Supplemental Information

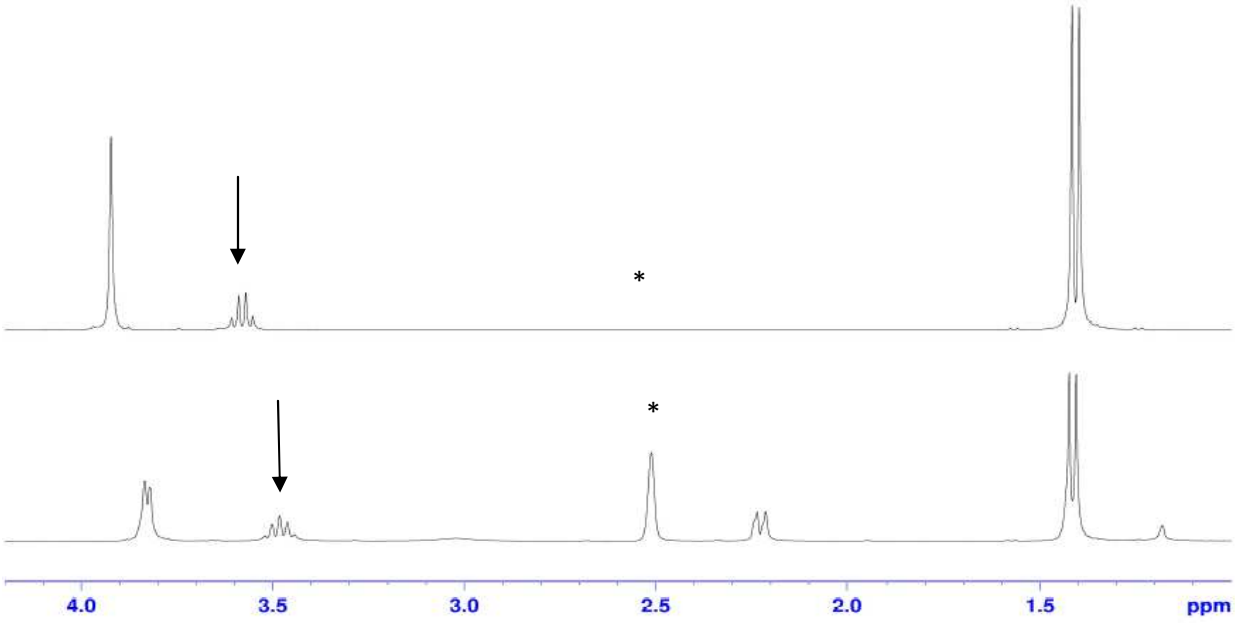

Figure S1. ^{1}H NMR spectrum of precursor (top) and tiopronin (bottom) in DMSO-d_6 + $CDCl_3$. Asterisks show the loss of sulfur hydrogen at 2.5 ppm. Arrows show the change from a quintet to a quartet in the methylene hydrogens as a result of the loss of a sulfur hydrogen. Peaks at 2.2 ppm and 1.2 ppm are due to solvent effects from the chloroform-d and DMSO-d_6 respectively.

