Electronic Supporting Information

Synthesis of Gold Nanotubes with Variable Wall Thicknesses

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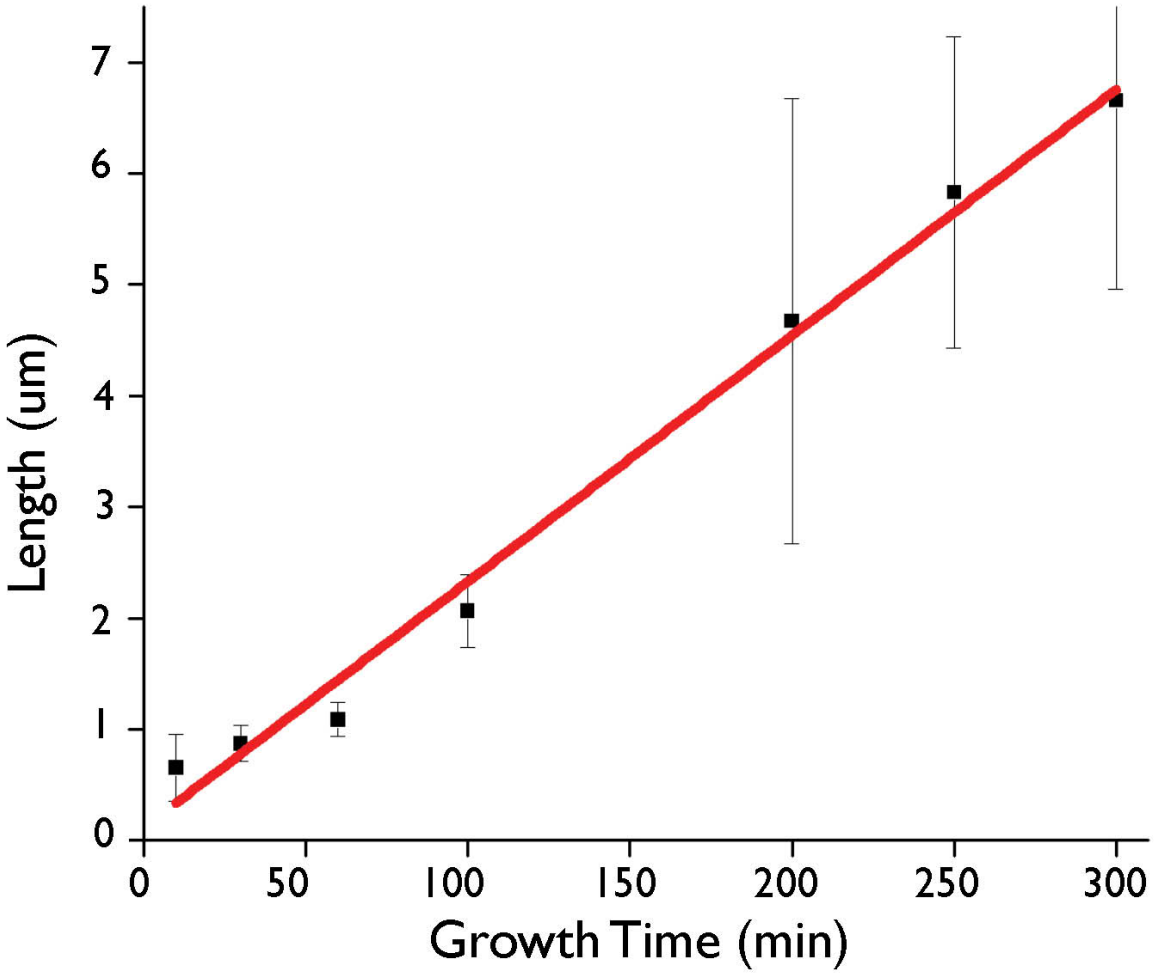

Fig. S1 Growth curve of gold nanotubes. Error bars indicate one standard deviation of ~100 length measurements from TEM analysis.

