

Supporting Information for

Understanding the evolution of tunable spiral threads in homochiral Au nano-screws

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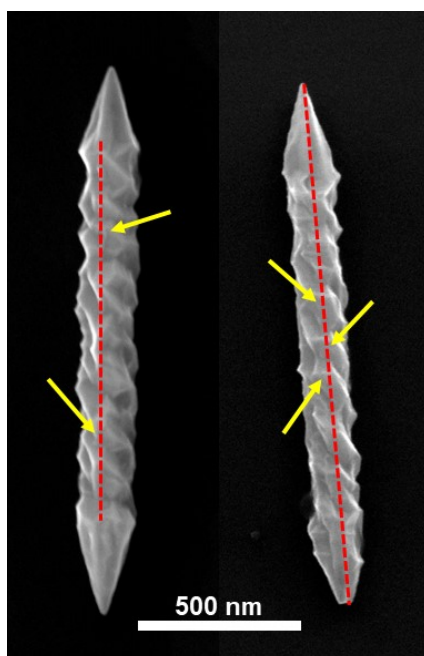


Fig. S1 Magnified SEM images of the Au nano-screws synthesized with L-cysteine as the ligand. The red dash lines indicate the grain boundaries and the yellow arrows indicate the continuous structures across the grain boundaries.

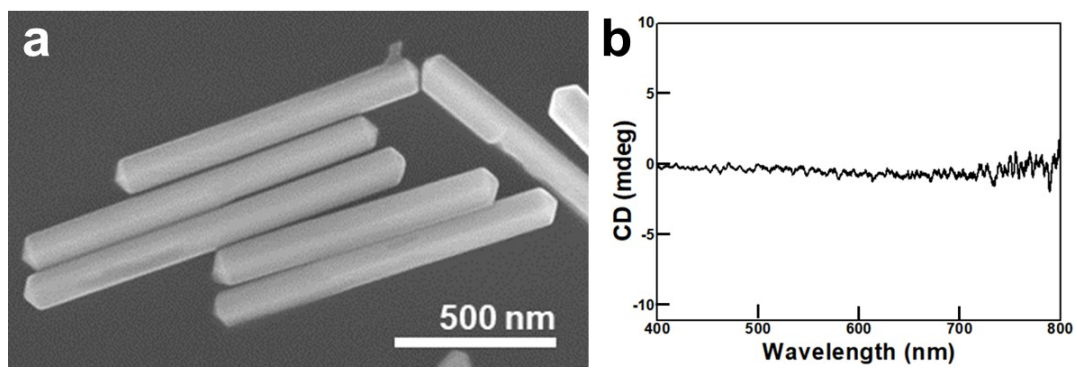


Fig. S2 (a) SEM image and (b) CD spectrum of the enlarged Au nanorods formed in absence of the L-cysteine ligand.

