Electronic Supplementary Material (ESI) for Dalton Transactions.

Supporting Information

Fascinating chiral information transfer to titania/silica from near to racemic compound self-organized from polyethyleneimine and tartaric Acid

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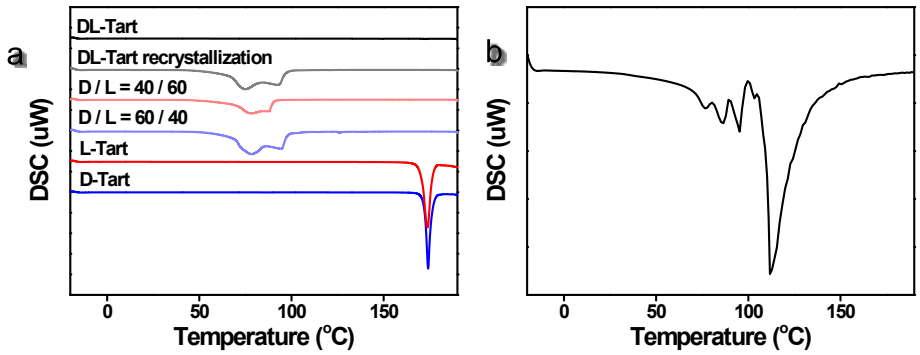

Fig. S1. DSC curves of the crystalline samples. a) Tartaric acid with different ratio of D/L, b) PEI.

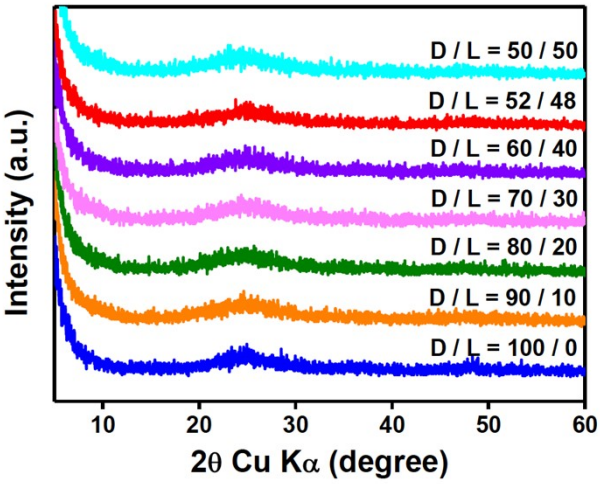

Fig. S2. XRD patterns of the as-prepared TiO_2@P/T from different ratio of D/L.

Table S1. TiO_2 contents in TiO_2@P/T as-prepared in different enantiomer ratio

e.e.	TiO_2 contents (%)
D	57.9
D / L = 90 / 10	50.8
D / L = 80 / 20	52.6
D / L = 70 / 30	48.5
D / L = 60 / 40	51.9
D / L = 52 / 48	52.2
DL	49.3