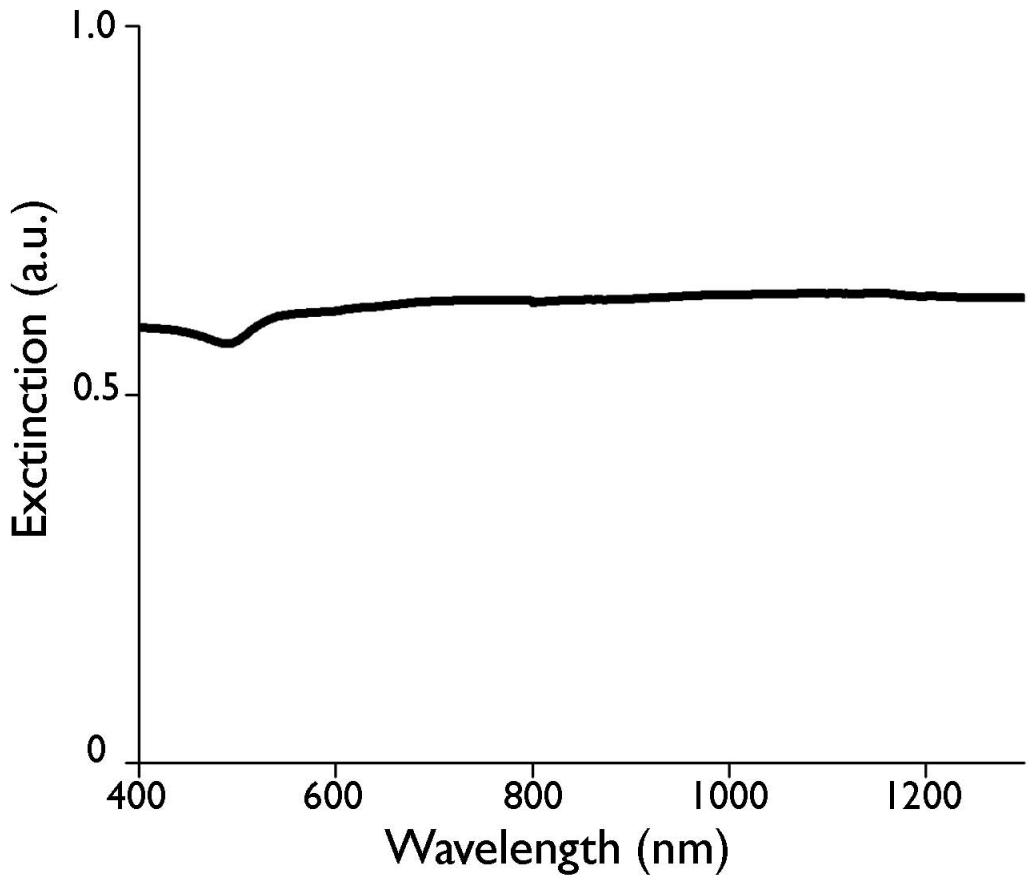

Fig. S2 Extinction spectra of a solution of 200 nm gold nanotubes.

