Supporting information

Formation of Supermolecular Chiral Gels from *L*-aspartic Acid-based Perylene Bisimides and Benzene Dicarboxylic Acids

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Table S1. Summary of the pKa values of different carboxylic acids, and the pH values and gel formation ability when mixed with APBI in water.

	pK_{a1}	pK_{a2}	pH	Gel formation
muriatic acid (HCl)	-8.00[a]	-	5.24	No
Acetic Acid	4.76[a]	-	5.61	No
Phthalic Acid (OPA)	2.98[a]	5.28[a]	5.70	Yes
Isophthalic Acid (IPA)	3.46[a]	4.46[a]	5.84	Yes
Terephthalic Acid (TPA)	3.51[a]	4.82[a]	5.90	No
Maleic acid (MA)	1.92[a]	6.23[a]	5.95	No

a. W. P. Jencks and J. Regenstein (1976) Ionization constants of acids and bases. In *Handbook of Biochemistry and Molecular Biology*. (Fasman, G.D., ed.), pp. 305-351.

Table S2. Gelation test of APBI-4K$^+$: IPA = 1 : 2 and APBI -4K$^+$: OPA = 1 : 2.

Benzenetricarboxylic acid	Critical gelation concentration (wt %)	Wt % of (g per 100 mL)	Critical gelation temperature (C)
APBI/IPA	0.55	0.55	46
		1.11	55
		2.22	61
APBI/OPA	0.88	1.11	45
		2.22	47

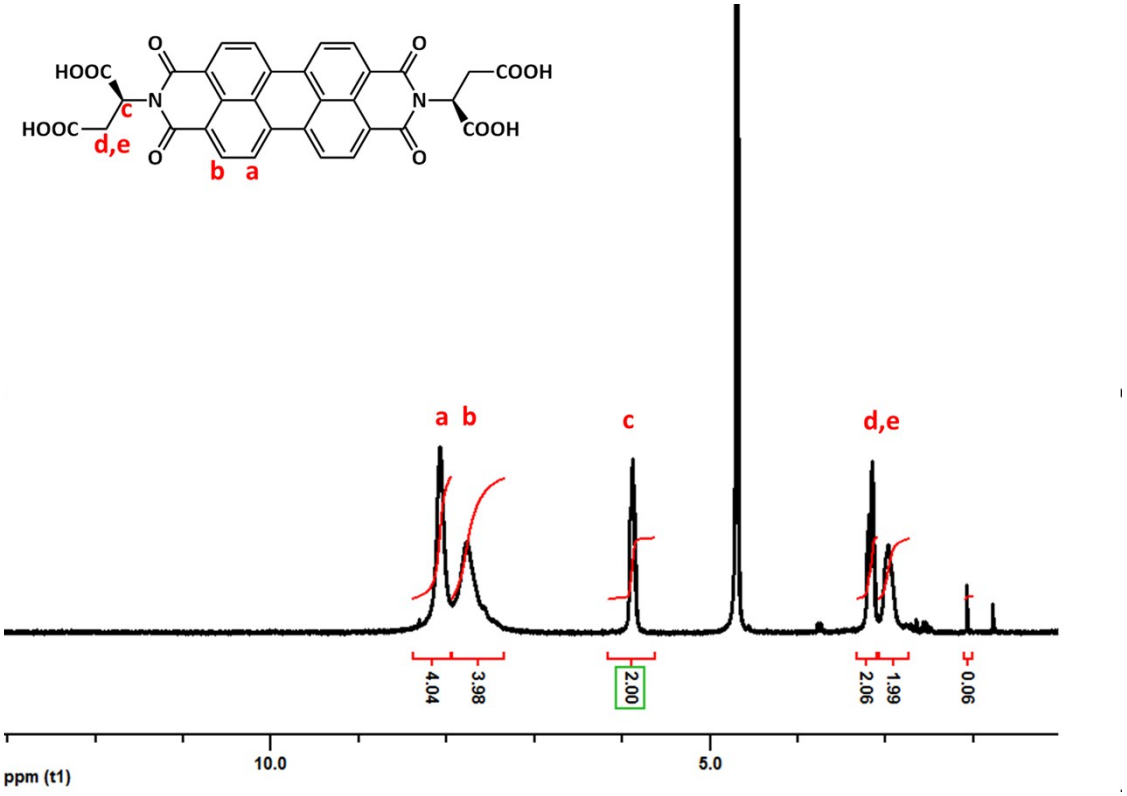

Figure S1. ^{1}H NMR data (D_2O) for APBI.

