## **Supporting Information for**

## Induction of Supramolecular Chirality by Chiral Solvation in Achiral Azo Polymers with Different Spacer Lengths and Push-Pull Electronical Substituents: Where will Chiral Induction Appear?

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Fig. S1 GPC curves of side-chain Azo polymers with different spacer lengths.



Fig. S2 <sup>1</sup>H NMR spectra of side-chain Azo polymers with different spacer lengths.



**Fig. S3** GPC curves of side-chain Azo polymers with different push-pull electronical substitutions.



**Fig. S4** <sup>1</sup>H NMR spectra of side-chain Azo polymers with different push-pull electronical substitutions.

The molecular weight  $(M_{n,NMR})$  were calculated as follows. The integral ratio of  $I_b$  and  $I_g$  is  $I_b/1$ , which  $I_b$  is the integrations of benzene ring (4H) of repeating units at 8.0-7.6 ppm in <sup>1</sup>H NMR spectra and  $I_g$  is set to 1 relative to the naphthaline ring (1H) of CPDN group. The equations of  $M_{n,NMR}$  and  $n_{(NMR)}$  are as follows:

$$M_{n,NMR} = [I_b/(4 I_g)] \times M_{monomer} + M_{CPDN}$$
$$n_{(NMR)} = I_b/(4 I_g)$$





Fig. S5 UV-vis spectra of Azo polymer aggregates with different DCE/1*R* (a) and DCE/1*S* (b) volume fractions. 1-5 stands for PM0Az, PM2Az, PM4Az, PM6Az and PM11Az, respectively. The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L.



**Fig. S6** UV-vis spectra of Azo polymer aggregates with different DCE/1*R* (a) and DCE/1*S* (b) volume fractions. 1-4 stands for PM6CH, PM6H, PM6CN and PM6N, respectively. The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L.





**Fig. S7** Circular dichroism (CD) spectra of side-chain Azo polymers aggregates in mixed solvents with different DCE/ (1*R* or 1*S*) volume fractions. (a) - (d) stands for PM0Az, PM2Az, PM6CH and PM6H, respectively. The data in e was taken from CD values of PM0Az, PM2Az, PM4Az, PM6Az and PM11Az under optimal conditions. The concentration of polymer repeating units is  $8.42 \times 10^{-5}$  mol/L.





**Fig. S8** Changes in CD and UV–vis spectra of Azo polymer aggregates with different enantiopurity of limonene. DCE/(1R + 1S) are 0.6/2.4, 0.5/2.5, 0.5/2.5, 0.5/2.5 and 0.8/2.2 (v/v) for PM4Az, PM6Az, PM11Az, PM6CN and PM6N respectively. The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L. (a)-(e) stands for PM4Az, PM6Az, PM6Az, PM11Az, PM6CN and PM6N, respectively.





**Fig. S9** Photoisomerization switching of the UV-vis spectra ((a,b) DCE/1R and (d,e) DCE/1S) of side-chain Azo polymer aggregates by irradiation with 365 nm and 436 nm

light. The UV-vis spectra ((c) DCE/1*R* and (f) DCE/1*S*) of side-chain Azo polymer aggregates are by alternating irradiation with 365 nm and 436 nm light. The absorbance change for *trans*- and *cis*-form is taken from 360 nm (black) and 453 nm (red), respectively. The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L. 1-4 stands for PM4Az, PM6Az, PM11Az and PM6CN, respectively.



**Fig. S10** Photoisomerization switching of the UV-vis spectra of side-chain Azo polymer in CHCl<sub>3</sub> solution by irradiation with 365 nm and 436 nm light ((1a) and (1b)), irradiation with 405 nm and stirring in the dark ((2a) and (2b)). The changing spectra of side-chain Azo polymer are by alternating irradiation with 365 nm and 436 nm light (1c), irradiation with 405 nm and stirring in the dark (2c). The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L. 1-2 stands for PM4Az and PM6N, respectively.





**Fig. S11** The changes of UV-vis spectra with heating time in the process of thermal isomerization at 60 °C ((a) DCE/1*R* and (b) DCE/1*S*). The concentration of polymer repeating unit is  $8.42 \times 10^{-5}$  mol/L. 1-4 stands for PM4Az, PM6Az, PM11Az and PM6CN, respectively.





**Fig. S12** Changes in CD spectra (a) and the maximum CD and  $g_{CD}$  values (b) of Azo polymer aggregates in DCE/(1*R* or 1*S*) during 365 nm light irradiation (3 min) and heating treatment (60 °C for 45 min then cooling to room temperature). The concentration of polymer repeating units is  $8.42 \times 10^{-5}$  mol/L. 1-3 stands for the PM4Az, PM6Az and PM6CN, respectively.



Fig. S13 CD spectra of PM6N aggregate in 1R or 1S and DCE mixed solvents. The volume fractions of PM6N aggregates is 0.8/2.2 (DCE/ (1R or 1S)).