Supporting Information

Organically Modified Silicas on Metal Nanowires

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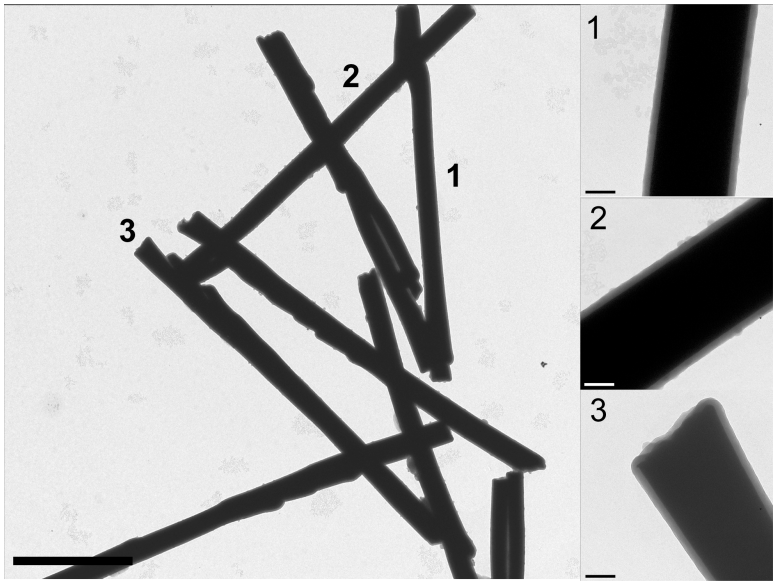
Supporting Figure 1. Reflectance images of Au/Ni striped nanowires coated with 1TEOS:1AcPTES (left) and 3TEOS:1AcPTES (right) with the Ni segment etched, demonstrating that the silica was not thick enough to keep the Au segments together for the 1:1 sample, but did maintain structure when a 3:1 TEOS:AcPTES ratio was used. Scale bar = 2 μm.

A



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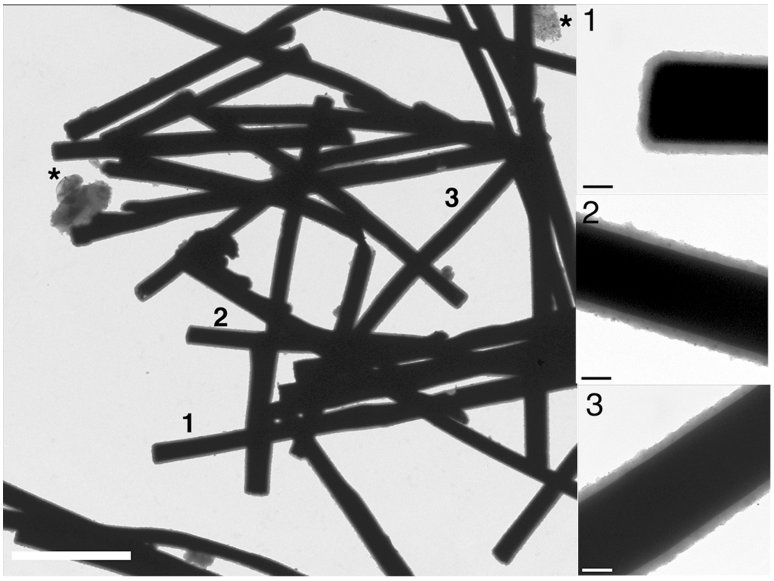

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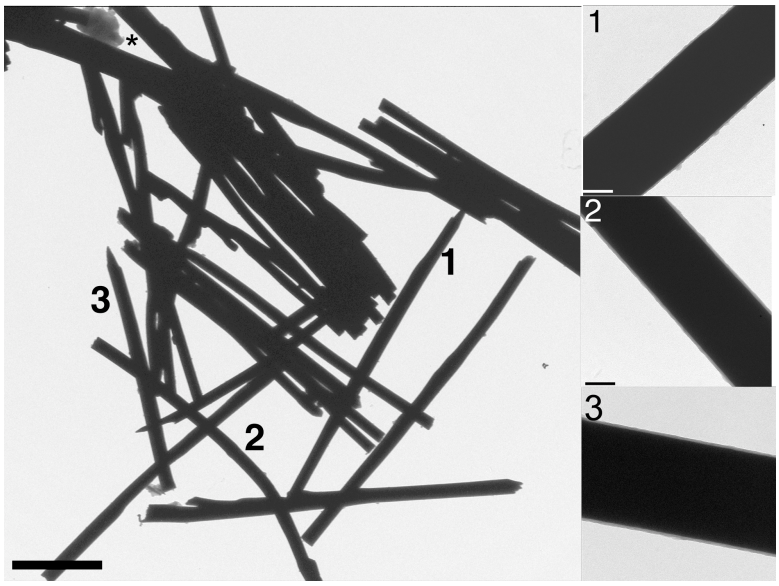