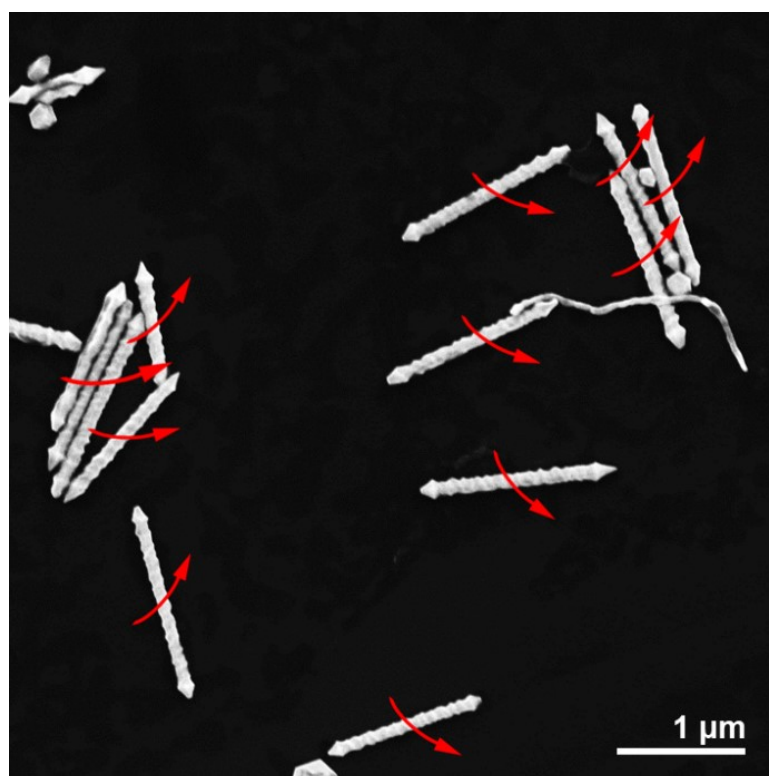


Fig. S3 SEM image of the nano-screws formed with D-cysteine as the ligand.

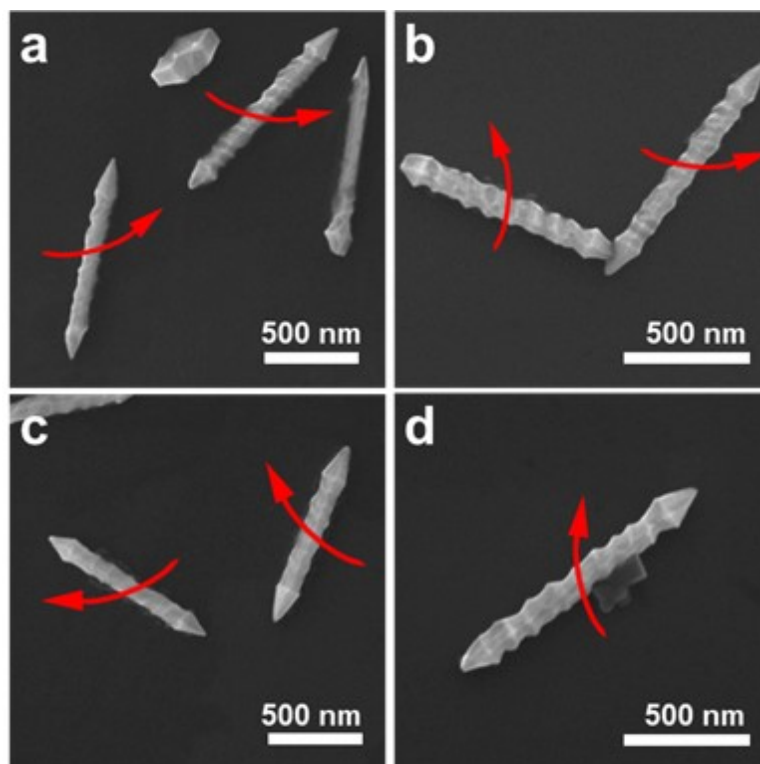


Fig. S4 SEM images of the nano-screws formed with $0.17 \mu\text{M}$ mixed L- and D-cysteine, with the ratio of a) 1: 9, b) 1: 5, c) 11: 4, and d) 5: 1.

