Supporting Information

Dendrimer solution preparation A custom synthesized Fmoc-protected dendrimer was deprotected as shown in Scheme S1. 100 mg of the Fmoc protected dendrimer and 10 mL of 1:1 DMF:H_2O were added to a 50 mL conical vial and vortexed until the dendrimer dissolved. This solution was then filtered through a 0.2 um PTFE syringe filter. Piperdine was added to the solution in exess (10X) and stirred for 20 min. After 20 minutes, the solution had a large amount of white flocculant. 13 mL of ethyl acetate were added to the solution to remove fluorene from the aqueous phase, and the aqueous portion was recovered. The organic phase was washed twice with water, and the washings were added to the original aqueous phase. The bulk of the water was removed by rotary distillation. A viscous oil was left in the bottom of the flask, and this was dried under vacuum over night. The resulting product was a sticky, yellowish solid. A small portion was dissolved in water for ESI mass spectrometry, which confirmed successful deprotection of the dendrimer (Table S1). The remaining solid was dissolved in deionized water to make a 30 mM stock solution.

Scheme S1.

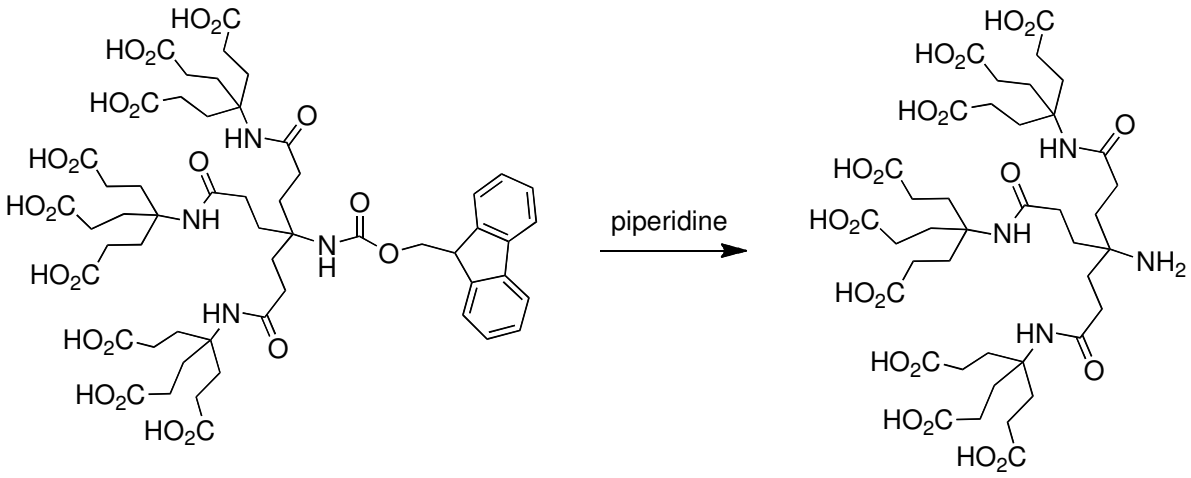

Table S1. Observed and calculated isotopic ratios for the deprotected dendrimer.

m/z	Observed Isotopic Ratio	Calculated isotopic Ratio
933.7	100	100
934.7	42.7	45.5
935.7	13.4	14.8
936.7	2.8	3.3

