Polymer-supported lipid shells, onions, and flowers

Supporting Information

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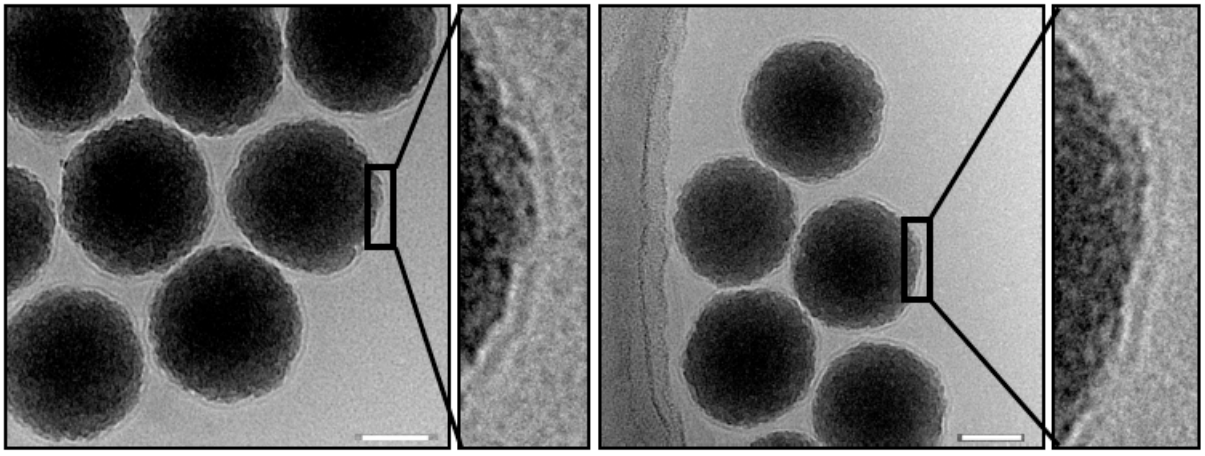

Figure S1. Cryo-TEM micrographs of lipid bilayers formed on silica nanoparticles by fusion of liposomes with silica *[13]*. Sub-100 nm small unilamellar vesicles of DOPC were formed by sonication and incubated overnight with silica nanoparticles. As reported, a distinct electron-dense band exterior to an electron-light band was observed around the core of silica particles. Scale bars 100 nm.

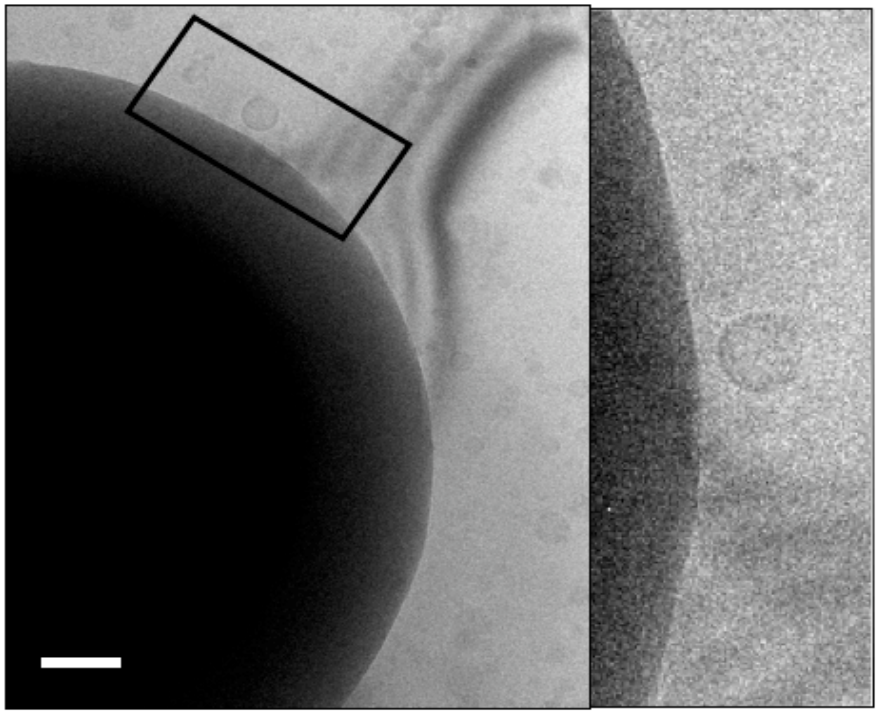

Figure S2. Cryo-TEM micrograph of surfactant-free PLGA nanoparticle incubated with DOPC liposomes 18 hrs: conditions that induced bilayer formation on silica nanoparticles. Despite the presence of liposomes in close proximity to the surfaces of PLGA particles, no fusion/lipid layer formation was observed on the particles. Scale bar: 100 nm.

