

## Supplementary information

**Fig. S1.** SEM images of precipitate over time.

**Fig. S2.** FTIR spectra of precipitate over time.

**Fig. S3.** TGA curve of tin glycolate nanowire.

**Fig. S4.**  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of solution over time.

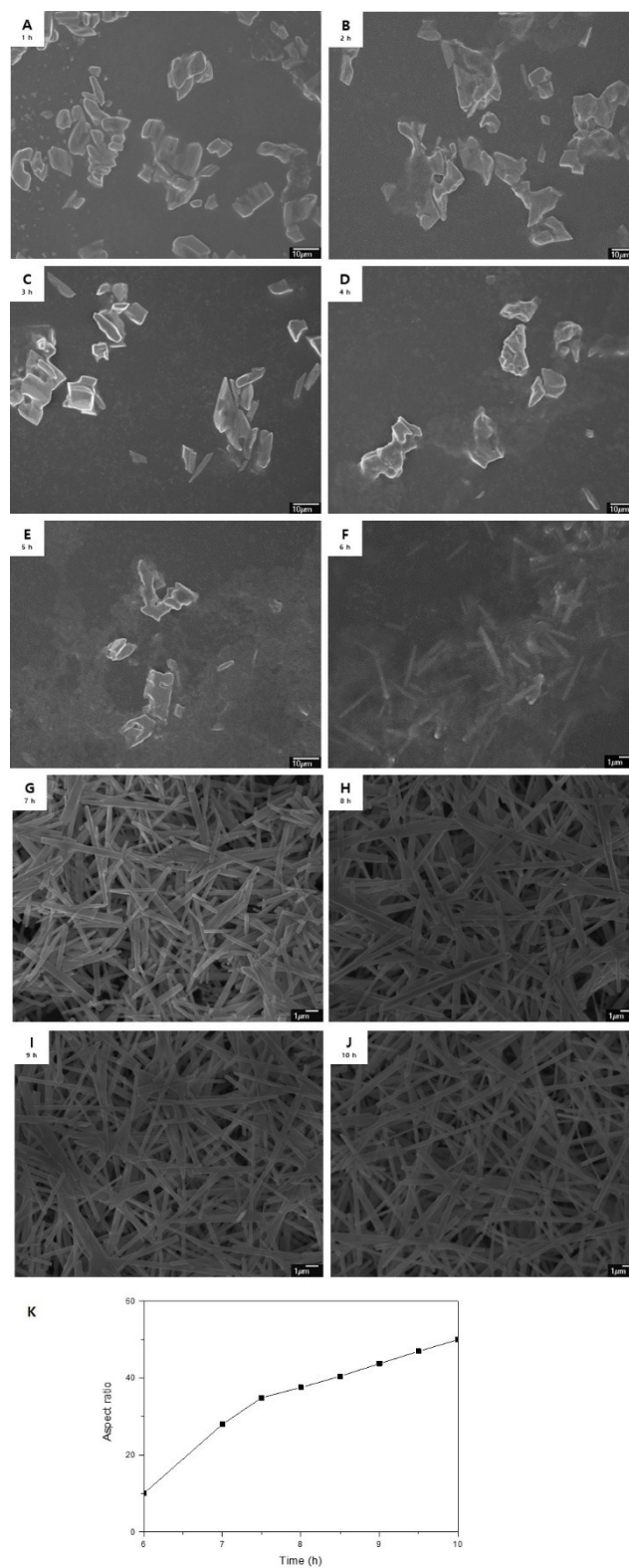
**Fig. S5.** HPLC chromatograms of solution over time.

**Fig. S6.** Constituent ratio of oxalic acid and formic acid.

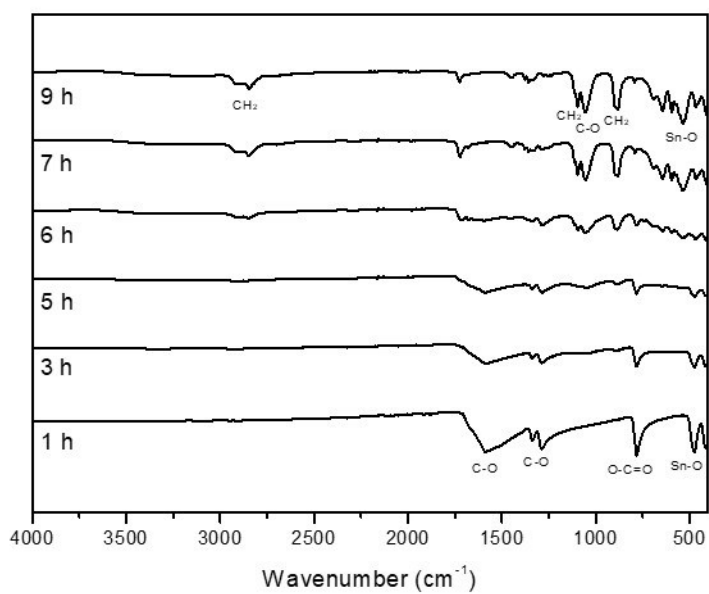
**Fig. S7.**  $^1\text{H}$  NMR spectra of tin glycolate nanowire synthesized with EG and PG.