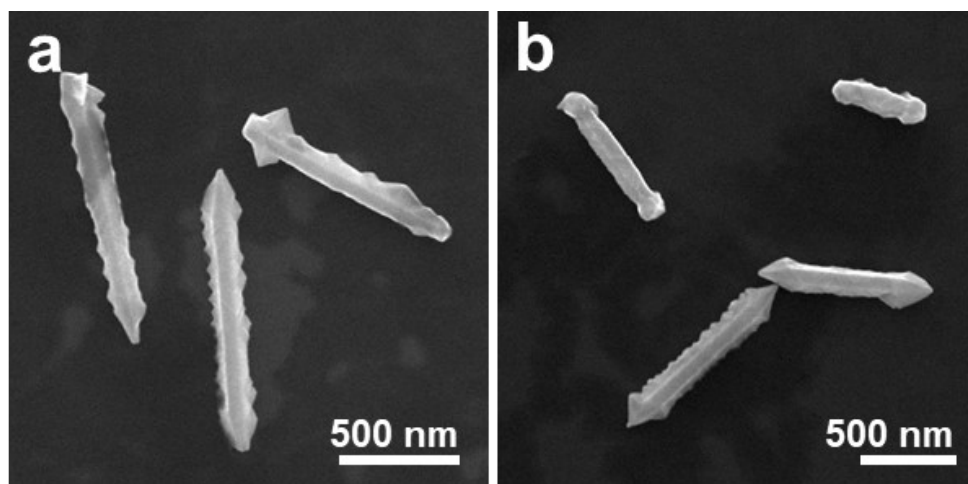


Fig. S5 SEM images of the nanostructures formed by replacing L-cysteine with (a) $0.20 \mu\text{M}$ L-glutathione and (b) $2.0 \mu\text{M}$ N-acetyl-L-cysteine.

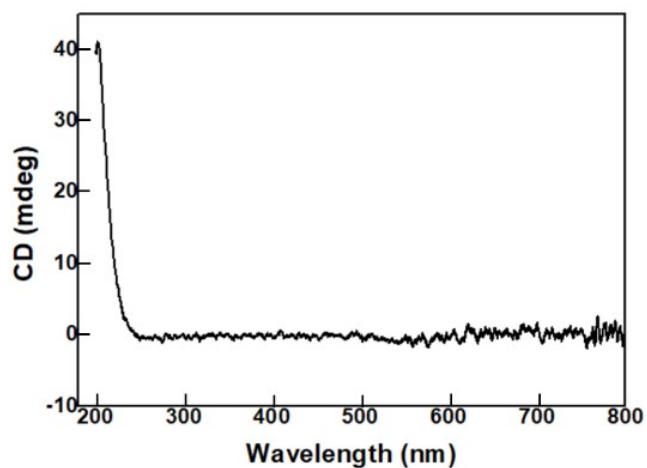


Fig. S6 CD spectrum of 1.0 mM L-cysteine.

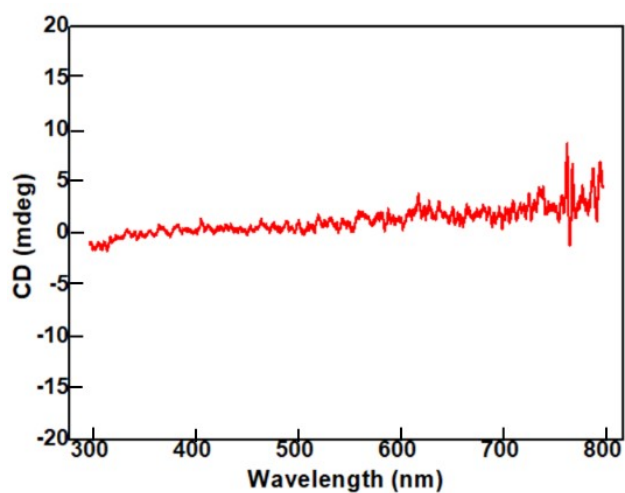


Fig. S7 CD spectrum of the Au nanorods with L-cysteine adsorbed on the surface.

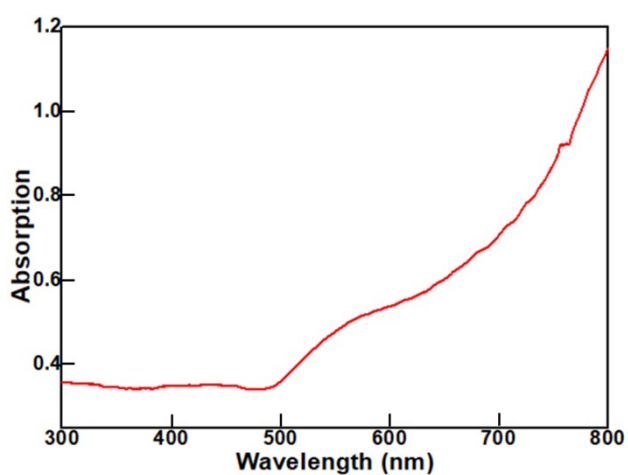


Fig. S8 The ultraviolet data of typical Au nano-screws (0.17 μ M L-cysteine).

