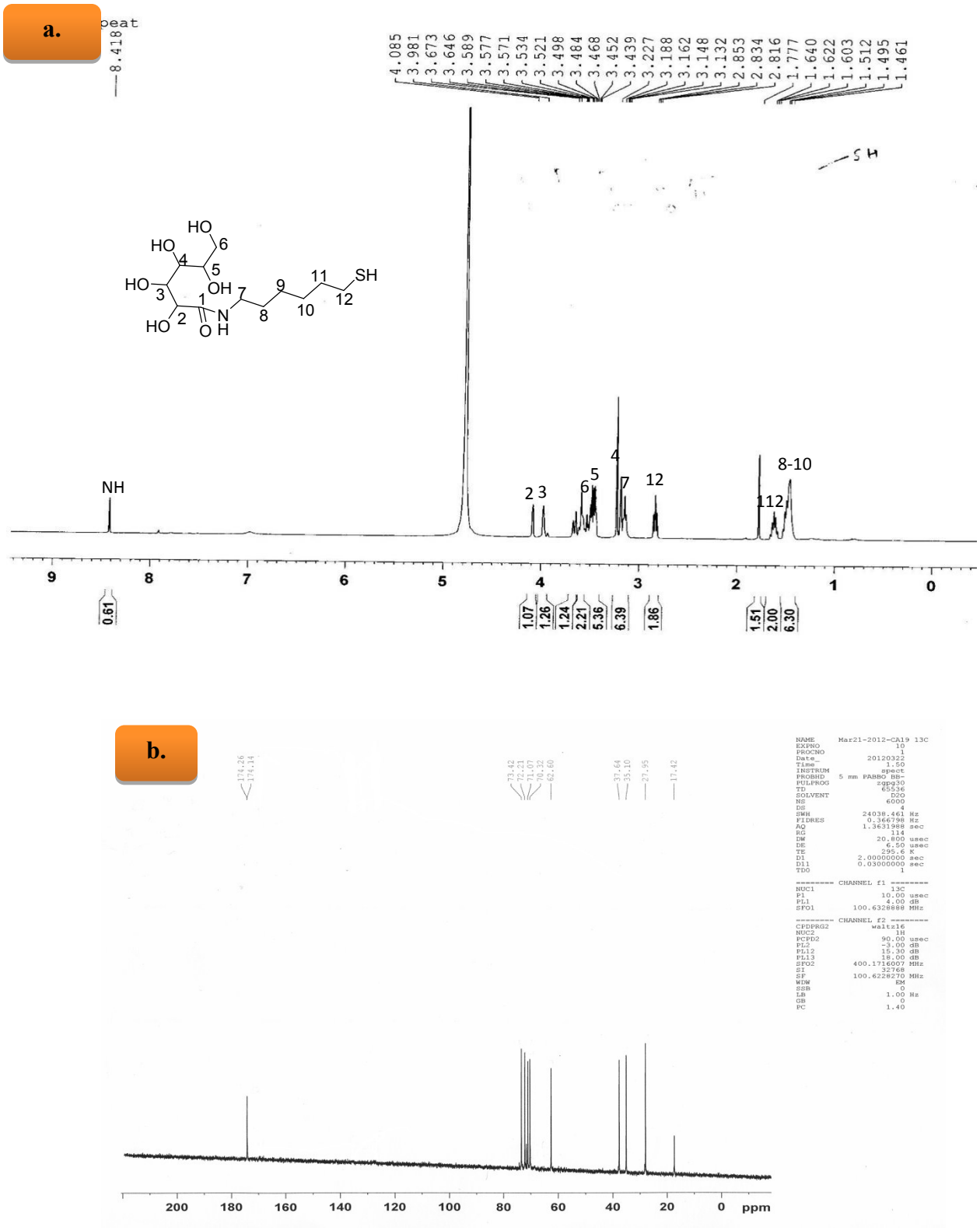



**Figure S6**: Spectra of of Compound **L5** (a)$^{1}$H NMR (b) $^{13}$C NMR

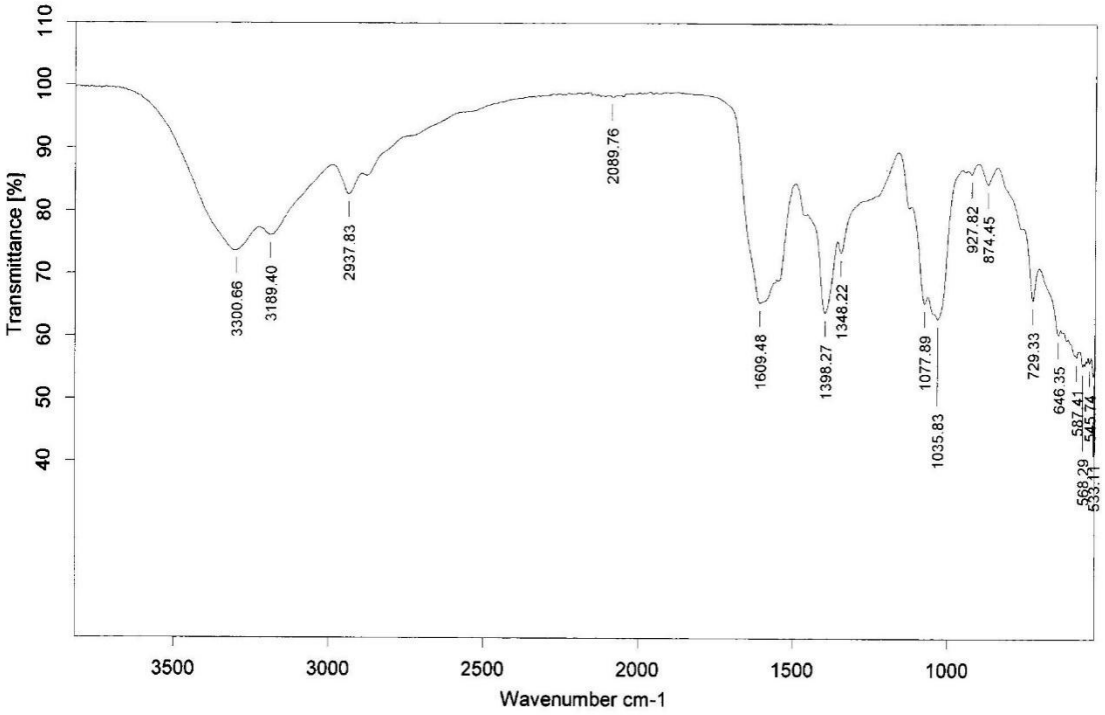



**Figure S7**: FTIR spectrum of compound **L5**