**Fig. S8.** TEM images of tin glycolate nanowire and sample specifications.

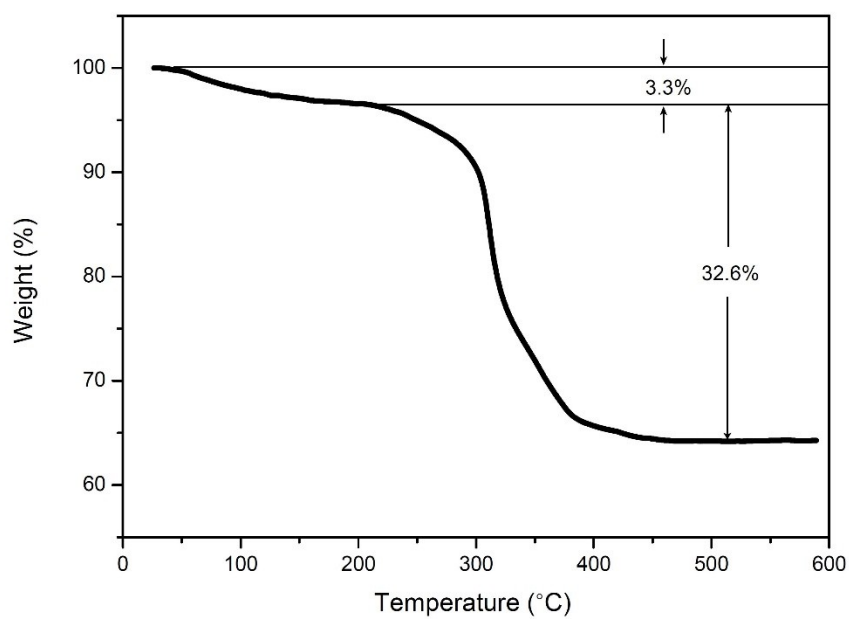
**Fig. S9.** (A) TEM image and (B) XRD pattern of  $\text{SnO}_2$  nanowire annealed at  $400^\circ\text{C}$  for 3 h.



**Fig. S1.** SEM images of precipitate over time. (A), (B), (C), (D), and (E) Before complete dissolution of tin oxalate; (F)  $L = 1.85 \mu\text{m}$ ,  $R = 0.37 \mu\text{m}$ , Aspect ratio = 10; (G)  $L = 5.10$ ,  $R = 0.36$ , Aspect ratio = 28; (H)  $L = 6.95$ ,  $R = 0.37$ , Aspect ratio = 37.6; (I)  $L = 8.1$ ,  $R = 0.37$ , Aspect ratio = 43.8; (J)  $L = 9.25$ ,  $R = 0.37$ , Aspect ratio = 50; (K) Time dependence of aspect ratio.