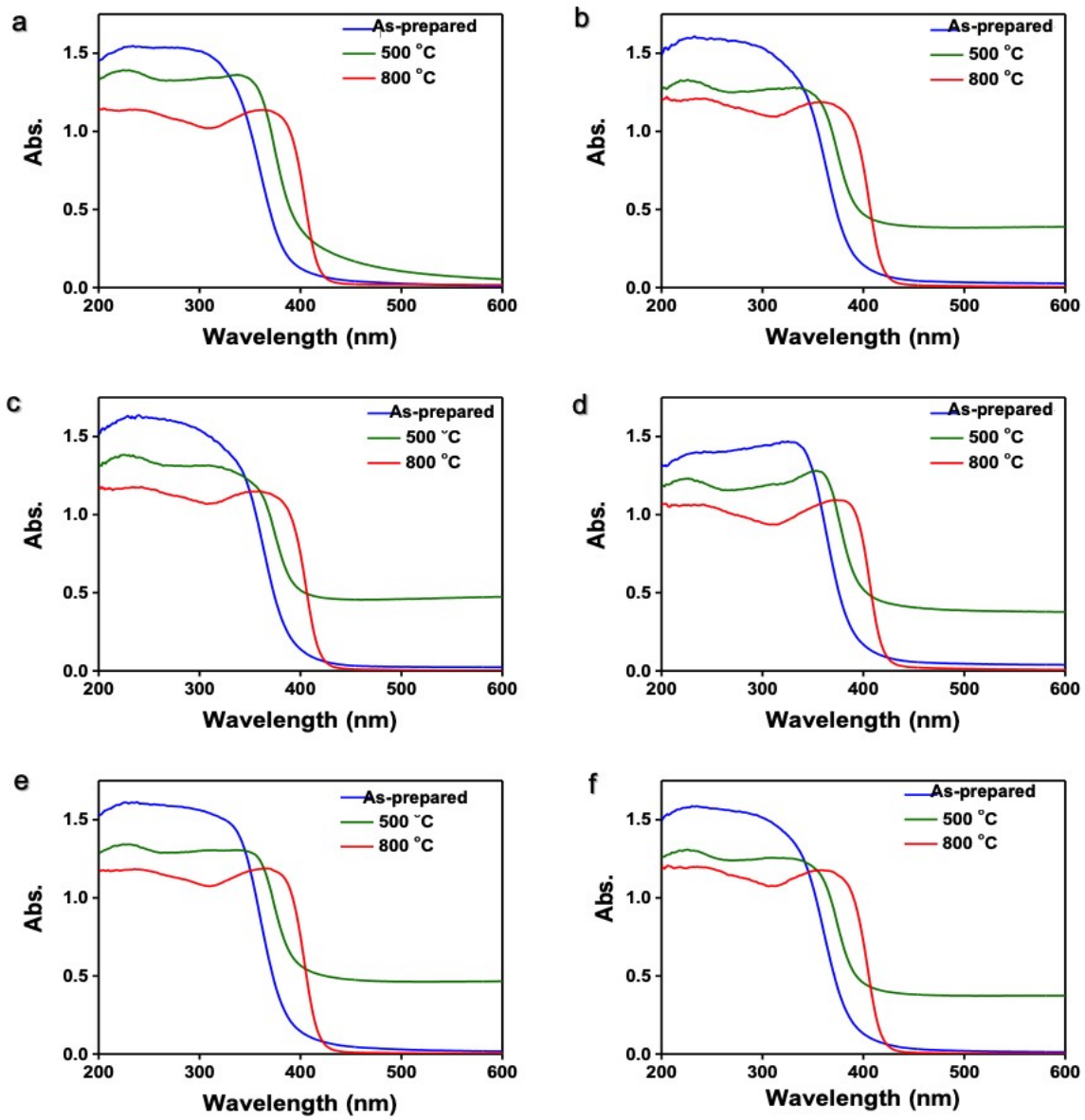

Fig. S3. Diffuse reflection UV-Vis spectra of TiO_2@P/$T_{D/L}$ (room temperature), $_A$$TiO_2$@D/L (500°C) and $_R$$TiO_2$@D/L (800°C): D/L = a) 100/0; b) 90/10; c) 80/20; d) 70/30; e) 60/40; f) 52/48.