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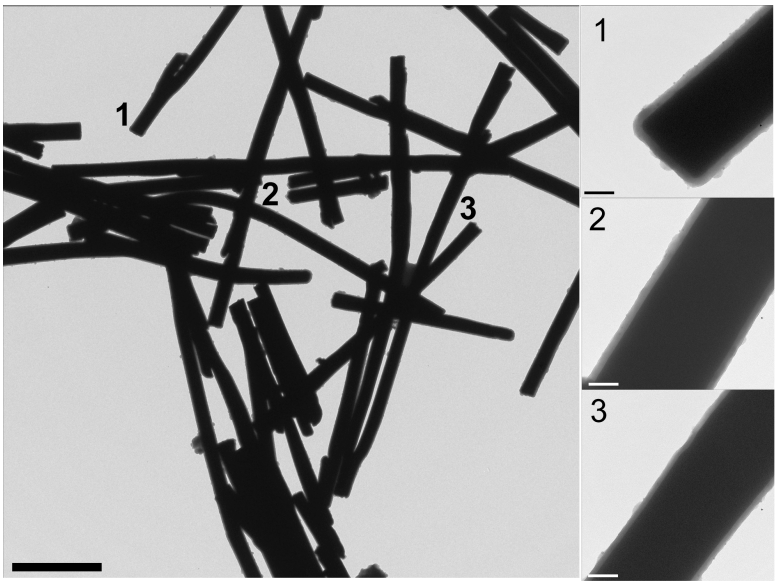

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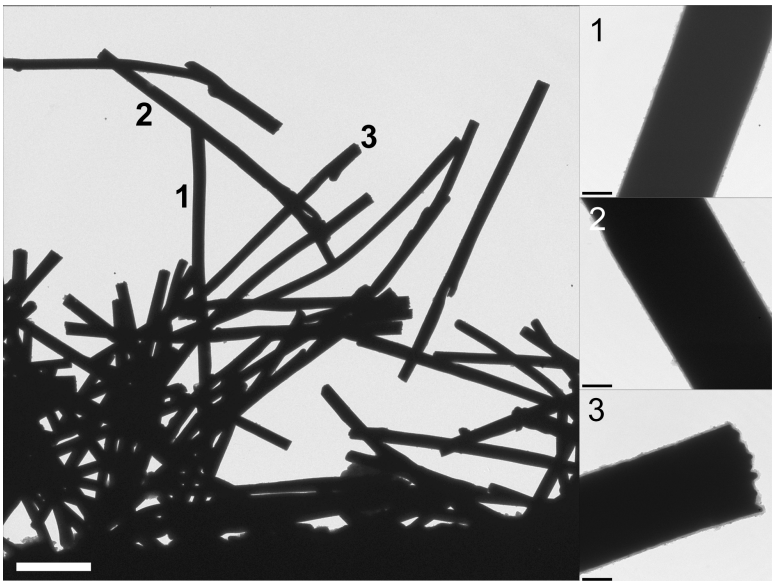
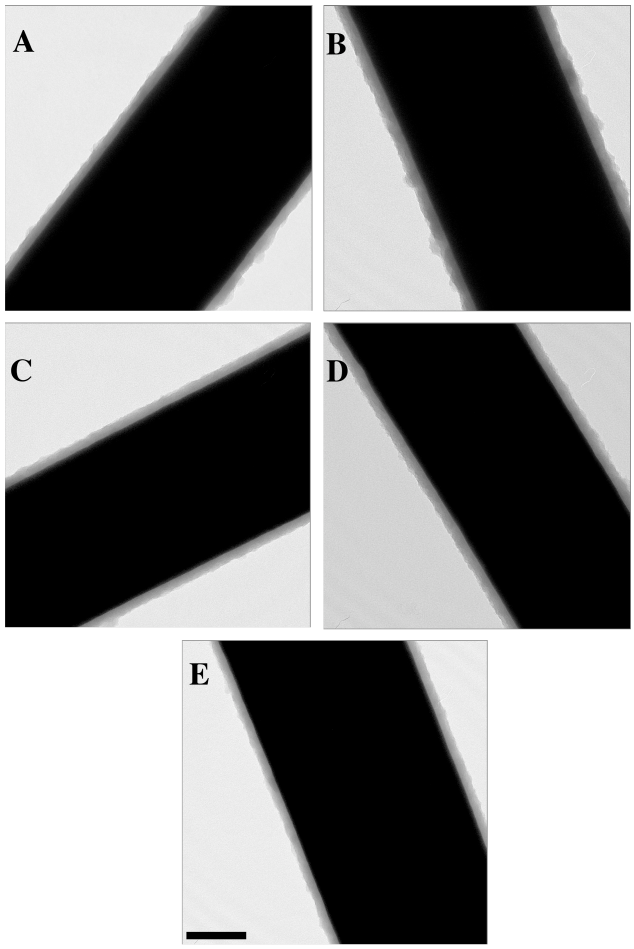
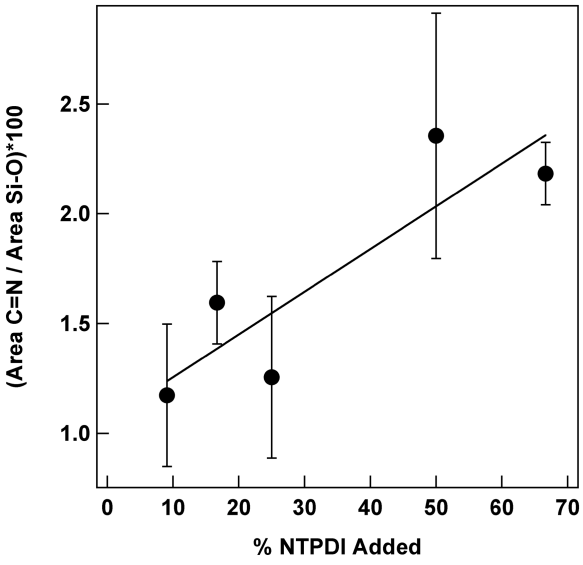