**Fig. S2.** FTIR spectra of precipitate over time.



**Fig. S3.** TGA curve of tin glycolate nanowire.

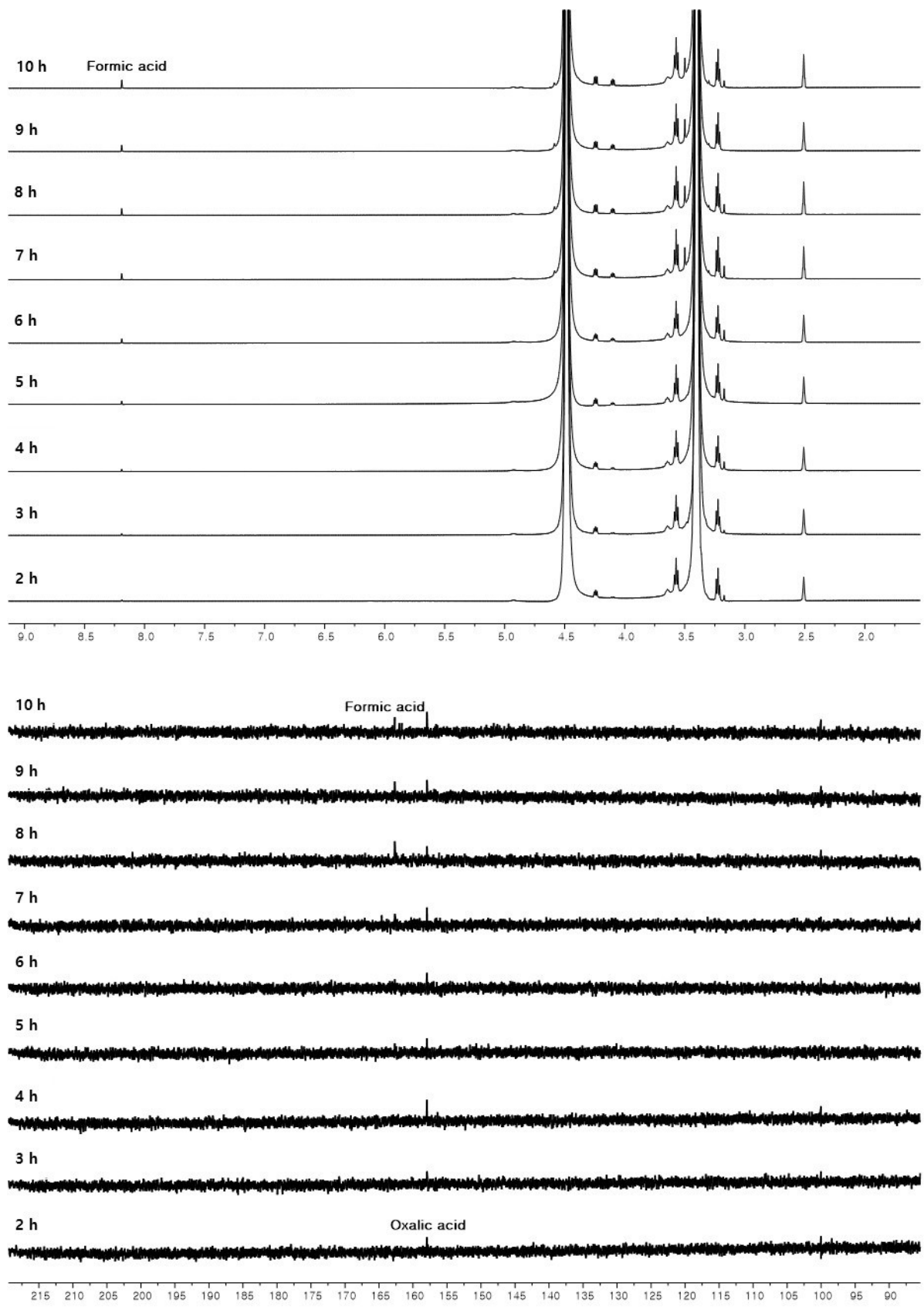
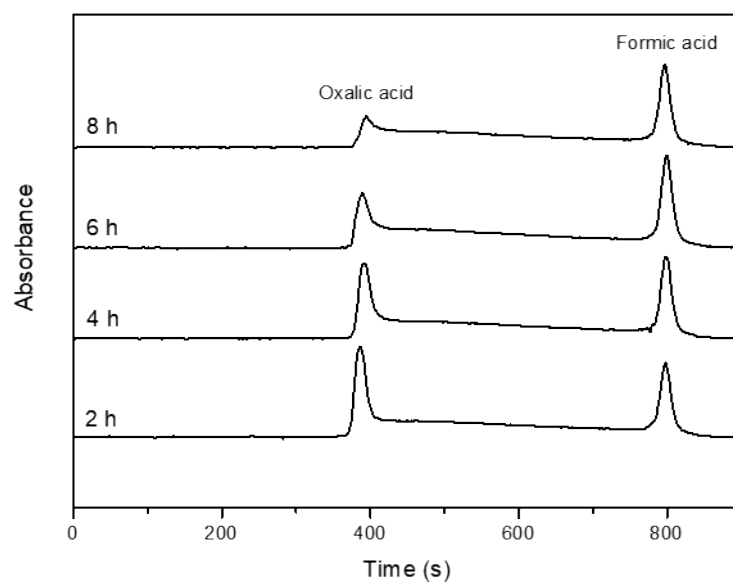
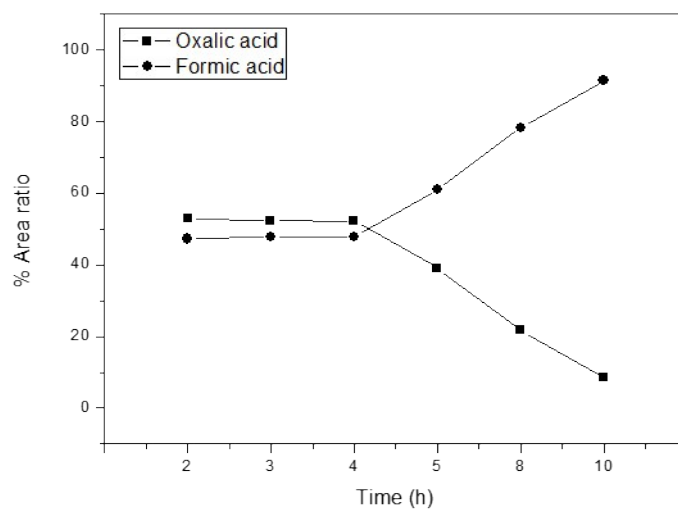