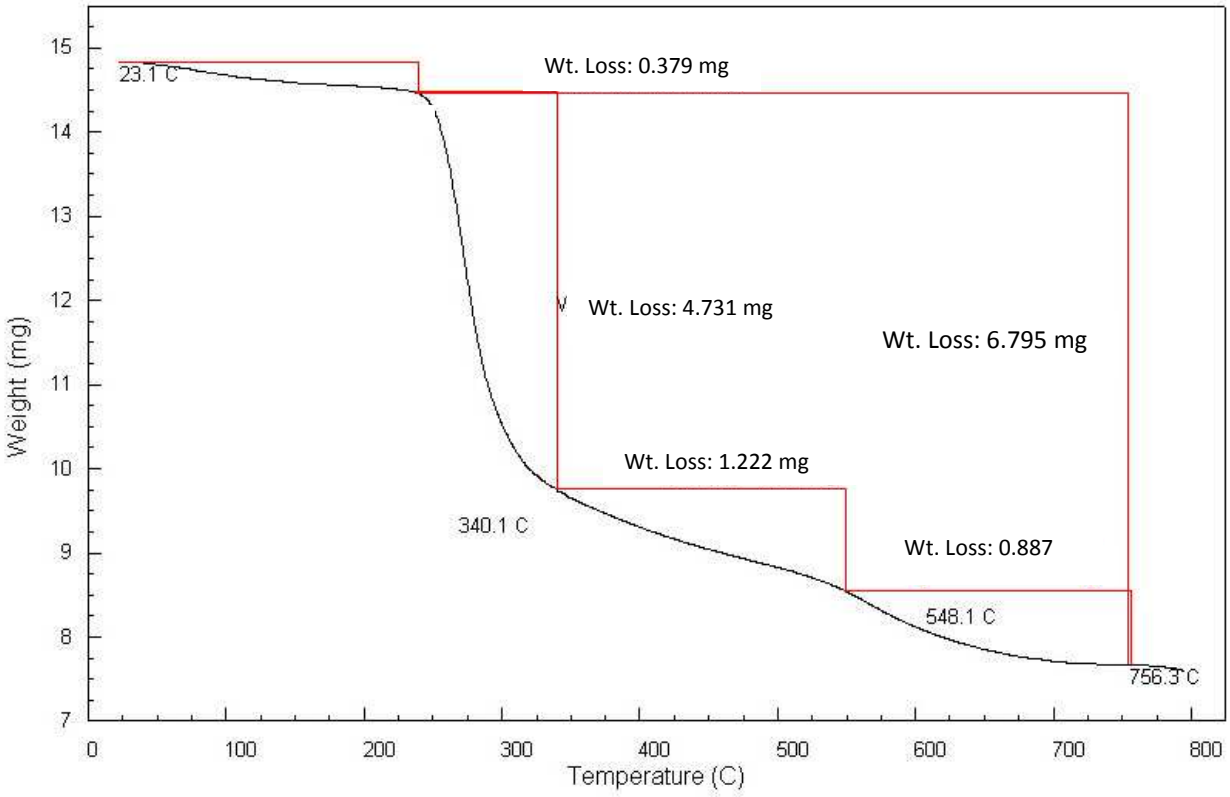

Figure S2. Thermogravimetric analysis of TMPC precursor molecule. Weight loss is equivalent to 6.795 mg, or 45% of total weight. This corresponds to a 1:1 gold:tiopronin composition within the precursor molecule. Weight loss of 0.379mg is attributable to water, which is removed from the starting weight for percentage calculations.

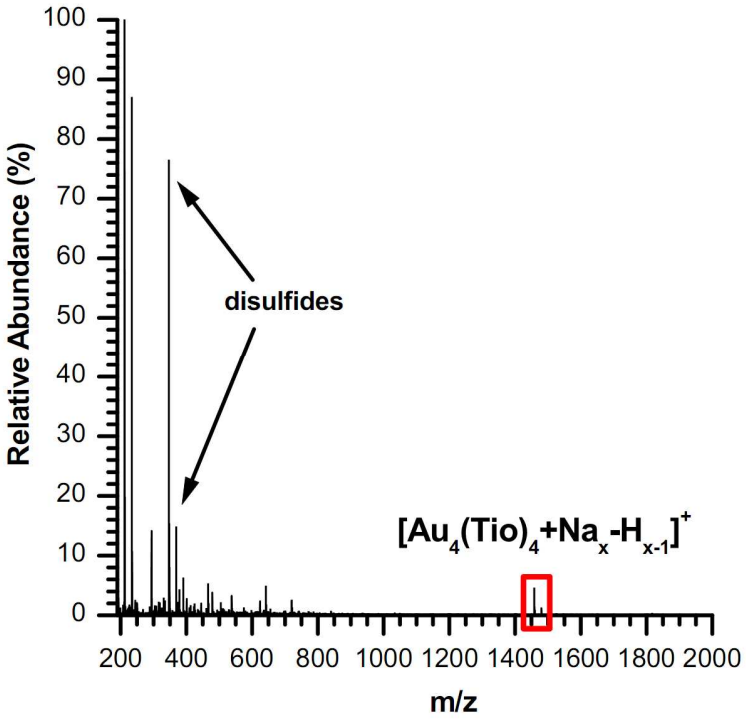

Figure S3. Full MALDI-TOF spectrum of TMPC precursor molecule.

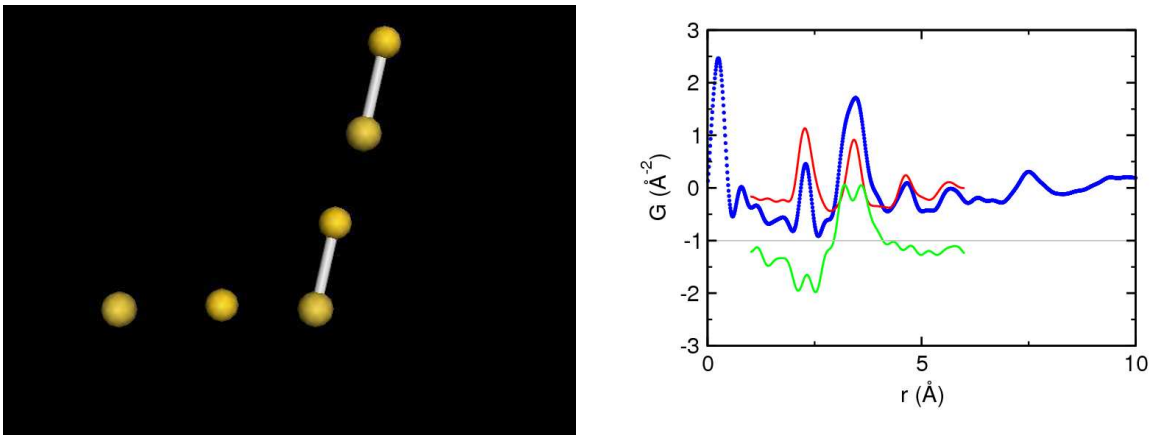

Figure S4. Left: Refined 6-atom chain model as suggested in Shaw et al. and Right: Model fit (red) over given PDF data (blue).

