Self-Templating of Metal-Driven Supramolecular Self-Assembly: A General Approach toward 1D Inorganic Nanotubes

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Supporting Information

1. FE-SEM study of zinc-cholate supramolecular nanofiber

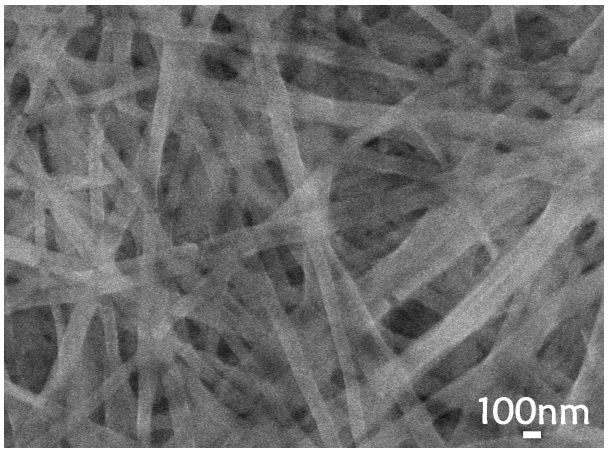

Figure S1. FE-SEM image of zinc-cholate supramolecular nanofibers at 25 ^{o}C.

2. High-resolution TEM (HRTEM) image of ZnS nanotube

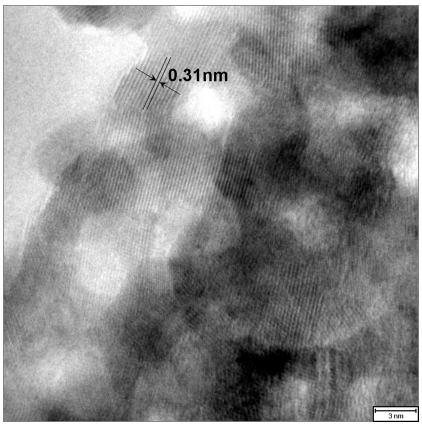

Figure S2. High-resolution TEM (HRTEM) image of ZnS nanotube.

3. TEM studies of nanfibers in zinc-cholate supramolecular systems

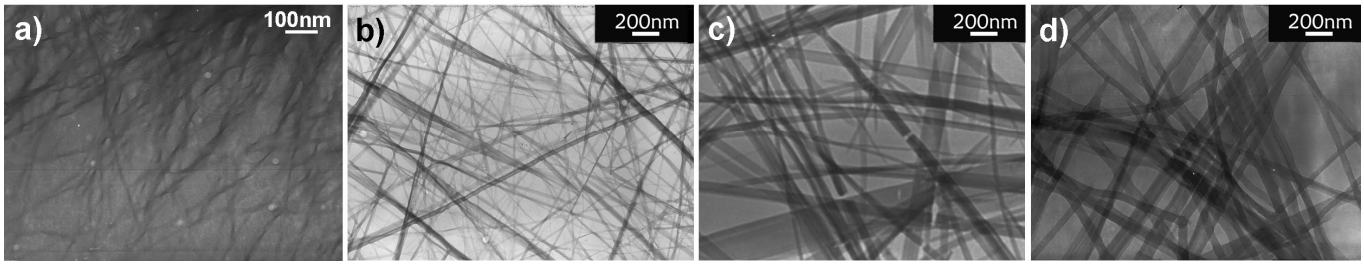

Figure S3. TEM images of the nanofibers showing different diameter in 5 mM/5 mM zinc-cholate systems with different incubation time: a) 30 min; b) 1 hour; c) 4 hours; d) 6 hours.

