

Supporting Information

Electrospinning chiral fluorescent nanofibers from helical polyacetylene: preparation and enantioselective recognition ability

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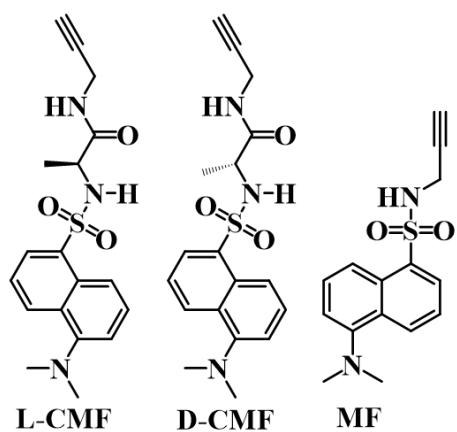


Figure S1. Structural formula of three monomers.

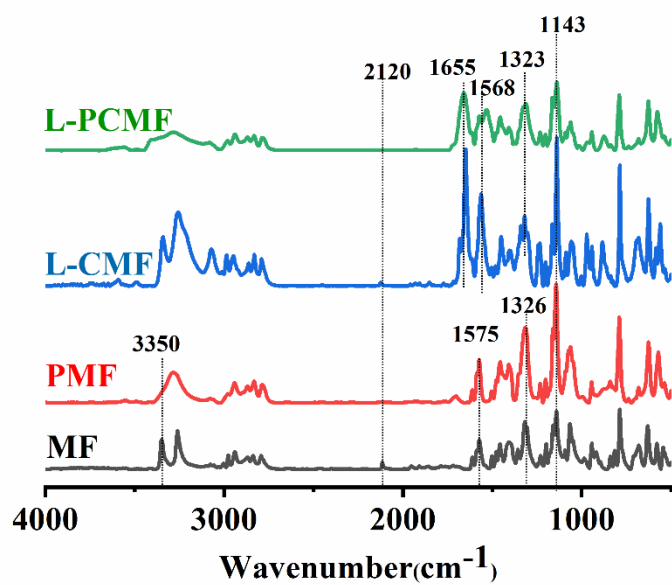


Figure S2. FT-IR spectra of the fluorescent monomers and their corresponding polymers.

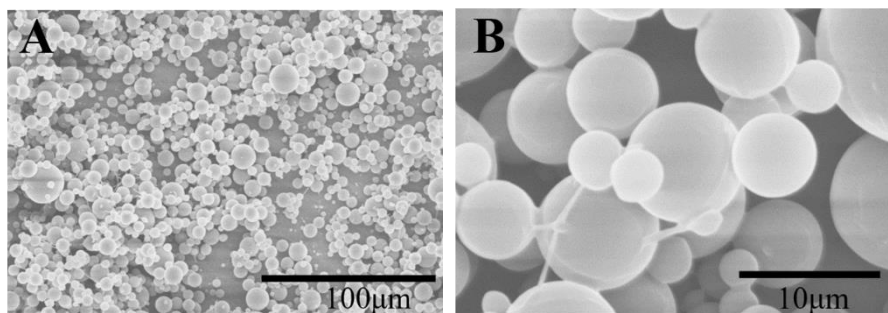


Figure S3. SEM images of electrospinning of the L-PCMF polymer dissolved in DMF (Maximum solubility mass volume fraction is 30%).