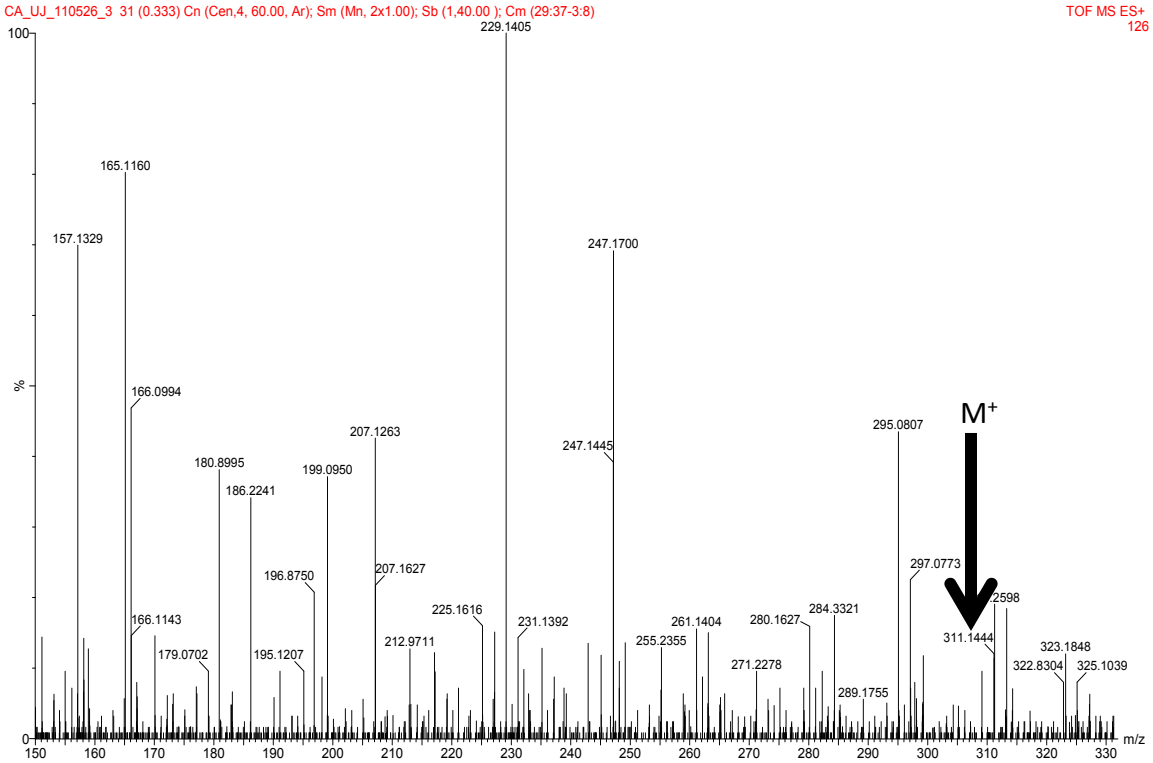



**Figure S8**: High resolution mass spectrum of compound **L5**

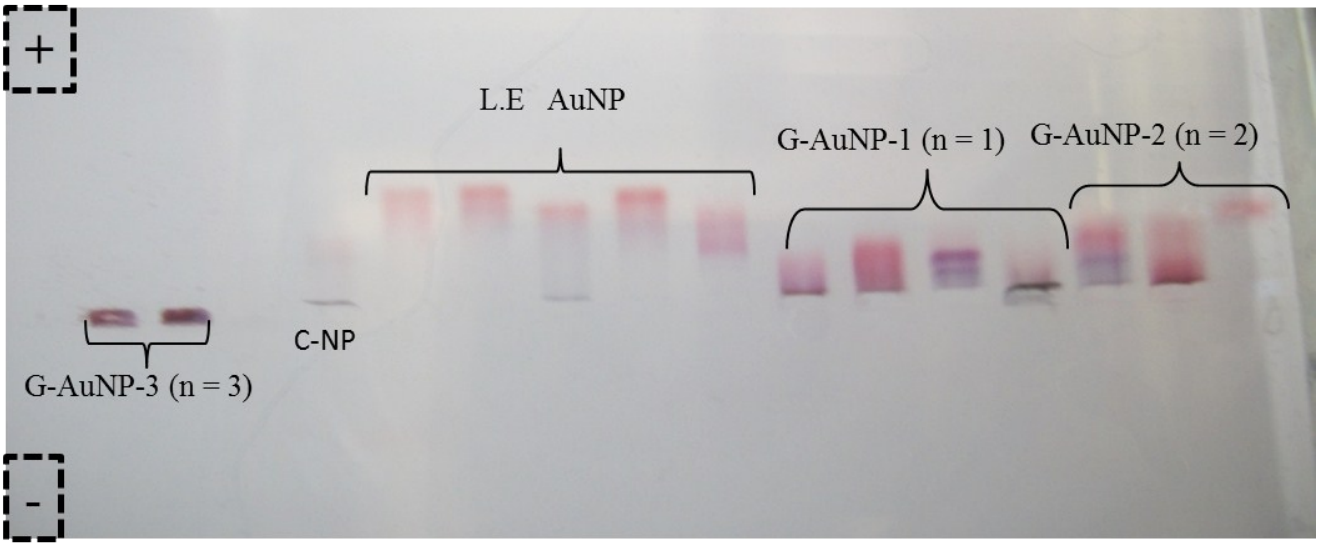



**Figure S9:** Example of raw gel electrophoresis (1.5% agarose) in 1M TBE buffer at 80V for 60 min. of Direct method AuNPs of glyco-thiol (n=1 and 2), Ligand exchange AuNPs of non-acetylated glyco-thiol (n = 1-3), acetylated glyco-thiol (n=1 and 3) and citrate AuNP (C-GNP).