4. Histograms of width distribution studies of zinc-cholate supramolecular system and as prepared ZnS nanotubes

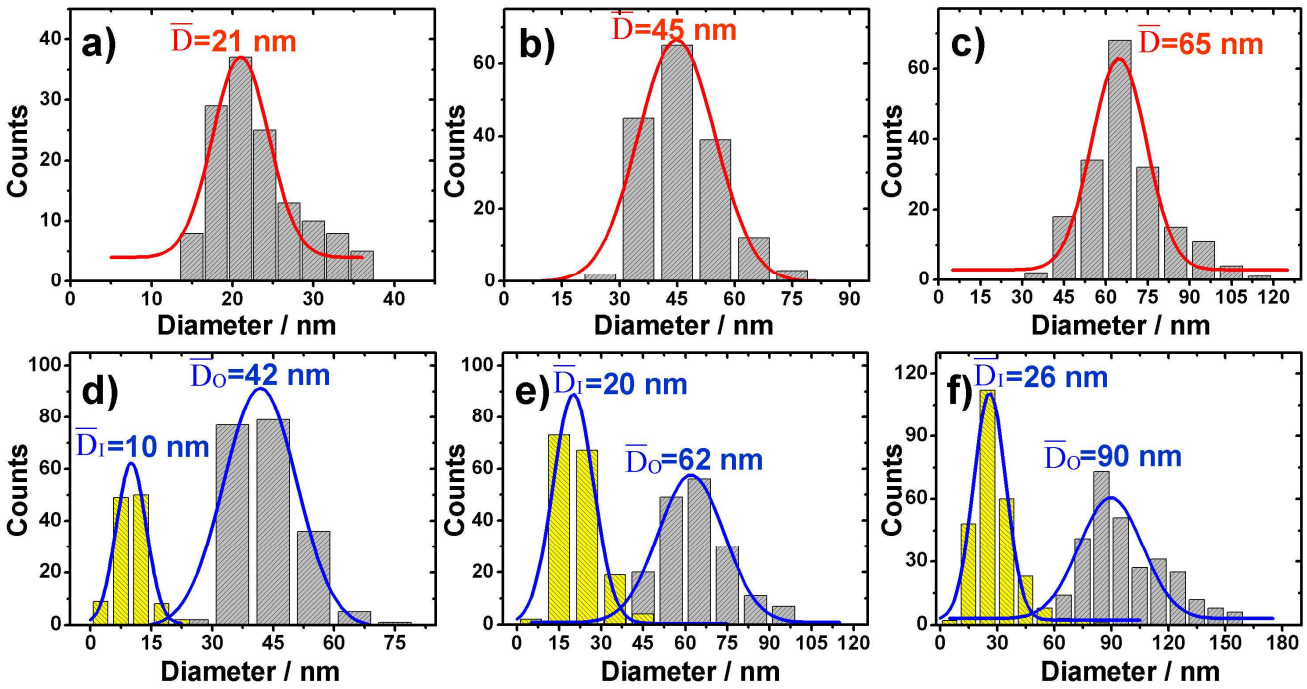

Figure S4. Histograms of diameter distribution zinc-cholate supramolecular nanofibers incubated at 20 ^{o}C for: a) 3h; b) 12h; c) 24h and as prepared zinc sulfide nanotubes d) 3h; e) 12h; f) 24h.

