Supplementary data

Biomolecule-Assisted Route for Shape-Controlled Synthesis of Single-Crystalline MnWO₄ Nanoparticles and Spontaneous Assembly of Polypeptide-Stabilized Mesocrystal Microspheres

Thanh-Dinh Nguyen, Driss Mrabet, Thi-Thuy-Duong Vu, Cao-Thang Dinh, and Trong-On Do*

Department of Chemical Engineering, Laval University, Quebec G1K 7P4 Canada

*Address correspondence to Fax: (418) 656-5993; E-mail: Trong-On.Do@gch.ulaval.ca
Fig. S1. TEM images of the MnWO₄ nanobars synthesized from an aqueous solution of 0.015 M Mn(NO₃)₂ and 0.015 M Na₂WO₄, pH = 9, at lower reaction temperatures for 20 h: (a) 140 °C and (b) 160 °C.
Fig. S2. (a) Survey XPS and (b) EDS spectra of 6-aminohexanoic acid-capped MnWO$_4$ nanobars (sample 1 in Table 1).
Fig. S3. O 1s XPS spectrum of 6-aminohexanoic acid-capped MnWO₄ nanobars.
**Fig. S4.** High-resolution (a) N 1s and (b) C 1s XPS spectra of 6-aminohexanoic acid-capped MnWO₄ nanobars.
Fig. S5. TEM image of 25 nm x 50 nm-sized MnWO₄ nanobars synthesized using capping hexamethylenediamine, [Mn²⁺] = [WO₄²⁻] of 0.015 M, at 180 °C for 20 h.
Fig. S6. FTIR spectrum of hexamethylenediamine-capped MnWO$_4$ nanobars.
**Fig. S7.** TEM image of 25 nm x 50 nm-sized MnWO$_4$ nanobars synthesized using [Mn$^{2+}$] = [WO$_4^{2-}$] of 0.305 M, 0.243 M of AHA, pH = 9, at 180 °C for 20 h.
**Fig. S8.** Different-magnification TEM (a and b) and SEM (c and d) images of the self-assembled MnWO$_4$ microspheres synthesized using [Mn$^{2+}$] = [WO$_4^{2-}$] of 0.012 M, AHA/(Mn+W) = 2.5:1, pH = 9, 180 °C for 20 h.
Fig. S9. FTIR spectra of (a) free 6-aminohexanoic acid (AHA) and (b) AHA-capped MnWO₄ microspheres (sample 9 in Table 1).
Fig. S10. Structural simulation of a polypeptide chain as protein molecule producing by the peptide process of 6-aminohexanoic acids.