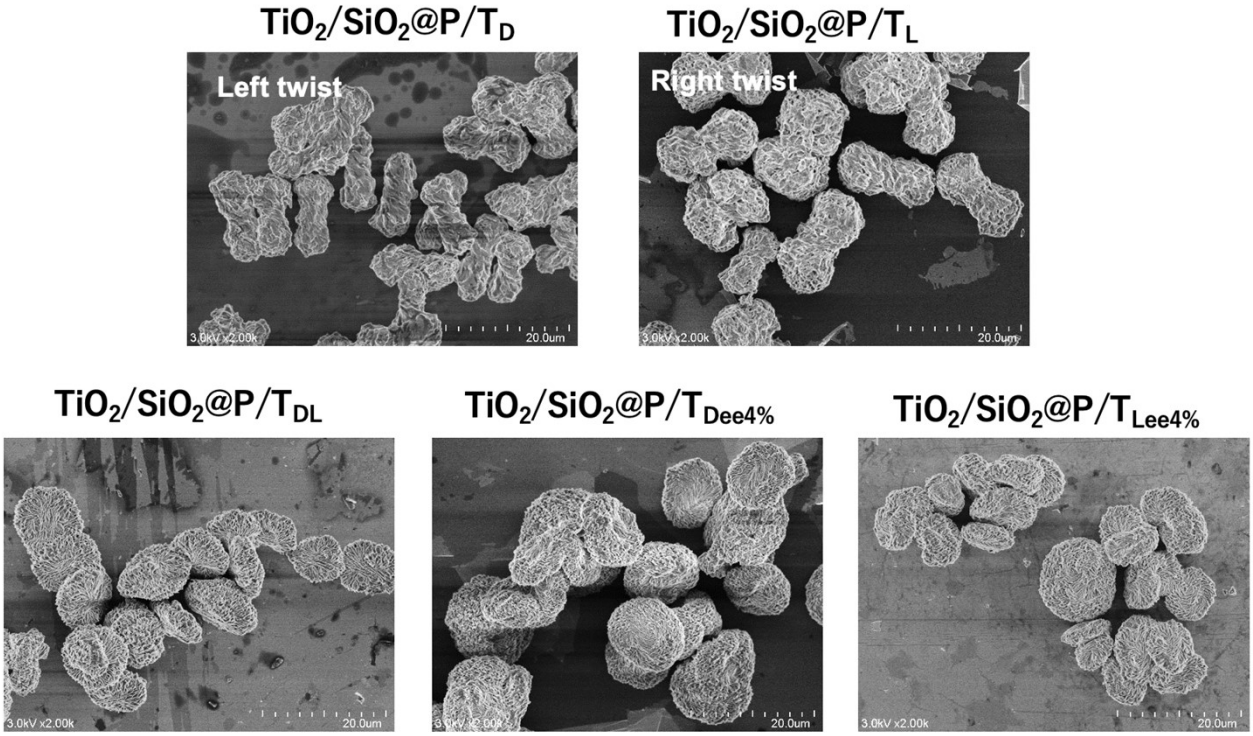

Fig. S4. Low-magnification SEM images of the hybrids as-prepared.

In Fig. S4, we showed low magnification SEM images of the as-prepared hybrids samples of $TiO_2/SiO_2@P/T_D$ and $TiO_2/SiO_2@P/T_L$, $TiO_2/SiO_2@P/T_{52/48}$ and $TiO_2/SiO_2@P/T_{48/52}$, $TiO_2/SiO_2@P/T_{50/50}$. In external morphology, it seems that the rod-like bundles mediated from enantiopure P/T_D and P/T_L twisted roughly in the center of the rods, respectively, by left-handed and right-handed, although there are no regular pitches. In contrast, the hybrids of racemic and *ee* ±4% appeared as the same globular morphology, their surface looks like sheet-upright. The sheet-upright in racemic powders appears as radial from the center, but the surface of D-ee 4% and L-ee 4% seems whirling pattern, respectively, with counter-clockwise for D-ee 4% and clockwise for L-ee 4%, although these images are not so sharp. At least, these morphological images would be transferred from the crystalline complexes of P/T. Unfortunately, we could not visualize the fibrous bundle and whirling pattern images in the complexes by SEM. There are only large sheet-like aggregates with

wavelet. This would be reason of that the shapes of the P/T complexes were unstable to remain under high vacuum and electronic beam conditions (see Fig. S5).