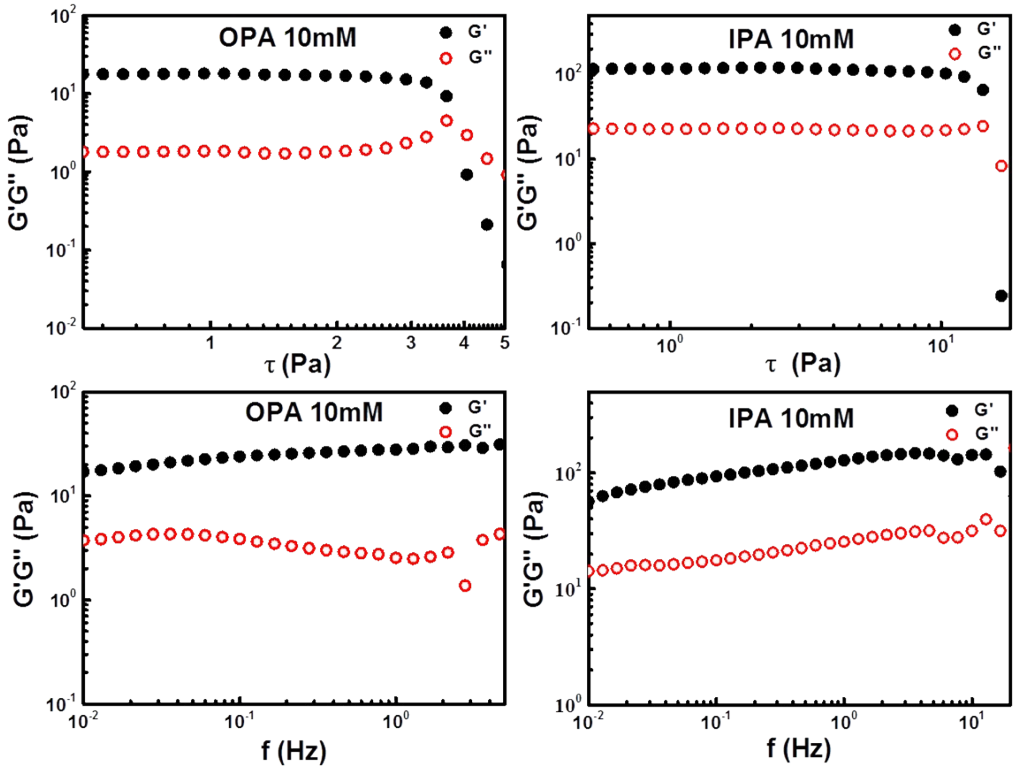

Figure S2. Oscillatory amplitude sweep and frequency sweep experiments of APBI-4K$^+$: OPA = 1 : 2 hydrogel or APBI-4K$^+$: IPA = 1 : 2 hydrogel.