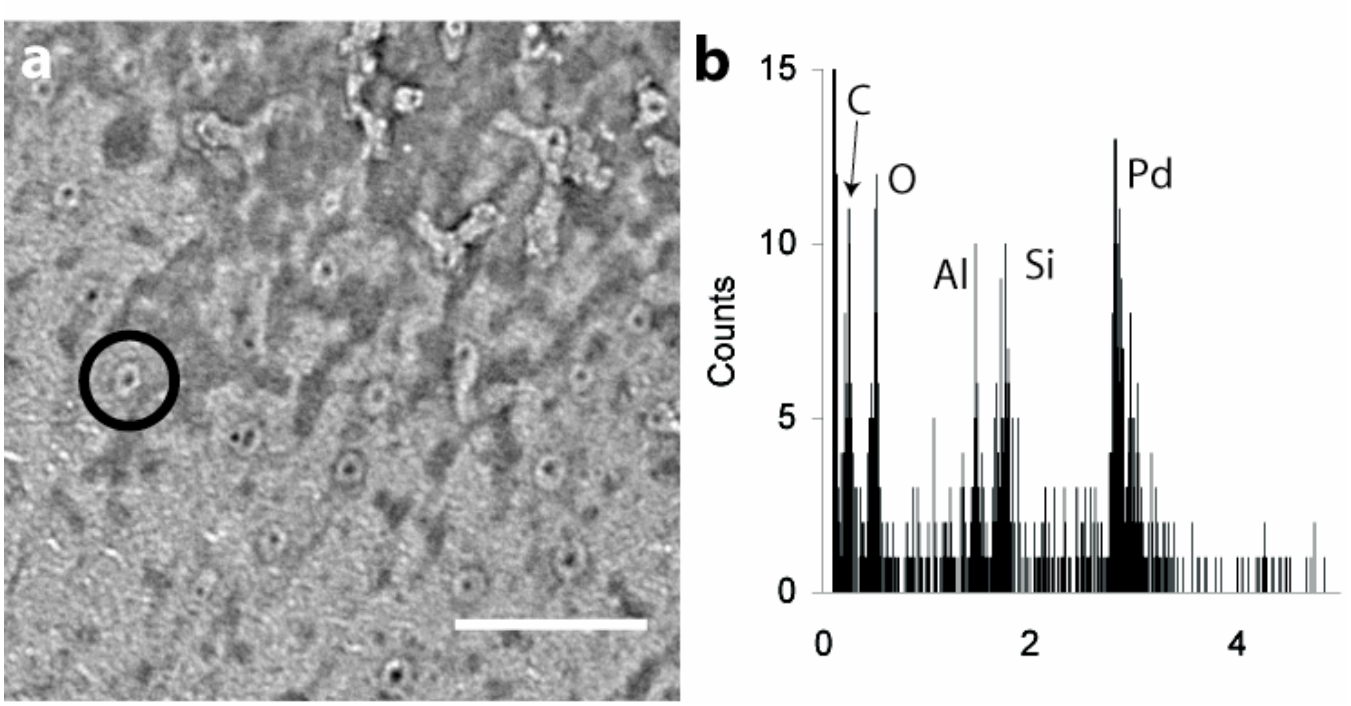

Figure S1. TEM image (a) of AlO_x NPs on a Pd-coated Au grid. One of the NPs is circled for clarity. The scale bar is 500 nm. EDS spectrum (b) of one of the nanoparticles. The Al signal disappears when the beam is trained on the interstitial space.

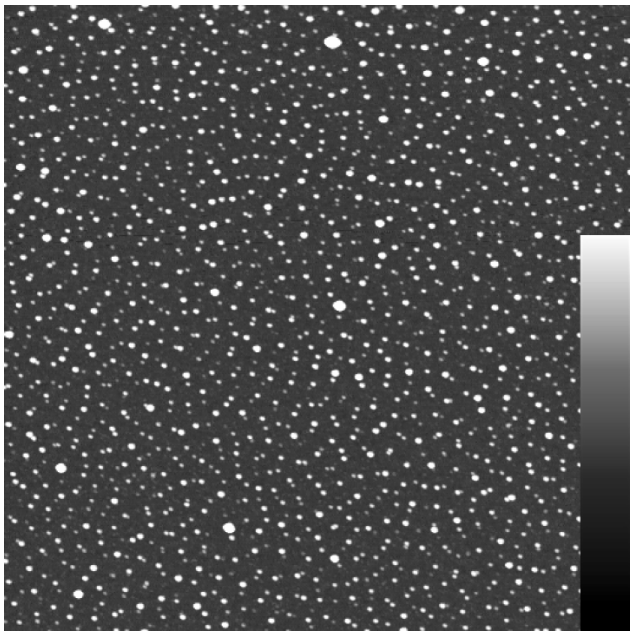

Figure S2. AFM height image of a surface with two NP coatings. The average NP density after the second coat is 65 μm^{-2} (compared to 36 μm^{-2} for a single coat). The height scale is 30 nm, and the image is 5X5 µm.