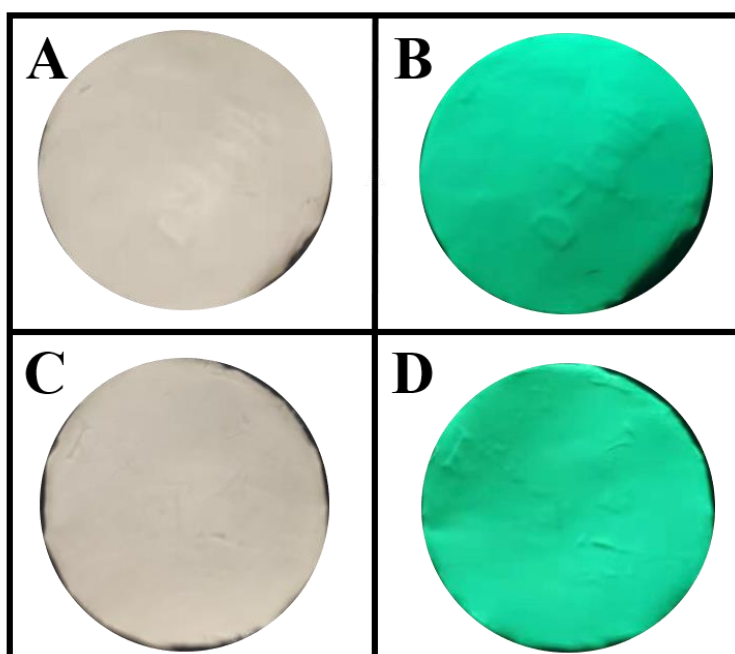


Figure. S4. Digital photo of fluorescent polymer membranes:(A) the L-PCMF membrane under sunlight; (B) the L-PCMF membrane under UV light at 365 nm wavelength; (C) the PMF membrane under sunlight; (D) the PMF membrane under UV light at 365 nm wavelength.

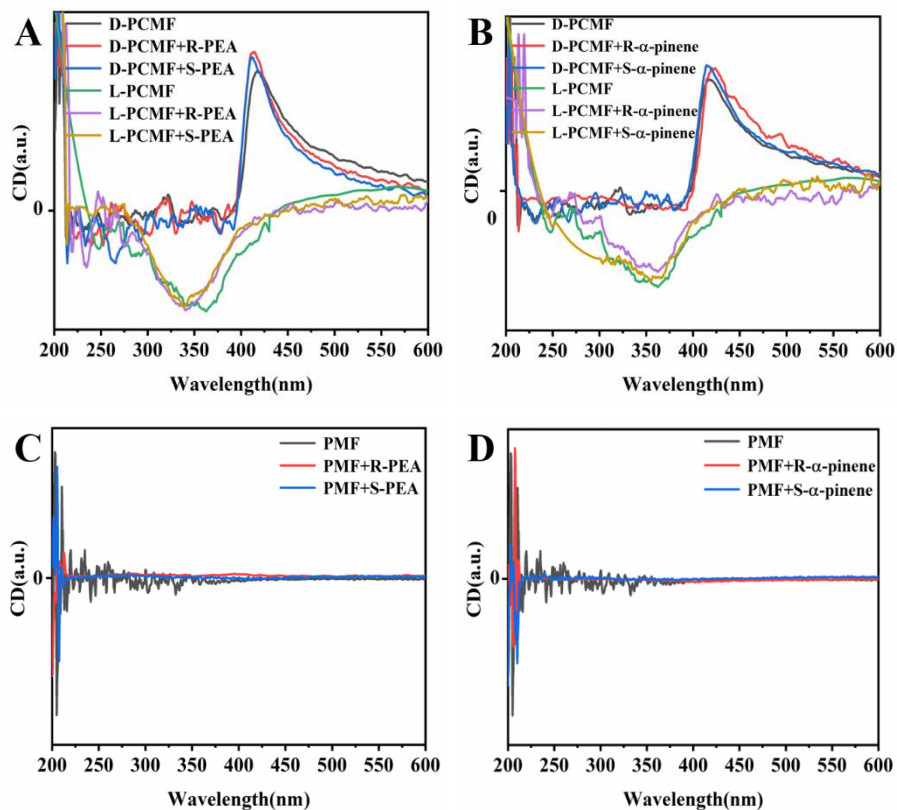


Figure S5. CD absorption of fluorescent membrane before and after the addition of different enantiomers to small molecules. A qualitative test of the electrospinning membranes that infiltrates in toluene; A drop of toluene solution on a circular electrospinning membrane with a diameter of 1 cm.

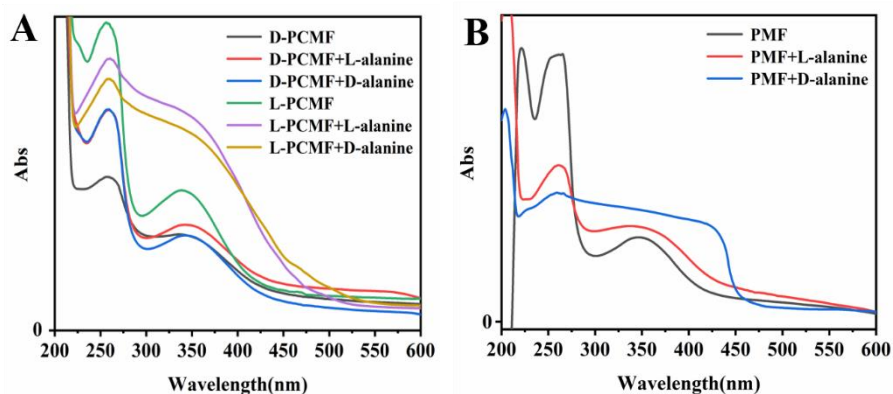


Figure S6. UV-vis absorption of fluorescent membranes before and after addition of small molecule alanine enantiomers: (A) UV-vis absorption spectrum of chiral fluorescent membrane before and after alanine enantiomer; (B) UV-vis absorption spectra of achiral fluorescent membranes before and after alanine enantiomers.