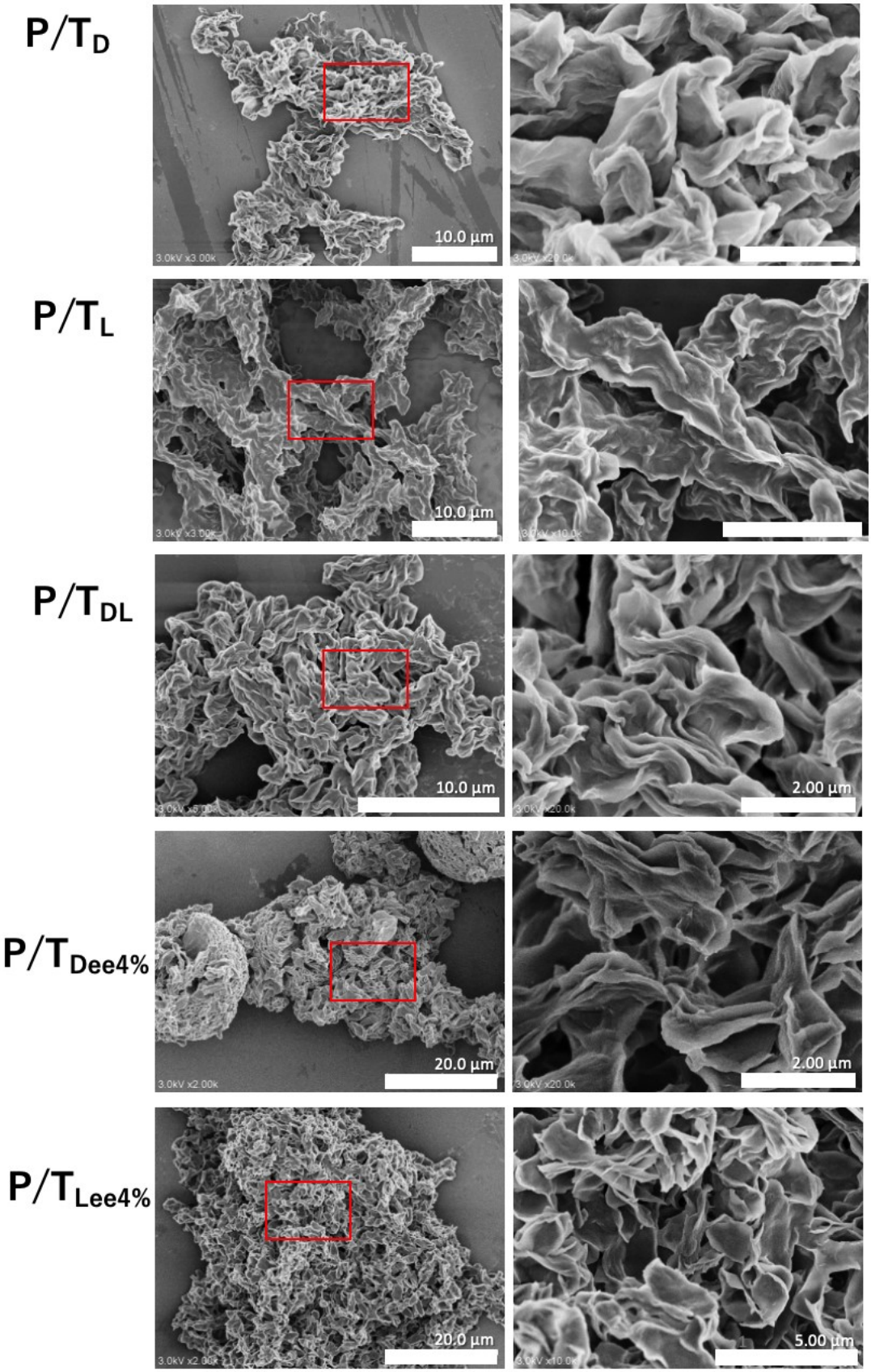

Fig. S5. SEM images P/T crystalline complexes with different enantiomeric component.

Left: low magnification; right: magnified images of the red-line boxed area in the left.

