Electronic Supplementary Information

Synthesis of chiral hybrid nanotubes of magnetite nanoparticles and conducting polymer

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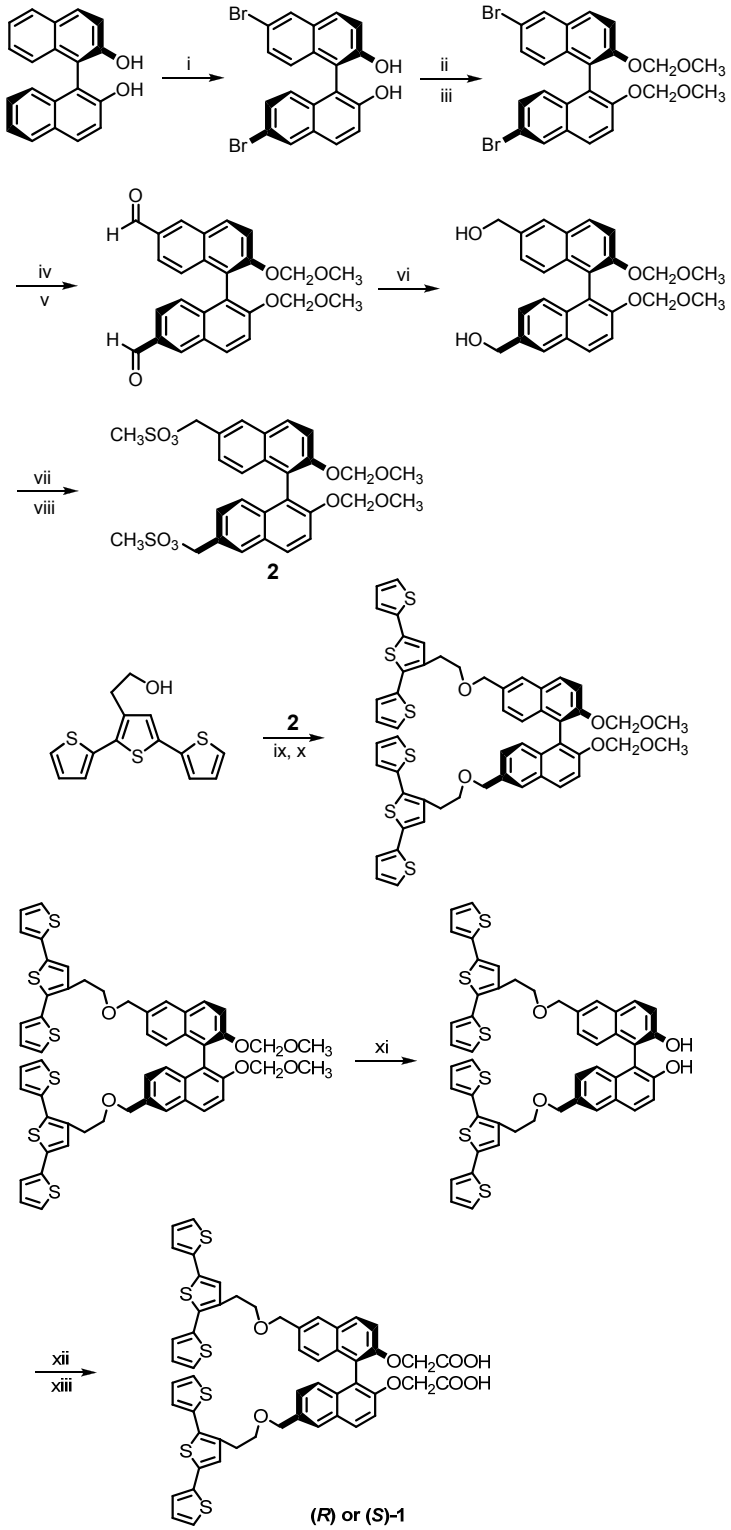
1) Synthesis of chiral stabilizer **1**.
2) EDX spectrum and XPS spectrum of chiral magnetite, **1**-Fe_3O_4 NPs.
3) SEM image of chiral hybrid nanotubes, (*R*)-**1**-Fe_3O_4-PT-NTs.

1) Synthesis of chiral stabilizer 1.

A new chiral stabilizer (*R*)- or (*S*)-**1** was synthesized according to Scheme S1.



Scheme S1. Reagents and Conditions: (i) Br_2, CH_2Cl_2, 0 °C, 1 h; (ii) NaH, THF, 0 °C, 1 h; (iii) $ClCH_2OCH_3$, THF, room temp., 2 h; (iv) *n*-BuLi, THF, -78 °C, 2 h; (v) DMF, THF, room temp., 6 h; (vi) $LiAlH_4$, THF, 0 °C, 2 h; (vii) Et_3N, CH_2Cl_2, 0 °C, 2 h; (viii) CH_3SO_2Cl, CH_2Cl_2, room temp., 16 h; (ix) NaH, THF, 0 °C, 1 h; (x) (*R*)- or (*S*)-**2**, THF, reflux, 8 h; (xi) 12*N*-HCl/*i*-Pr-OH, CH_2Cl_2, room temp., 7 h; (xii) K_2CO_3, MeOH, 0 °C, 2 h; (xiii) $BrCH_2COOH$, MeOH, reflux, 12 h.