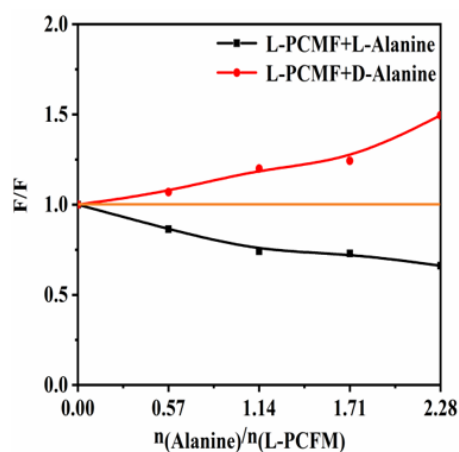


Figure S7. Fluorescence emission relative spectra of fluorescent membranes upon adding of small molecule alanine enantiomer: 4.77×10^{-7} , 9.53×10^{-7} , 1.43×10^{-6} , 1.91×10^{-6} mol.

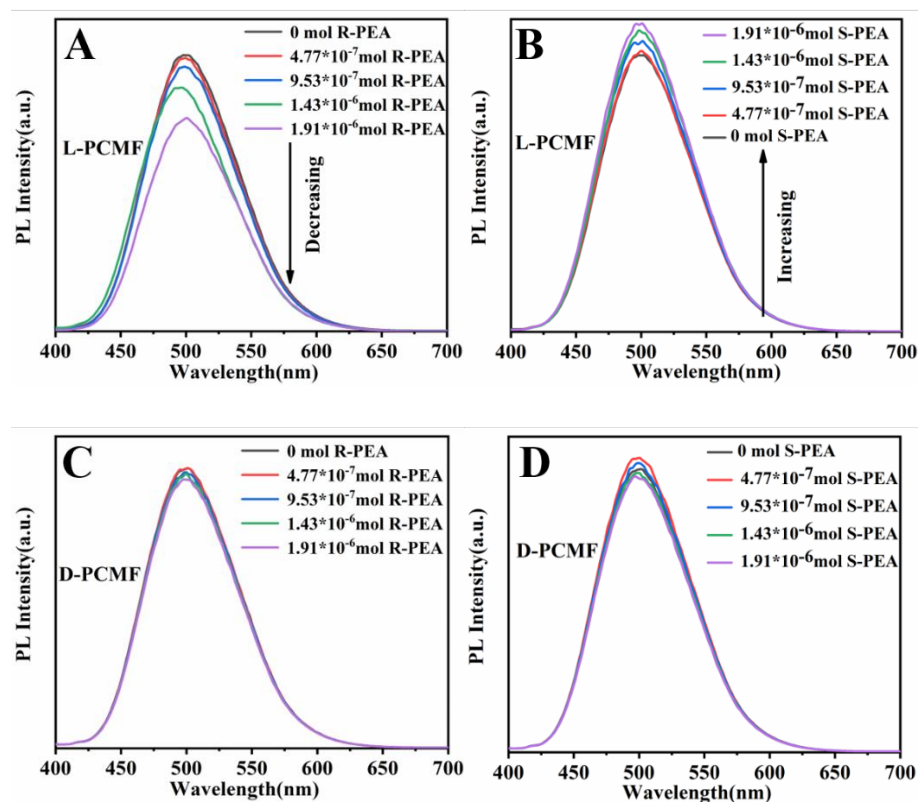


Figure S8. Fluorescence emission spectra of recognition of small molecule Phenethylamine enantiomer by chiral fluorescent polymer membranes: (A) the recognition of R-PEA by L-PCMF membrane; (B) the recognition of S-PEA by L-PCMF membrane; (C) the recognition of R-PEA by D-PCMF membrane; (D) the recognition of S-PEA by D-PCMF membrane.