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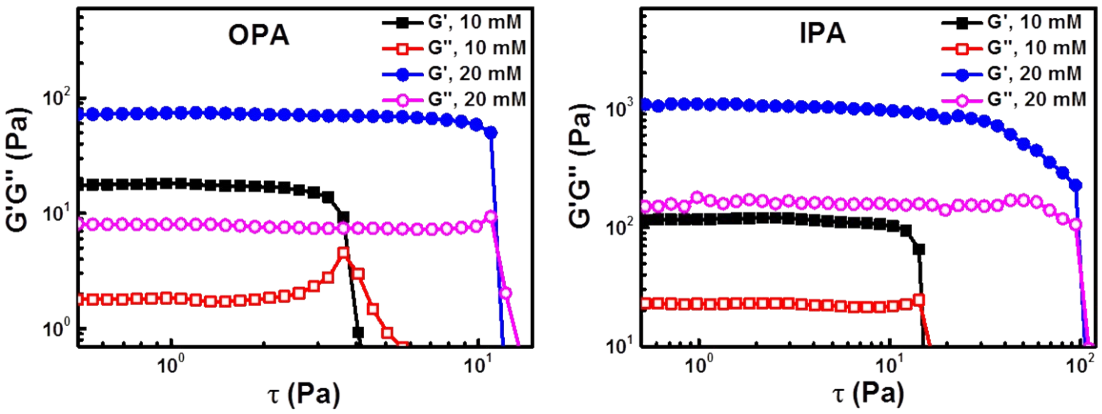

Figure S3. Oscillatory amplitude sweep experiments of APBI-4K$^+$: OPA = 1 : 2 hydrogel or APBI-4K$^+$: IPA = 1 : 2 at different concentrations.

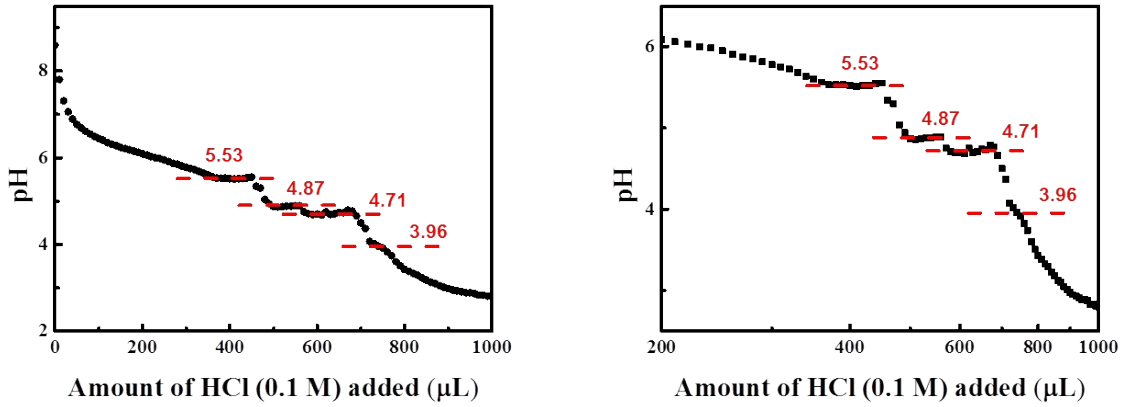

Fig. S4 Change in pH upon the addition of 0.1 M HCl in a solution of APBI-4K$^+$ (a) on a linear scale and (b) on a log time scale.