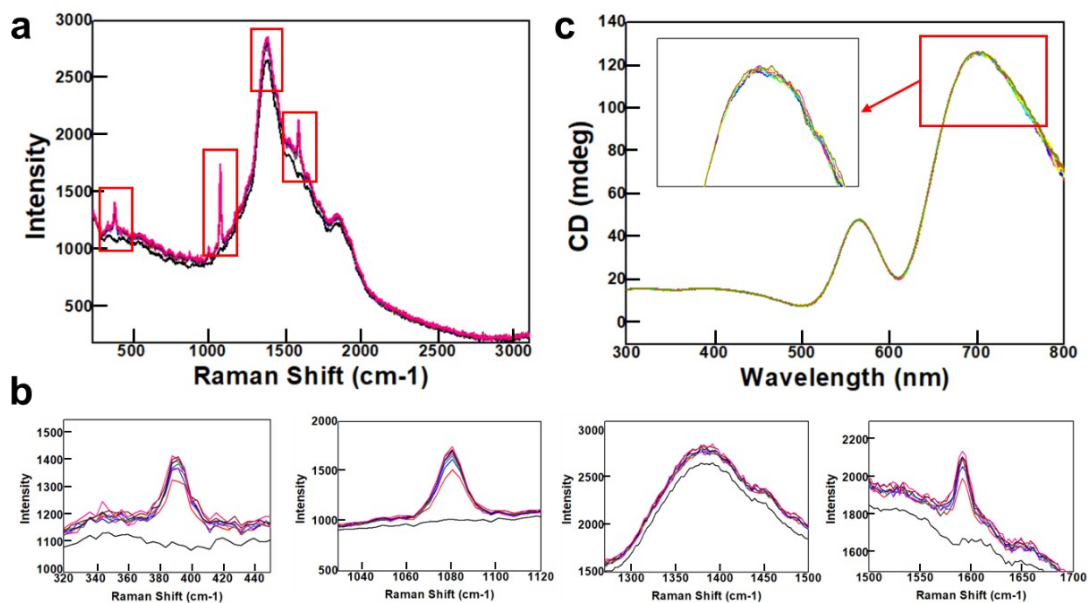


Fig. S9 SERS intensity (a-b) and CD spectra (c) of Au nano-screws when L-cysteine was gradually replaced by 4-aminobenzophenol over time.