(*R*)-**1** : FT-IR (cm^{-1}, KBr) 1731; ^{1}H-NMR (400 MHz, CD_2Cl_2) δ 2.95 (t, J = 6.8 Hz, 4H, -C*H*$_2$-CH$_2$-O-), 3.66 (t, J = 6.8 Hz, 4H, Ar-CH$_2$-C*H*$_2$-), 4.50 (ABq, J = 16.8 Hz, 4H, -C*H*$_2$-COOH), 4.54 (s, 4H, -CH$_2$-CH$_2$-O-C*H*$_2$-), 6.88 (dd, J_1 = 3.6 Hz, J_2 = 5.2 Hz, 2H, Ar-H), 6.92 (dd, J_1 = 3.6 Hz, J_2 = 5.2 Hz, 2H, Ar-H), 6.94-6.99 (m, 6H, Ar-H), 7.00 (s, 2H, Ar-H), 7.02-7.12 (m, 4H, Ar-H), 7.19 (dd, J_1 = 1.2 Hz, J_2 = 5.2 Hz, 2H, Ar-H), 7.21 (d, J = 9.2 Hz, 2H, Ar-H), 7.71 (s, 2H, Ar-H), 7.84 (d, J = 9.2 Hz, 2H, Ar-H); ^{13}C-NMR (100 MHz, CD_2Cl_2) δ 30.1, 66.7, 70.3, 73.0, 115.2, 120.1, 124.0, 124.9, 125.9, 126.0, 126.7, 126.9, 127.2, 128.0, 128.3, 130.1, 130.5, 131.0, 133.6, 135.1, 135.6, 135.7, 136.9, 137.3, 153.1, 177.3; MS (FAB) *m/z* 1010 (M^+).

The CD spectrum of (*R*)-**1** is shown in Fig. S1-1.

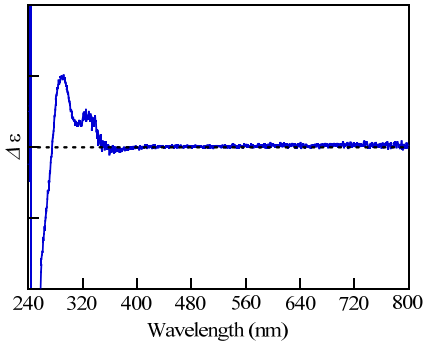


Fig. S1-1. CD spectrum of (*R*)-**1** in $CHCl_3$.

2) EDX spectrum and XPS spectrum of chiral magnetite, 1-Fe_3O_4 NPs.

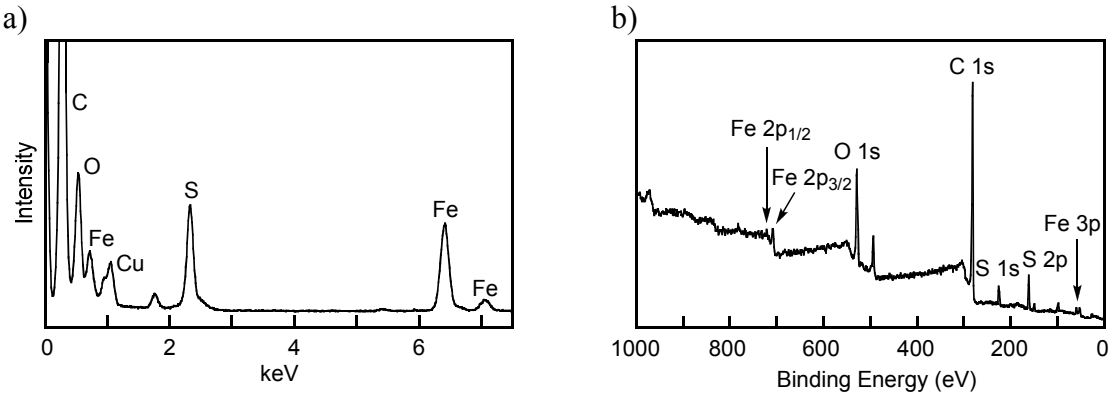


Fig. S1. (a) EDX spectrum and (b) XPS spectrum of (*R*)-**1**-Fe_3O_4 NPs. (a) Cu peak of EDX spectrum is from the supporting copper grid.

3) SEM image of chiral hybrid nanotubes, (*R*)-1-Fe_3O_4-PT-NTs.

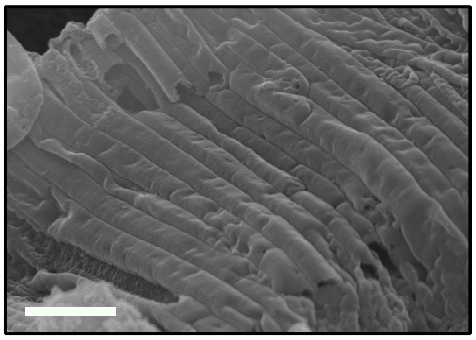


Fig. S2. SEM image of (*R*)-**1**-Fe_3O_4-PT-NTs. Scale: 500 nm.