5. TEM studies of helical zinc sulfide nanotubes prepared by self-templating strategy

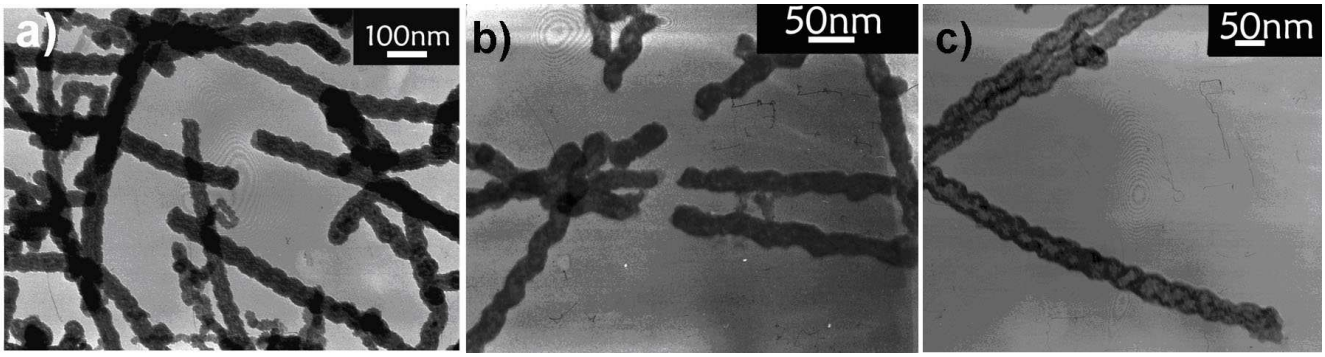

Figure S5. TEM images of zinc sulfide helical nanotubes at 20 ^{o}C for incubated 3 hours.

6. Zinc sulfide helical nanotube with adjustable diameter and helix pitches

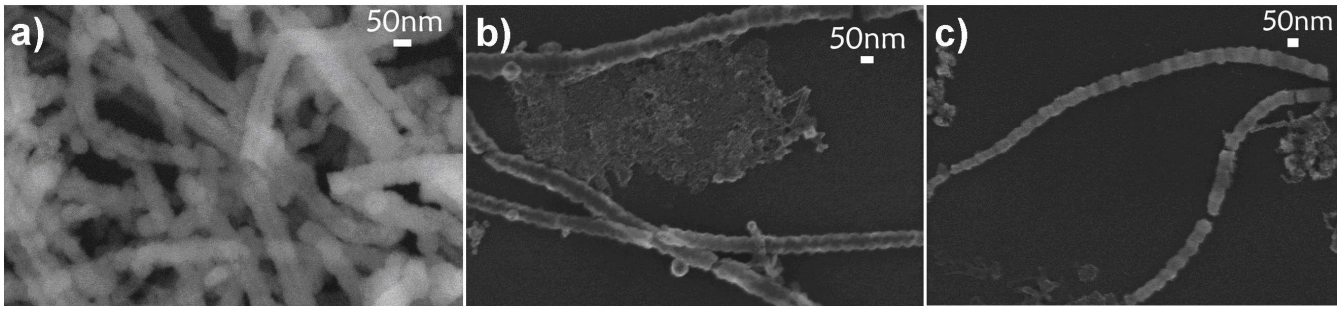

Figure S6. SEM images of zinc sulfide helical nanotubes prepared at 20 ^{o}C with different diameters.

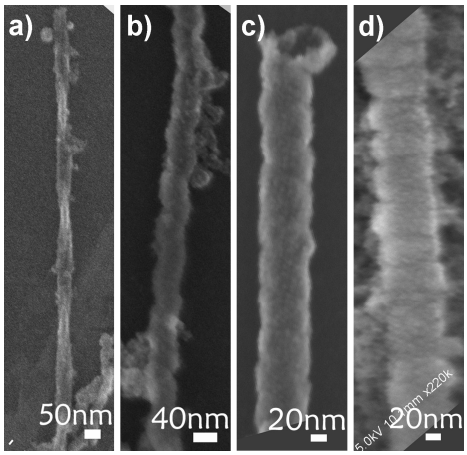

Figure S7. SEM images of zinc sulfide helical nanotubes prepared at 20 ^{o}C with different helical pitches.