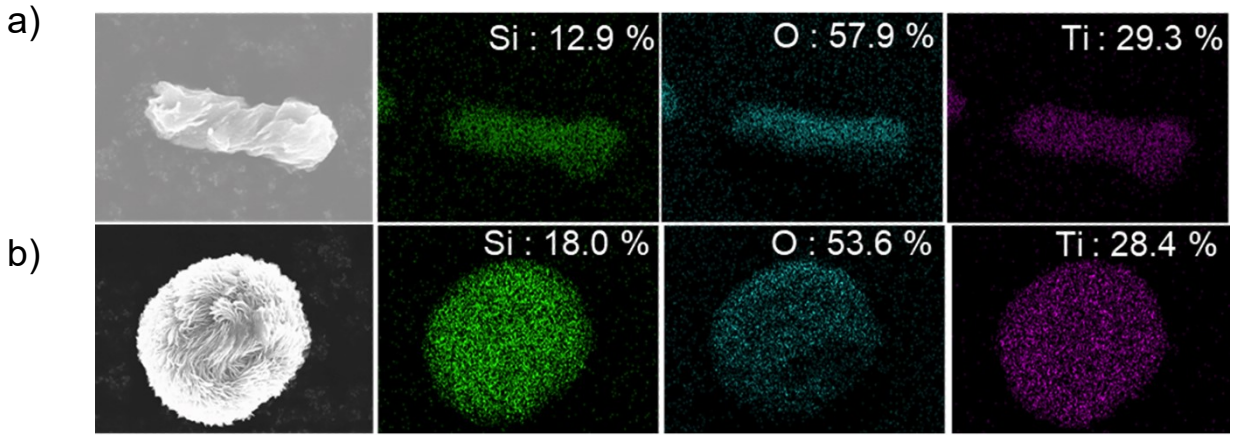

Fig. S6. EDX elemental mappings of calcined samples of TiO_2/SiO_2@D/L (D/L = a) 100/0; b) 52/48.

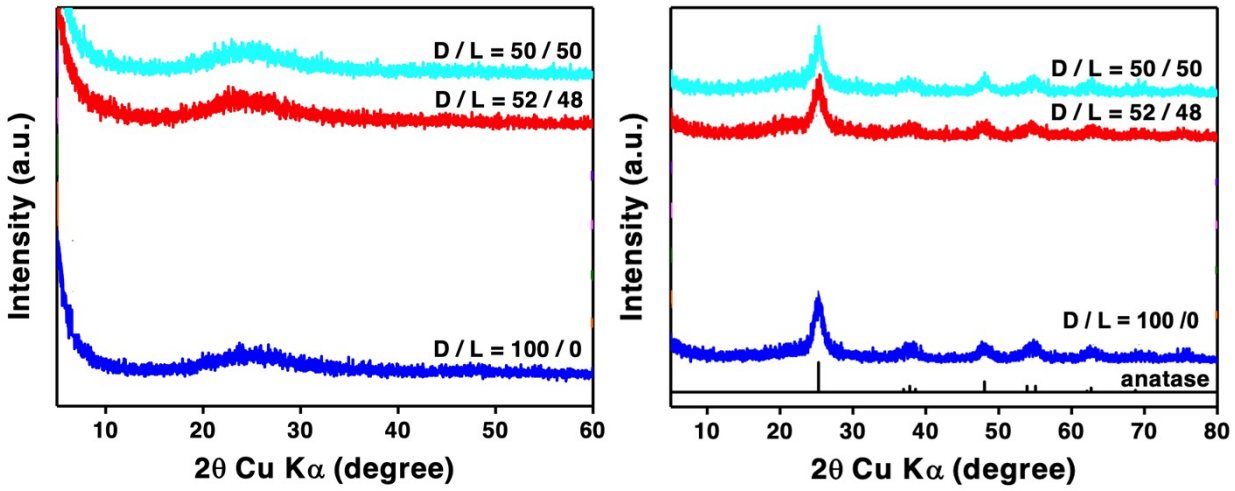

Fig. S7. XRD pattern of hybrid titania/silica. a) and b) as prepared samples of TiO_2/SiO_2@P/$T_{D/L.}$ c) and d) 800ºC-calcined samples of TiO_2/SiO_2@D/L.

Table S2. The crystalline size of TiO_2 in the hybrids of TiO_2/SiO_2 sintered at 800ºC

e.e.	800-TiO_2/SiO_2 (1,0,1) crystallite size (nm)
D	5.3
D / L = 90 / 10	5.1
D / L = 80 / 20	4.4
D / L = 70 / 30	4.9
D / L = 60 / 40	4.8
D / L = 52 / 48	4.8
DL	5.3