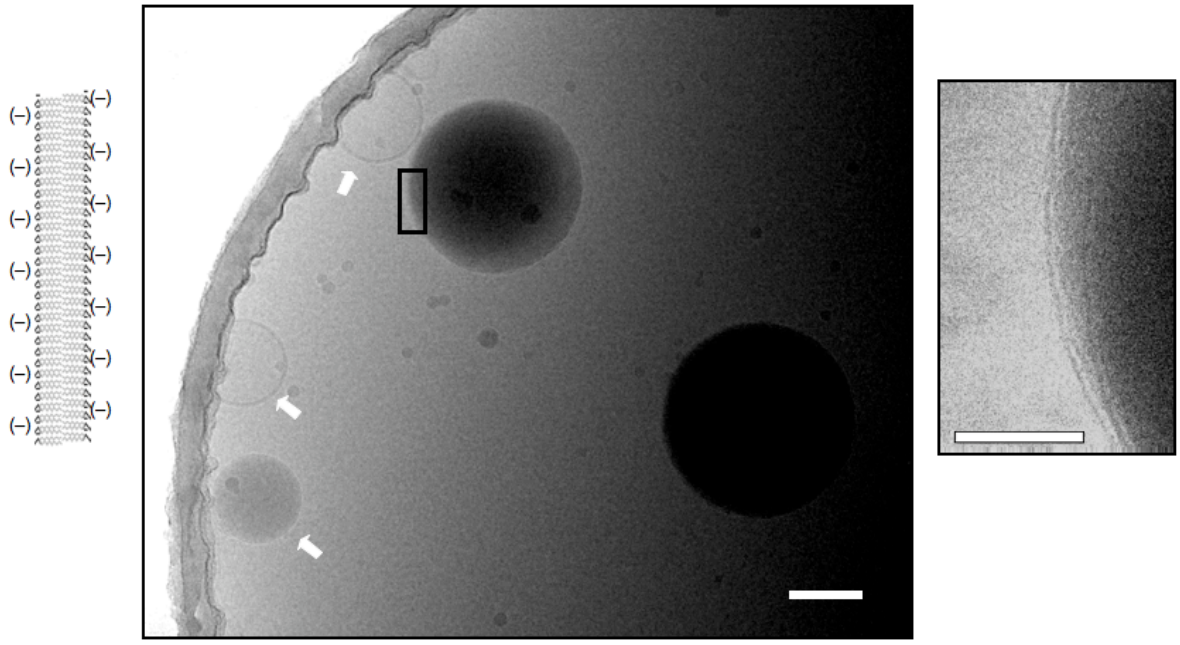

Figure S3. Cryo-TEM micrographs of nanoparticles made with a ~25:9 wt:wt PLGA:lipid ratio as in Figure 4, but using a lipid composition of 4:1 mol:mol DOPC:DOPG. Whereas multilamellar lipid 'onions' were observed on PLGA particles formed with zwitterionic DOPC alone (Fig. 4a, b), this anionic/zwitterionic lipid mixture only assembled into unilamellar lipid shells around polymer cores, as well as free unilamellar liposomes. Scale bar: 100 nm.

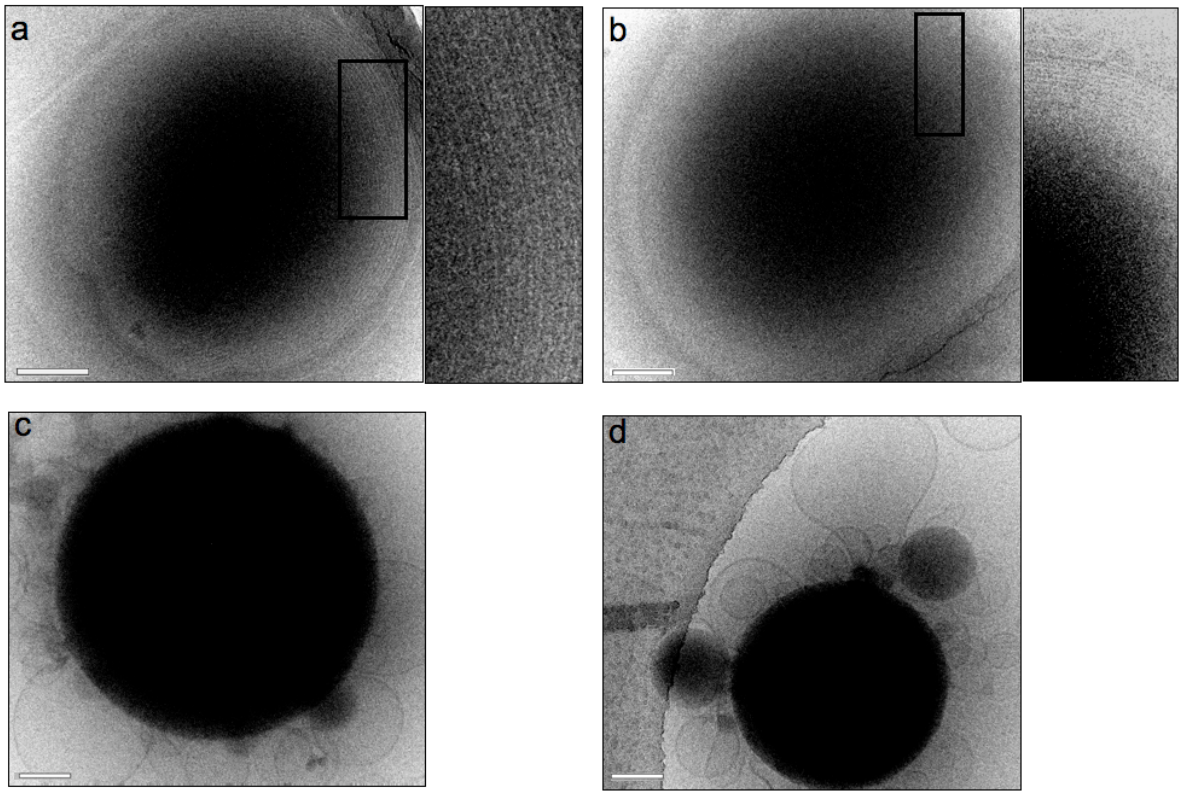

Figure S4. 'Onion' and 'flower' lipid-polymer nanostructures are maintained following particle lyophilization and reconstitution in water. Lipid-enveloped 'onions' (a, b) or 'flowers' (c, d) were lyophilized in 20 mg/mL sucrose, then resuspended in water and examined by cryo-TEM. Scale bar: 100 nm.