7. A snapshot of intermediate state of zinc sulfide nanotube formation

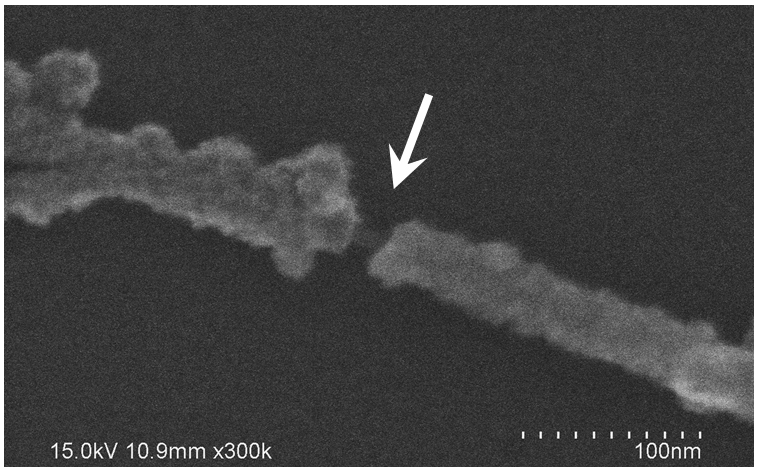

Figure S8. SEM image of intermediate state of zinc sulfide nanotube formation as step 2 shows. The arrow clearly indicates the broken tube and the fiber template.

8. Histograms of width distribution studies of metal-cholate nanofiber and metal sulfide nanotubes

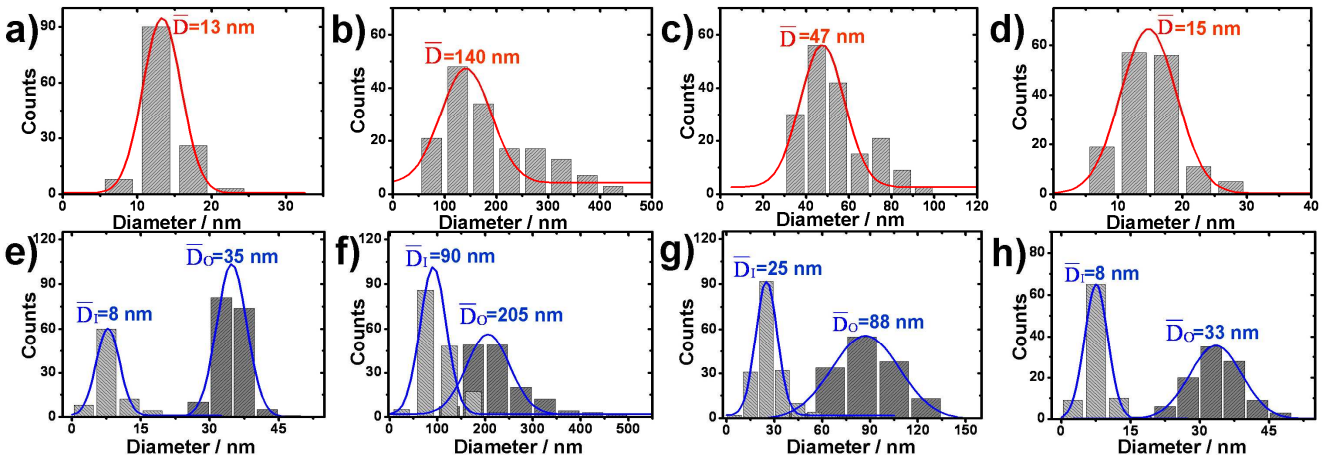

Figure S9. Histograms of width distribution metal-cholate supramolecular nanofibers incubated at 25 ^{o}C for: a) Cu^{2+}; b) Ni^{2+}; c) Cd^{2+}; d) Co^{2+};and as prepared metal sulfide nanotubes: e) CuS; f) NiS; g) CdS; h) CoS.