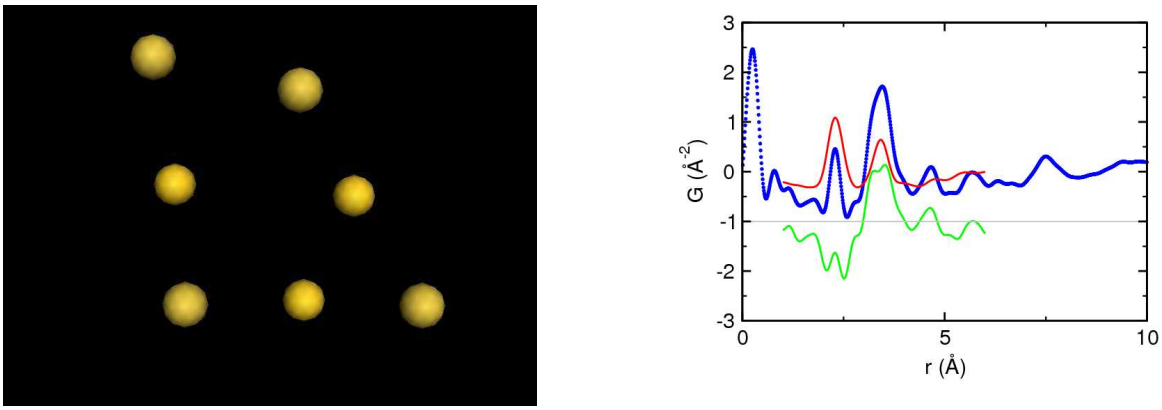

Figure S5. Left: Refined 7-member chain model and Right: model fit (red) over given PDF data (blue).

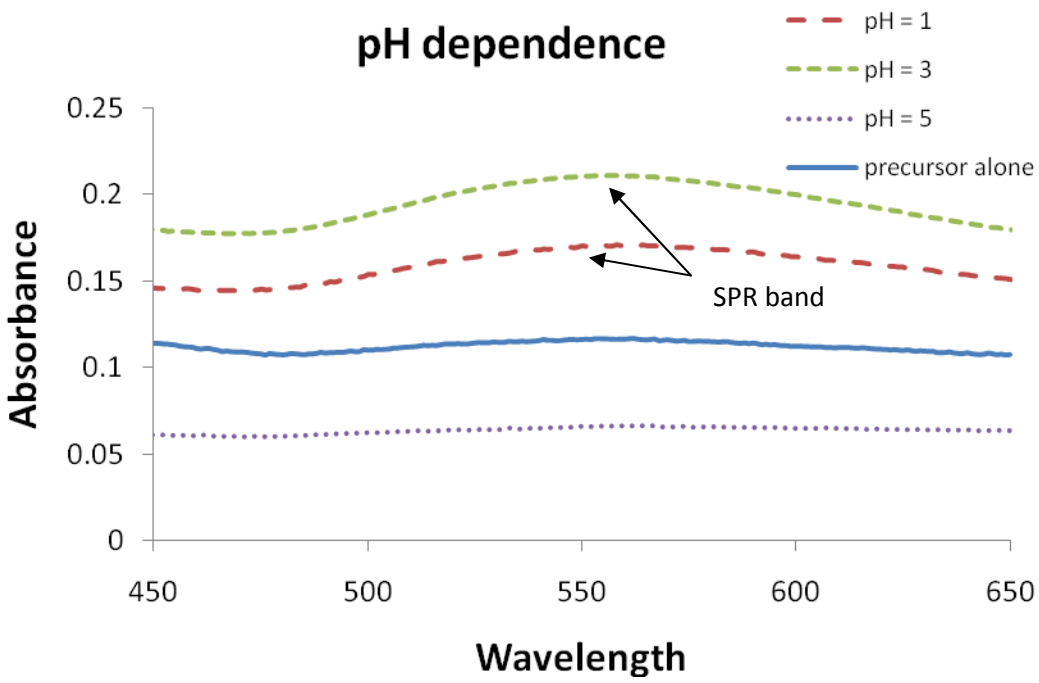

Figure S6. UV-Vis traces of precursor molecule at pH 1, 3, 5 and 7. pH = 7 is the native precursor suspended in water. An SPR band is shown for the precursor at low pH values but not at high pH values.