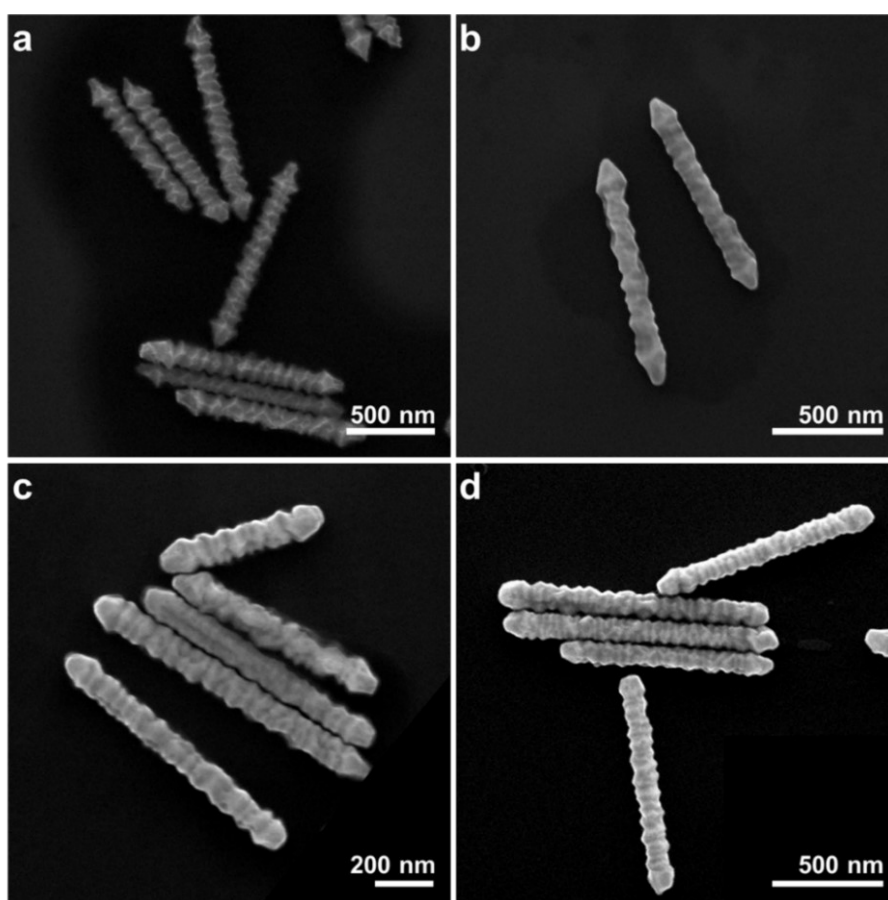


Fig. S10 SEM images of the nano-screws formed with a) 0.29 μM , b) 0.40 μM , c) 0.60 μM , and d) 0.80 μM L-cysteine.

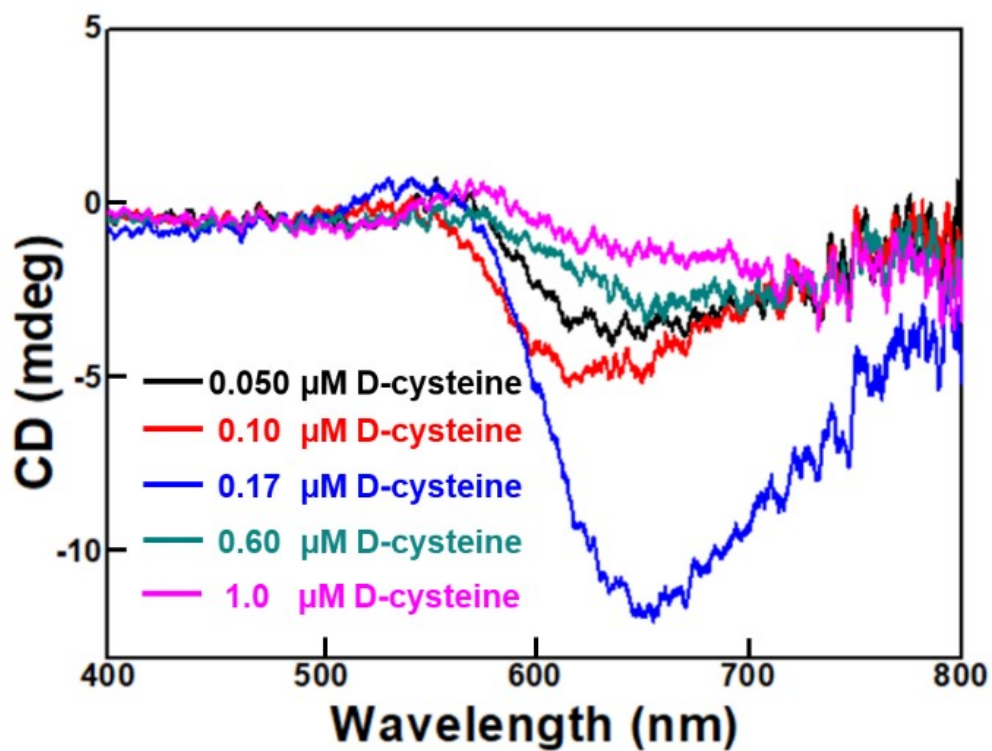


Fig. S11 CD spectra of the nano-screws formed with different concentrations of D-cysteine.