9. TEM, ED, HR-TEM, EDS and XRD studies of metal sulfides nanotubes prepared by self-templating strategy

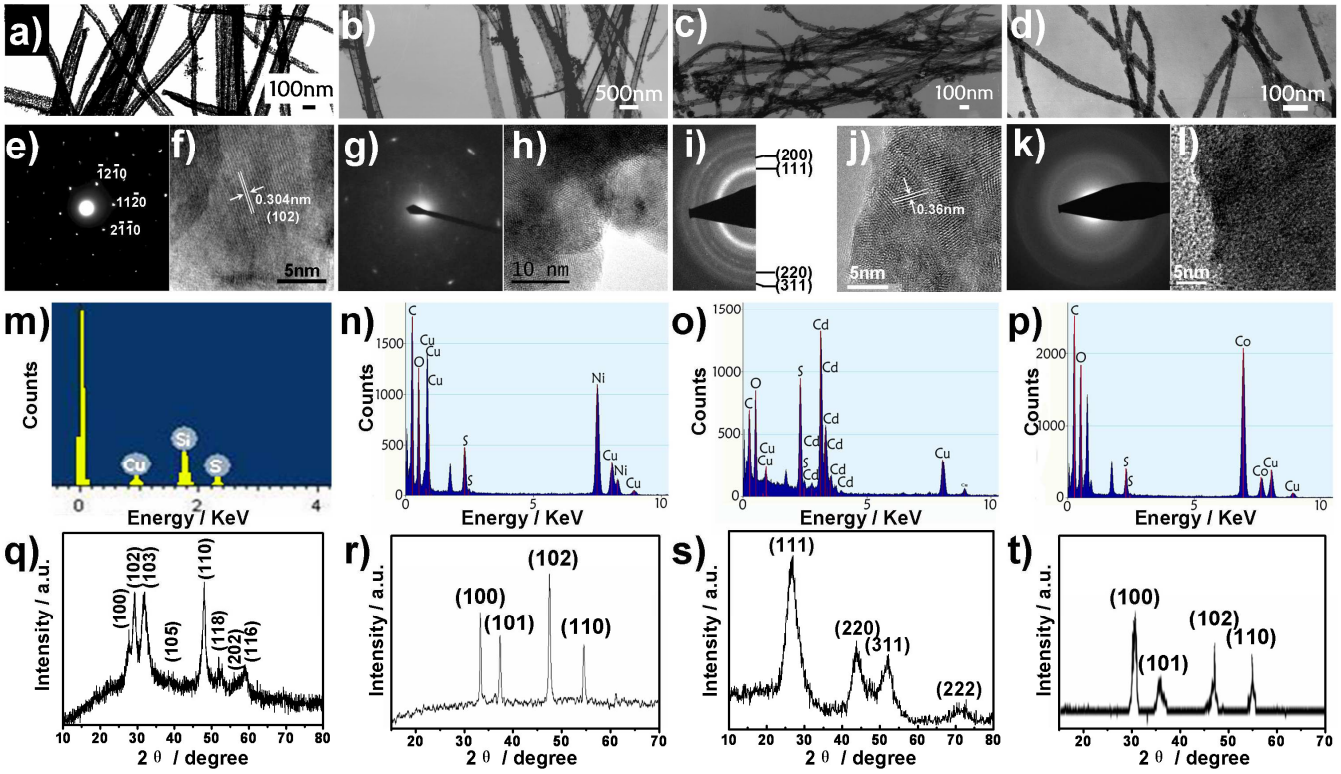

Figure S10. Metal sulfides nanotubes prepared by self-templating strategy. TEM images (a, b, c, d), ED pattern (e, g, i, k), HR-TEM images (f, h, j, l), EDS (m, n, o, p), XRD spectra (q, r, s, t) and for as-synthesized nanotubes of CuS (a, e, f, m, q), NiS (b, g, h, n, r), CdS (c, i, j, o, s) and CoS (d, k, l, p, t).