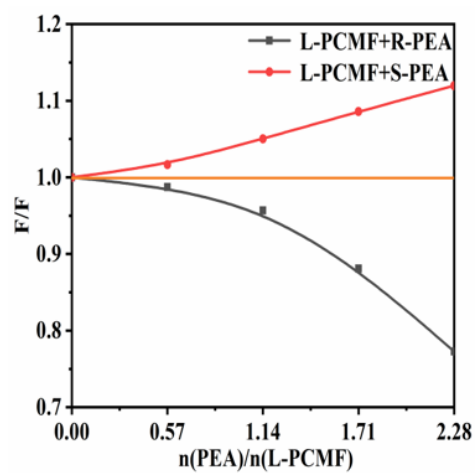


Figure S9. Fluorescence emission relative spectra of fluorescent membranes upon adding of small molecule phenylethylamide enantiomer: 4.77×10^{-7} , 9.53×10^{-7} , 1.43×10^{-6} , 1.91×10^{-6} mol.

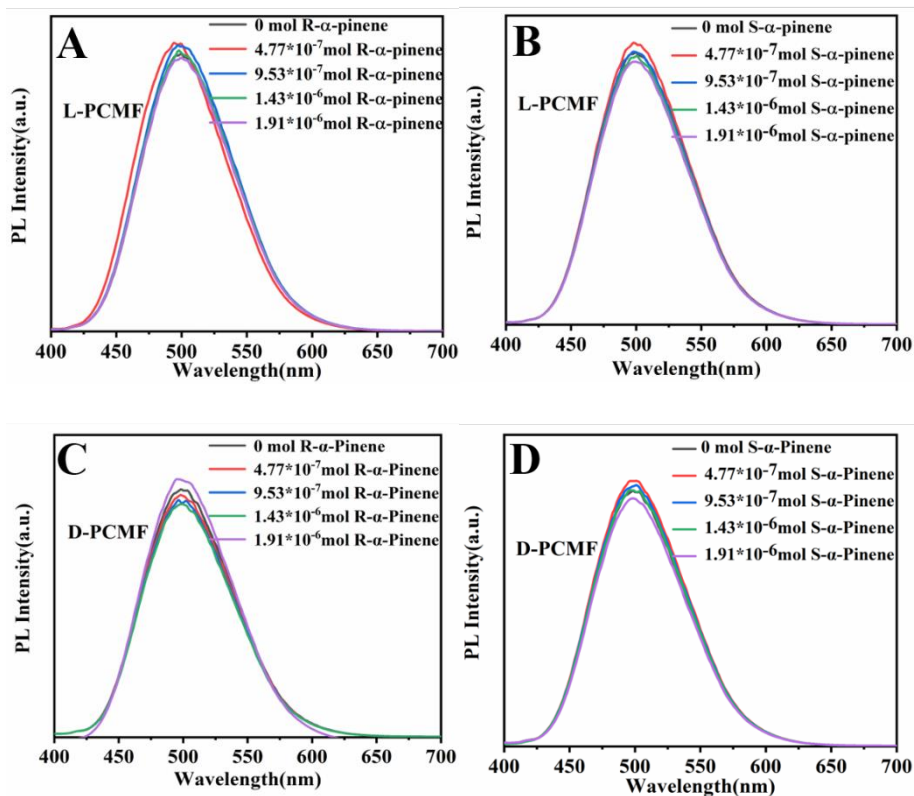


Figure S10. Fluorescence emission spectra of recognition of small molecule Pinene enantiomer by chiral fluorescent polymer membranes: (A) the recognition of R- α -pinene by L-PCMF membrane; (B) the recognition of S- α -pinene by L-PCMF membrane; (C) the recognition of R- α -pinene by D-PCMF membrane; (D) the recognition of S- α -pinene by D-PCMF membrane.

Table S1. Data for the prepared fluorescent polyacetylenes

polymer	M_n^a	M_w/M_n^a	Cotton effect
L-PCMF	7200	1.74	yes
D-PCMF	6700	1.74	yes
PMF	2000	1.53	no

^a Determined by GPC(polystyrenes as standards, THF as eluent).

Table S2 Electrospinning parameters

Substance	Working distance (cm)	Flow rate (mL/h)	Spinning voltage (kV)	Temperature (°C)	Humidity (%RH)
L-PCMF	15	0.2	10	25	30
D-PCMF	15	0.2	11	25	30
PMF	15	0.2	9	25	30