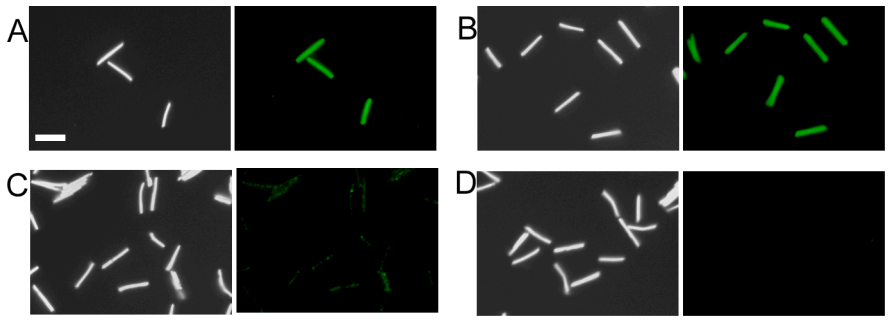
Supporting Figure 2. Low magnification TEM images of (A) TEOS, (B) BTEB, (C) BTMH, (D) NTPDI, and (E) PEO coated nanowires (top to bottom) with corresponding high magnification images to demonstrate the full coating of each nanowire with minimal to no free silica formation (indicated with a *). Low magnification scale bars = 2 μm; high magnification scale bars = 100 nm.



Supporting Figure 3. TEM images of organically modified silica coatings with different amounts of dihydroimidazole added during synthesis: (A) 10:1, (B) 5:1, (C) 3:1, (D) 1:1, and (E) 1:2 TEOS:NTPDI coated nanowires. Scale bar = 100 nm.



Supporting Figure 4. Quantification of NTPDI incorporation. The IR spectra of the TEOS:NTPDI silica coated nanowires with varying amounts of NTPDI added to the reaction mixture were then integrated to determine the area under the C=N peak (1720-1620 cm^{-1}) and the Si—O—Si peak (1280-850 cm^{-1}). This showed qualitative control over the amount of imidazole functionality incorporated into the coating by changing the reagent concentrations. Error bars are the standard deviation between three sets of data from three sets of coated nanowires, fabricated and analyzed on separate days.



Supporting Figure 5. Reflectance (left) and fluorescence (right) microscopy images of fluorescently labeled (A,C) anti-IgG and (B,D) LDH to (A,B) TEOS and (C,D) PEO coated nanowires. The fluorescent images are false-colored for clarity. Scale bar = 5 μm.