10. HR-TEM, ED, width distribution and EDS studies of zinc chalcogenides nanotubes prepared by self-templating strategy

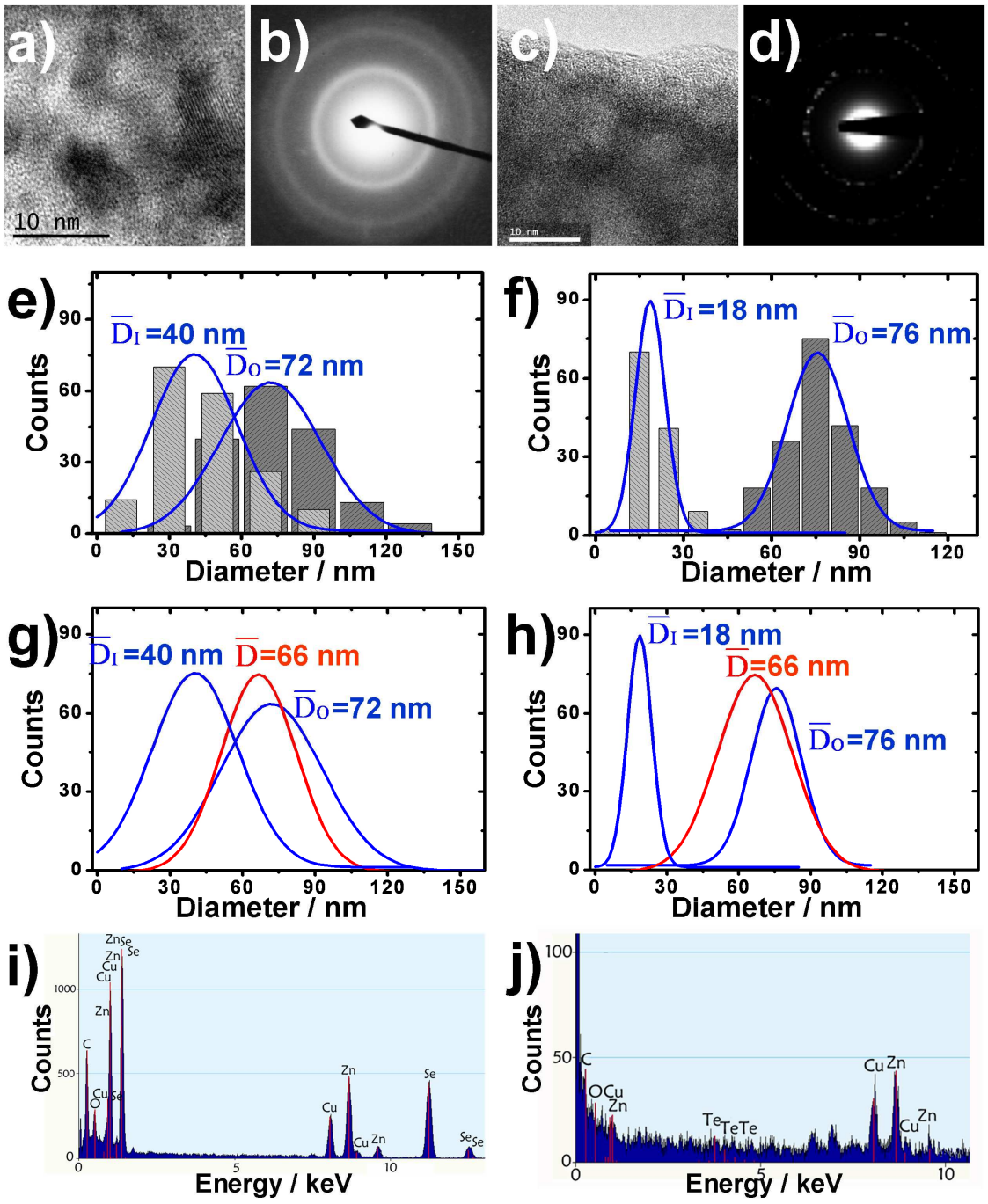

Figure S11. Zinc chalcogenides nanotubes prepared by self-templating strategy. HR-TEM images (a, c), ED pattern (b, d), width distribution (e, f, g, h), EDS (i, j) and for as-synthesized nanotubes of ZeSe (a, b, e, g, i), ZeTe (c, d, f, h, j).