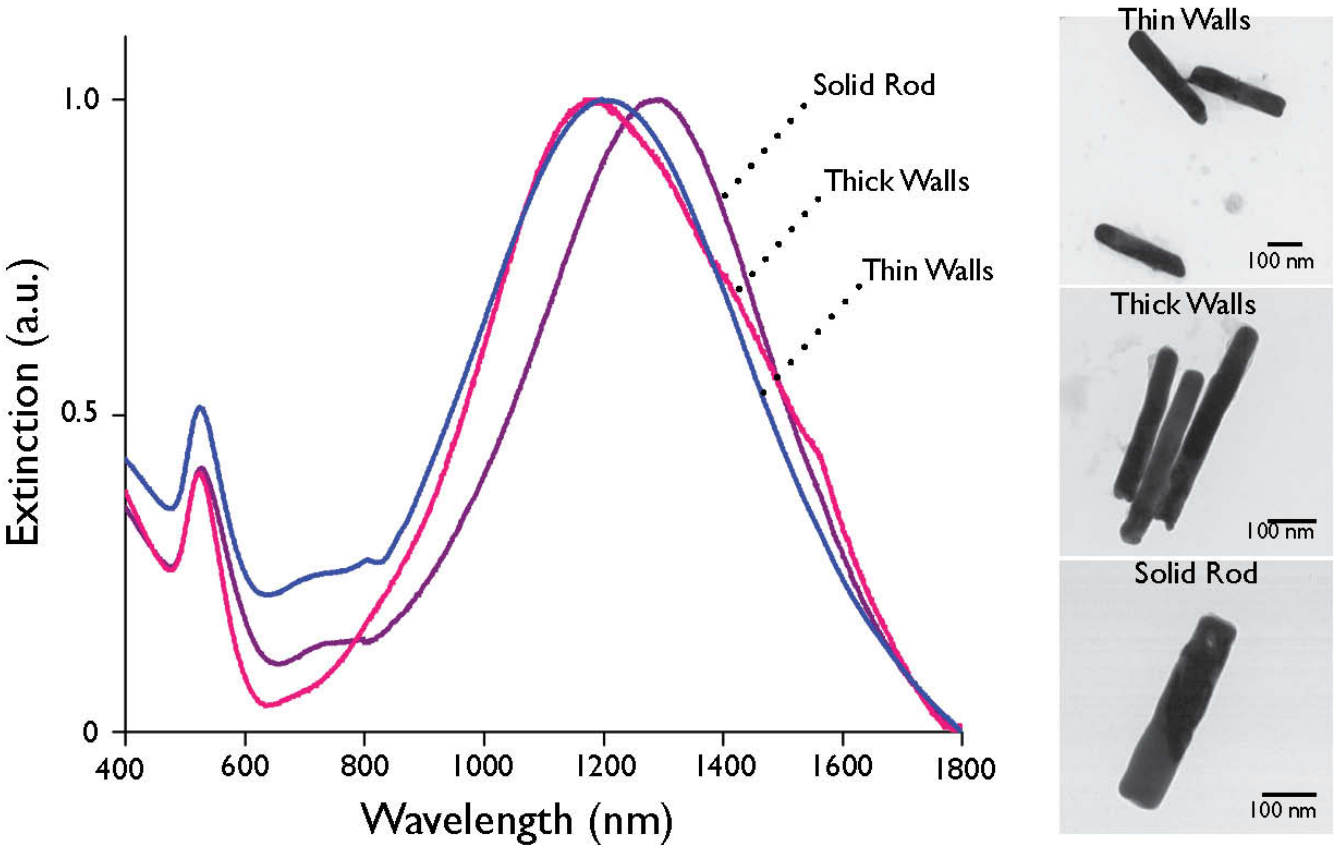

Fig. S3 Extinction spectra of thick wall (poly(3-hexyl)thiophene core), thin wall (polythiophene core) gold nanotubes, and a gold nanorod in D_2O. Polymer cores were electropolymerized in $BF_3{\cdot}Et_2O$ at +1500 mV vs. $Ag/AgNO_3$ for 10 minutes. Length ~250 nm and width ~50 nm for all samples.

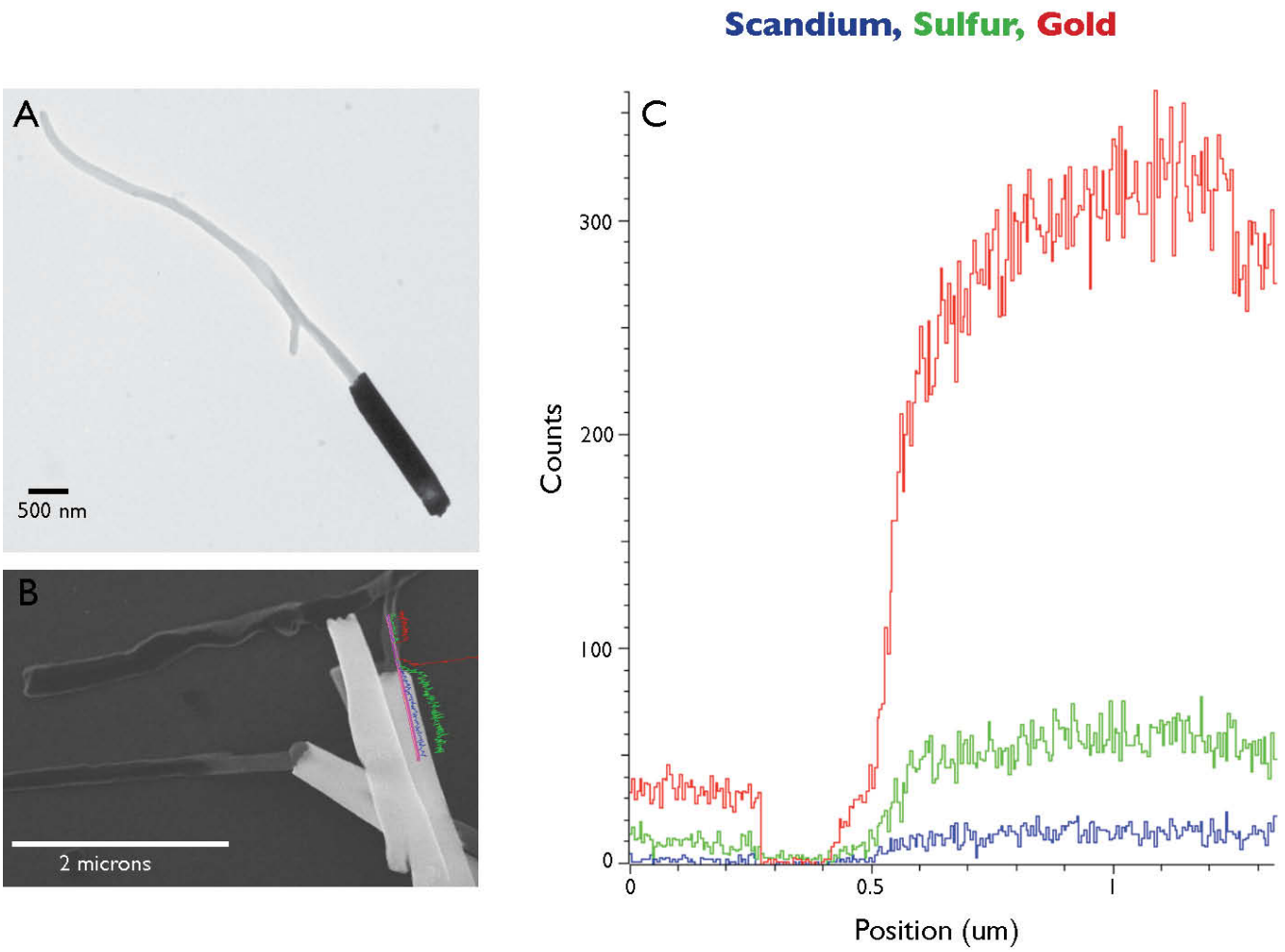

Fig. S4 TEM (A) and SEM (B) image of a core-shell gold nanotube with a poly-3-hexylthiophene core. Elemental mapping of a line scan along a core-shell gold nanotube (C) taken from the line indicated in (B).