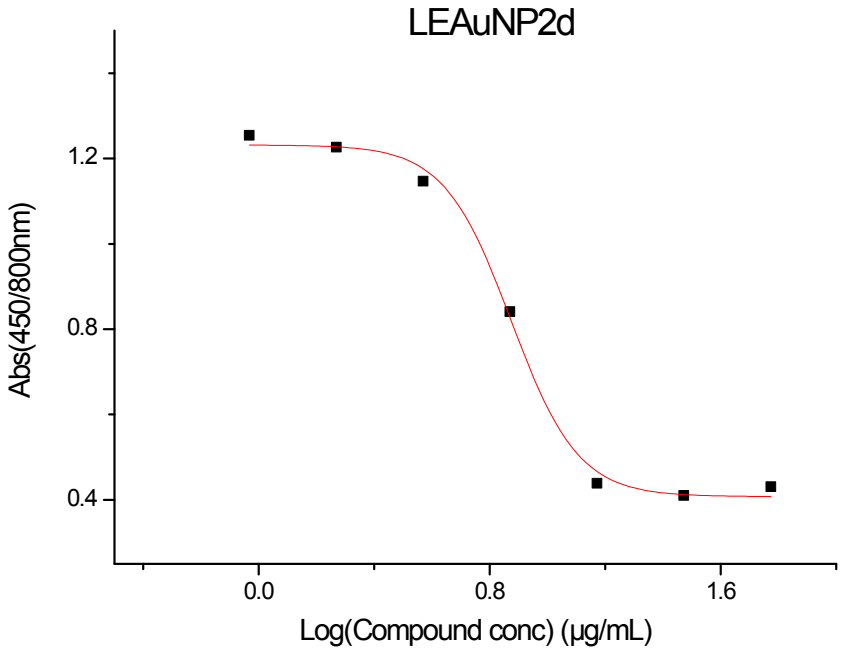



**Figure S10:** Growth inhibition profile of **AuNP-G10** against A549 cancer cell lines.

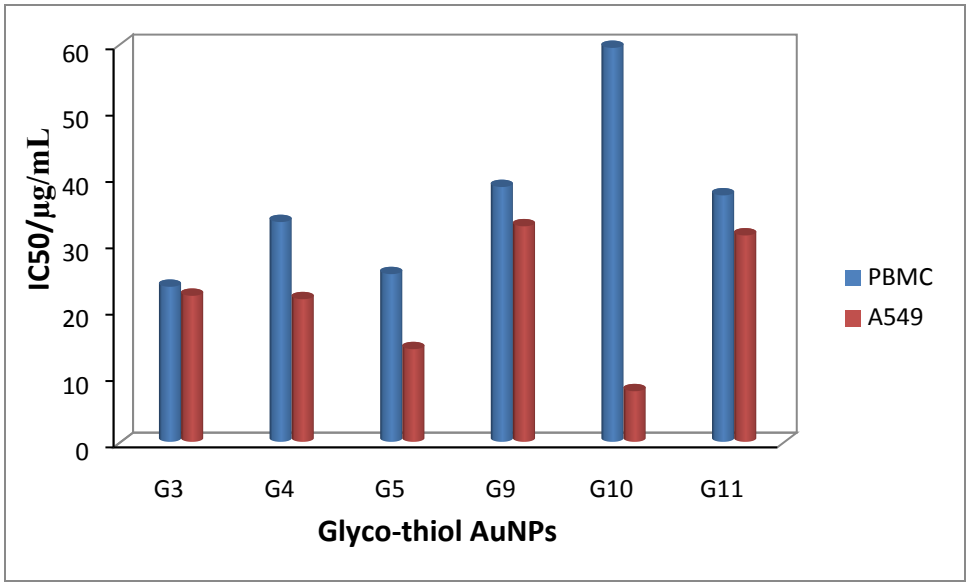



**Figure S11:** Growth inhibition concentration of glyco-thiol AuNPs against PBMC and A549 cell lines.