

Evidence for Patchy Lipid Layers on Gold Nanoparticle Surfaces

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Supporting Information

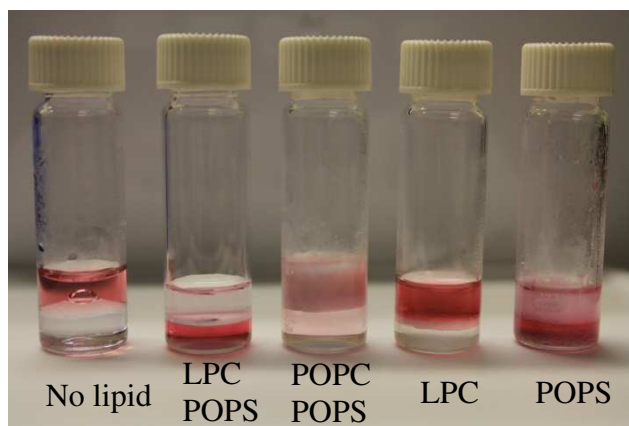


Figure S1. A photograph illustrating the distribution of Au NPs in water /chloroform mixtures in the presence of lipids. The top solvent layer is water; the bottom is chloroform. The red color indicates the phase in which the gold nanoparticles, originally coated with PAH, reside. Lipid identity in 1:1 ratios or as single components is indicated under each vial.

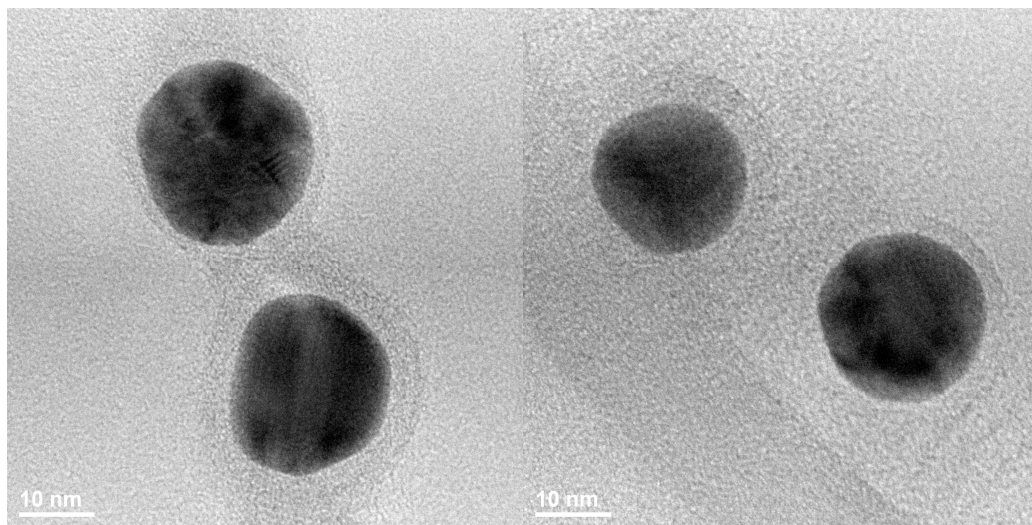


Figure S2. Stained TEM images of 20 nm PAH coated Au NPs with an organic layer of LPC and POPS (**2-20nm**). The difference in organic layer thickness could possibly indicate the presence bilayer or multilayer lipids.

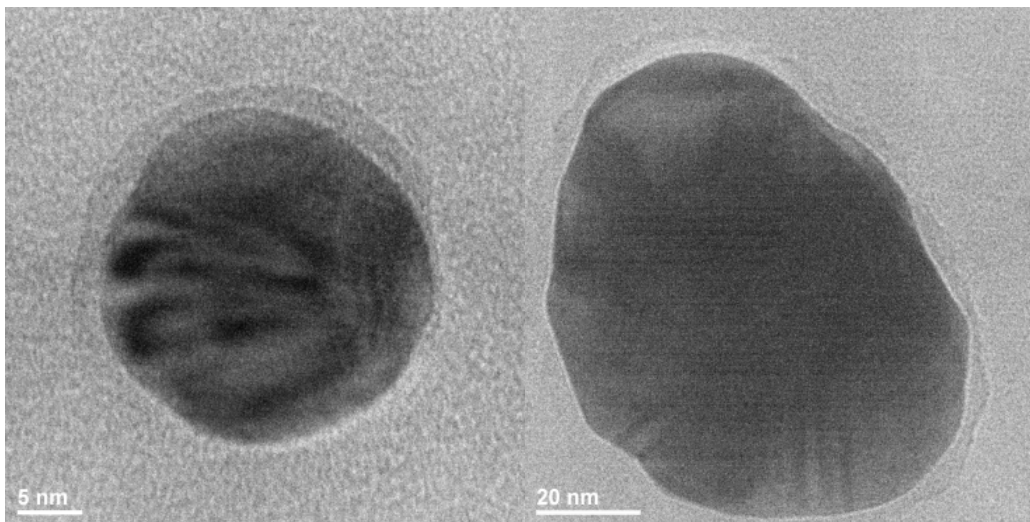


Figure S3. Cryo TEM images of Au NPs with an LPC coating. Scale bars = 20 nm.

Scheme S1. Calculations for 1 monolayer of alkanethiol.

We assume that the nanoparticles take up a truncated cuboctahedral geometry.

$$N = 283.7R^3$$

where R is the radius of the particle. The percentage of surface atoms is given as

$$\% \text{ surface atom} = \frac{R^3 - (R - d)^3}{R^3}$$

where d = 0.28 nm, the lattice spacing between two gold atoms.

From the total number of Au atoms, the amount of C₁₈SH to be added can be calculated.

Figure S4. Histograms of the counts of 12 nm Au NP label angles on 90 nm Au NPs with respect with the total angles measured. Left: PAH coated Au NPs with lipid layer, from top to bottom, POPS:biotin PE, POPS:LPC:biotin PE and LPC:biotin PE. Right: Hybrid Au NPs with lipid layer, from top to bottom, POPS:biotin PE, POPS:LPC:biotin PE and LPC:biotin PE.