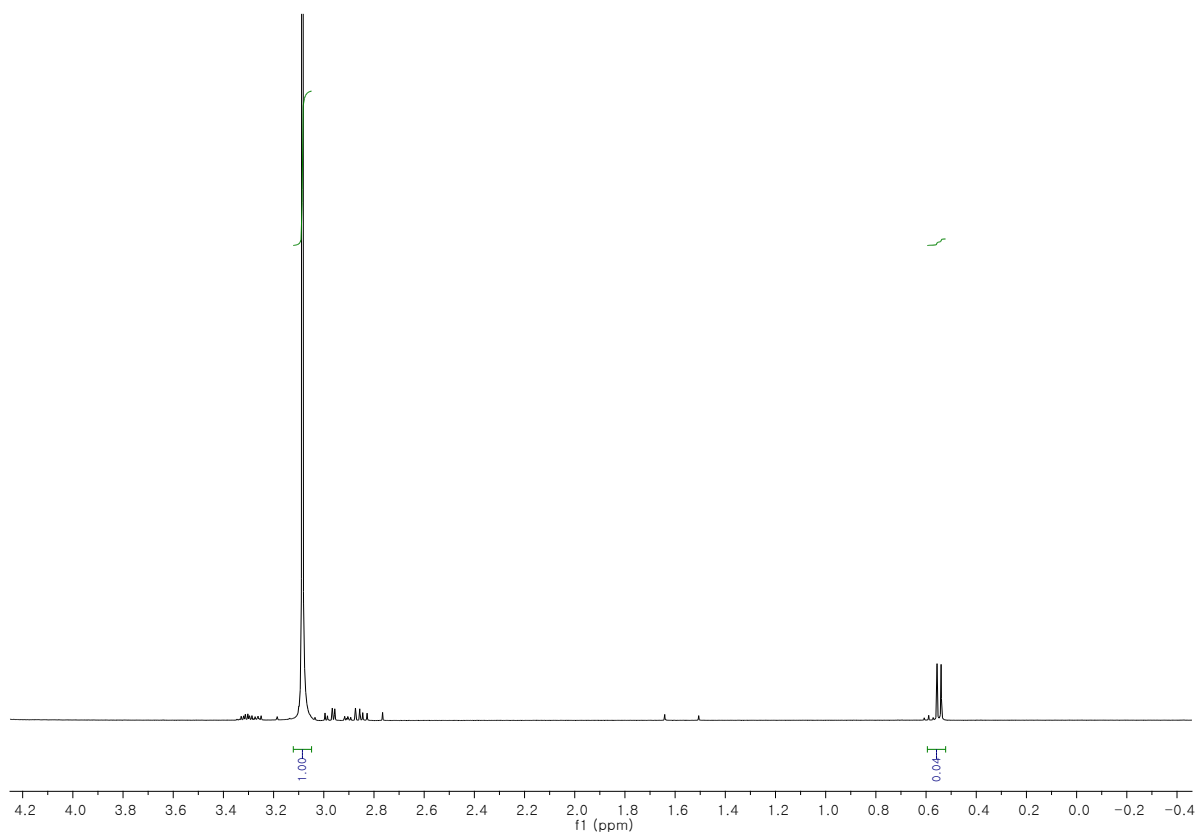
Fig. S4.  $^1\text{H}$  NMR (top) and  $^{13}\text{C}$  NMR (bottom) spectra of solution over time.