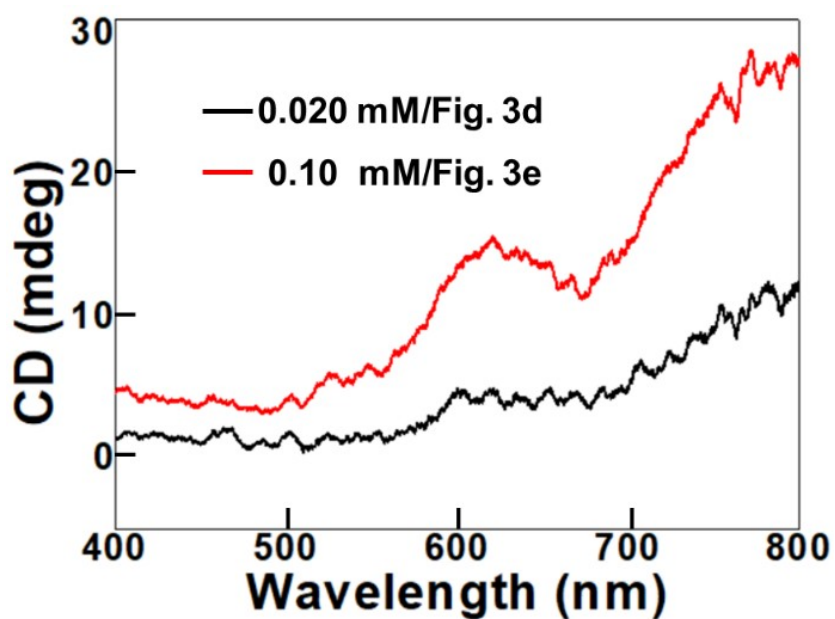


Fig. S12 CD spectrum of the nano-screws formed with different concentration of HAuCl₄.

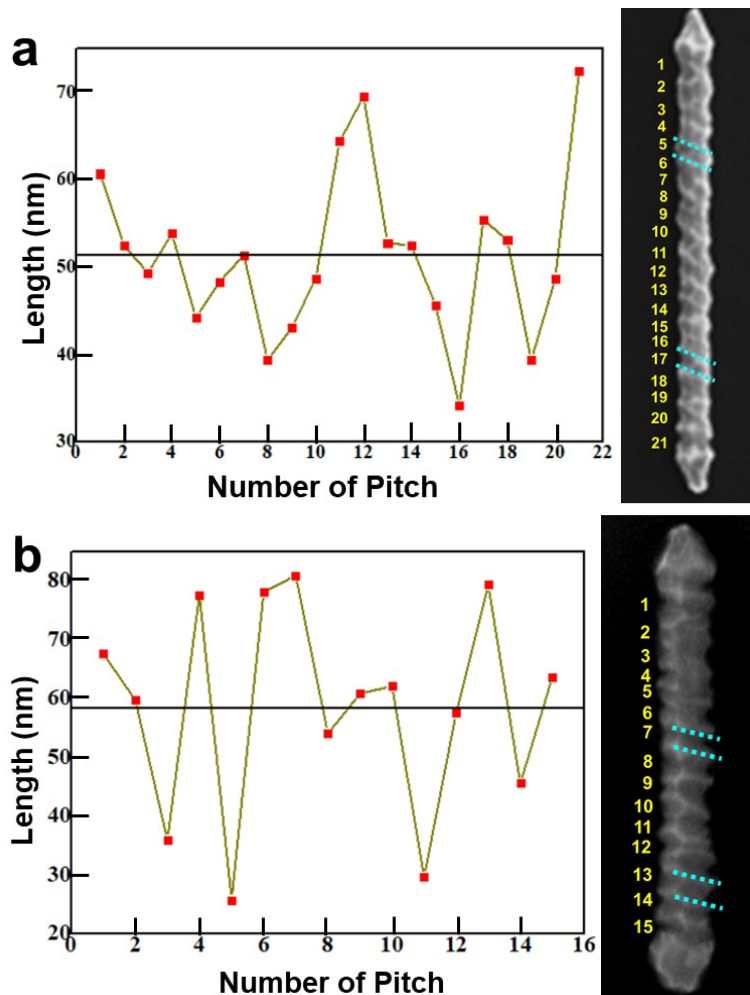


Fig. S13 A continuous variation about the pitch length on one chiral Au nano-screw formed with (a) 0.020 mM HAuCl₄ and (b) 0.29 μM L-cysteine.