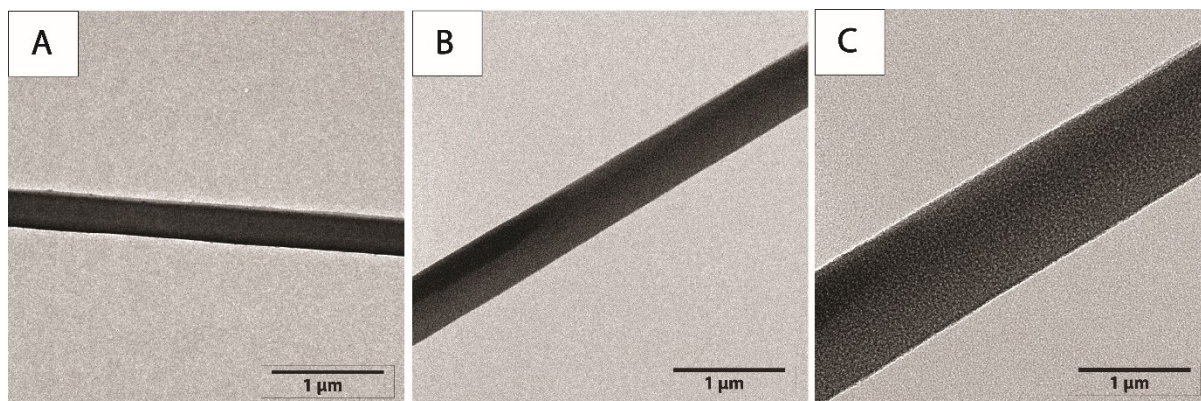
**Fig. S5.** HPLC chromatograms of solution over time.



**Fig. S6.** Constituent ratio of oxalic acid and formic acid.

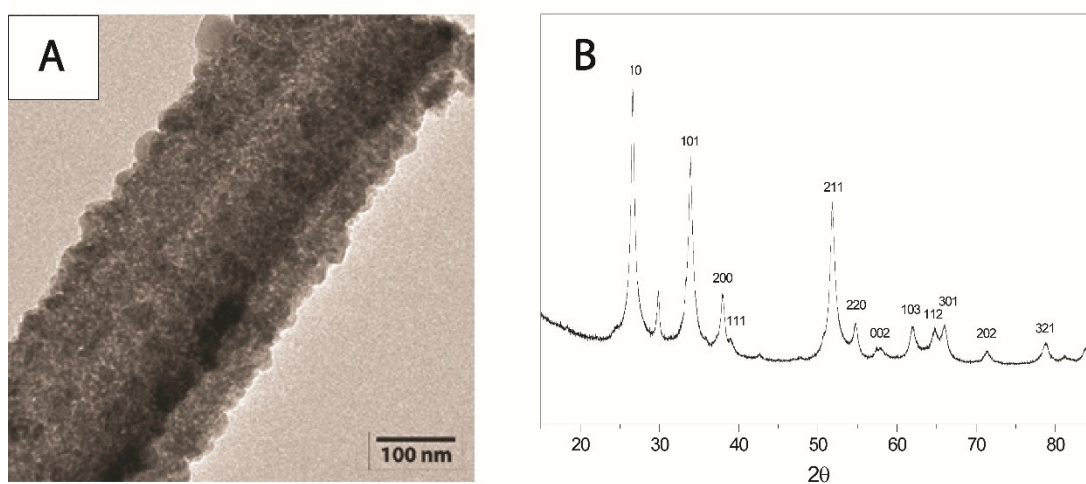


**Fig. S7.**  $^1\text{H}$  NMR spectra of tin glycolate nanowire synthesized with EG and PG.



Tin glycolate nanowire	Tin oxalate (g) to 100 mL EG	Thickness ( $\mu\text{m}$ )
A	1.0	0.37
B	2.0	0.57
C	10.0	1.11

**Fig. S8.** TEM images of tin glycolate nanowire and sample specifications.



**Fig. S9.** (A) TEM image and (B) XRD pattern of  $\text{SnO}_2$  nanowire annealed at  $400^\circ\text{C}$  for 3 h.