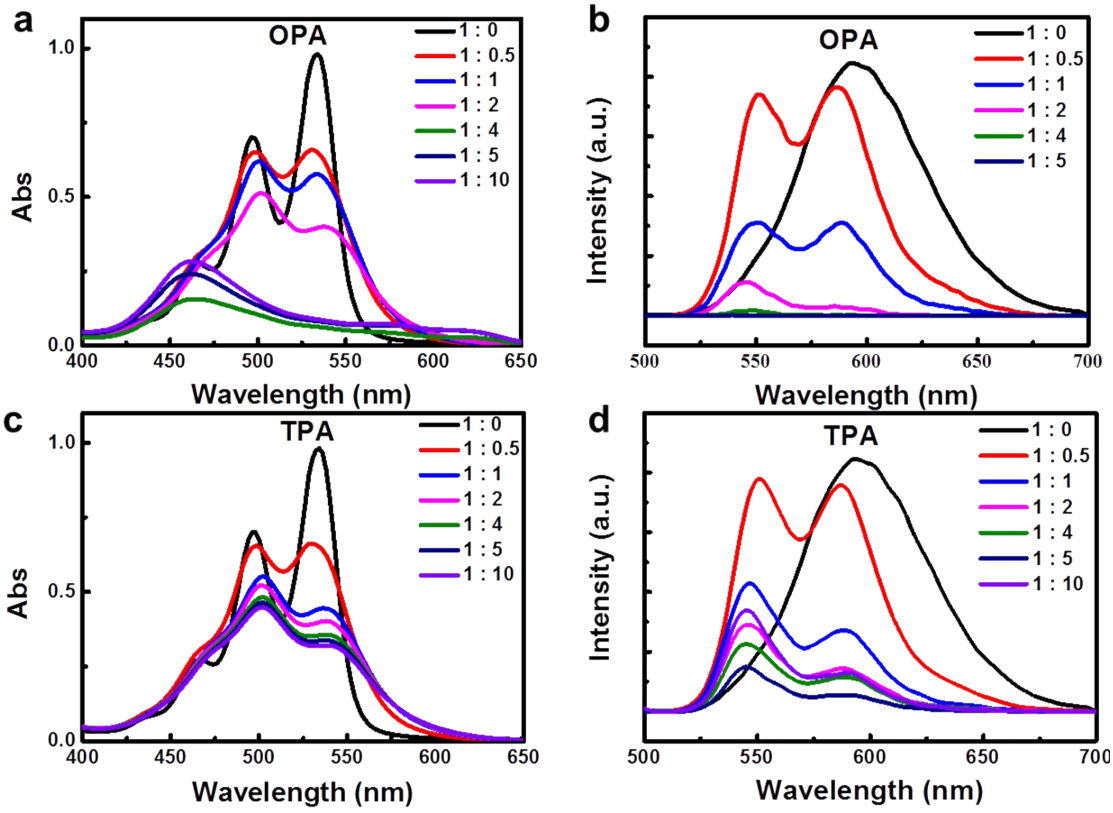

Figure S5. Absorption spectra of APBI-4K$^+$ in the presence of OPA a) or TPA c) with different molar ratios APBI-4K$^+$/OPA, APBI-4K$^+$/TPA. Fluorescence spectra of APBI-4K$^+$ in the presence of OPA b) or TPA d) with different molar ratios APBI-4K$^+$/OPA, APBI/TPA.

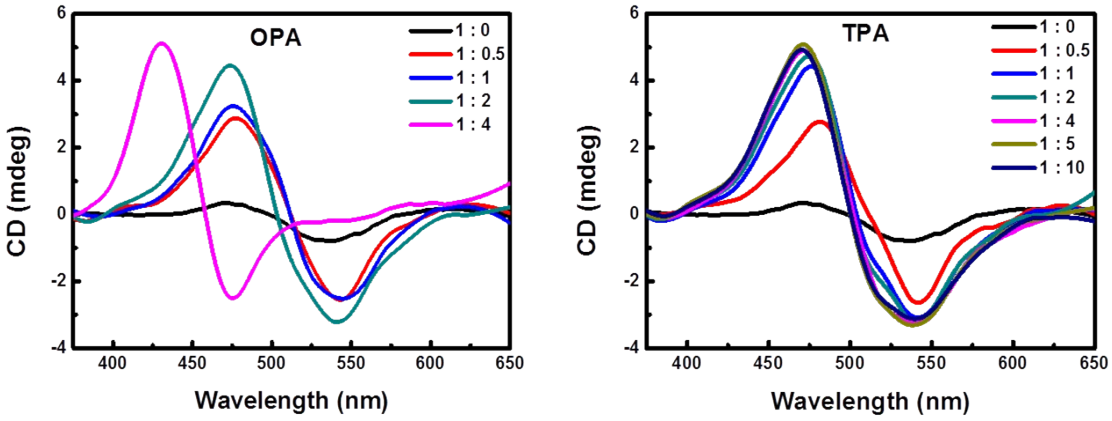

Figure S6. CD spectra of APBI-4K$^+$ in the presence of OPA a) or TPA b) with different molar ratios APBI-4K$^+$/OPA, APBI-4K$^+$/TPA.

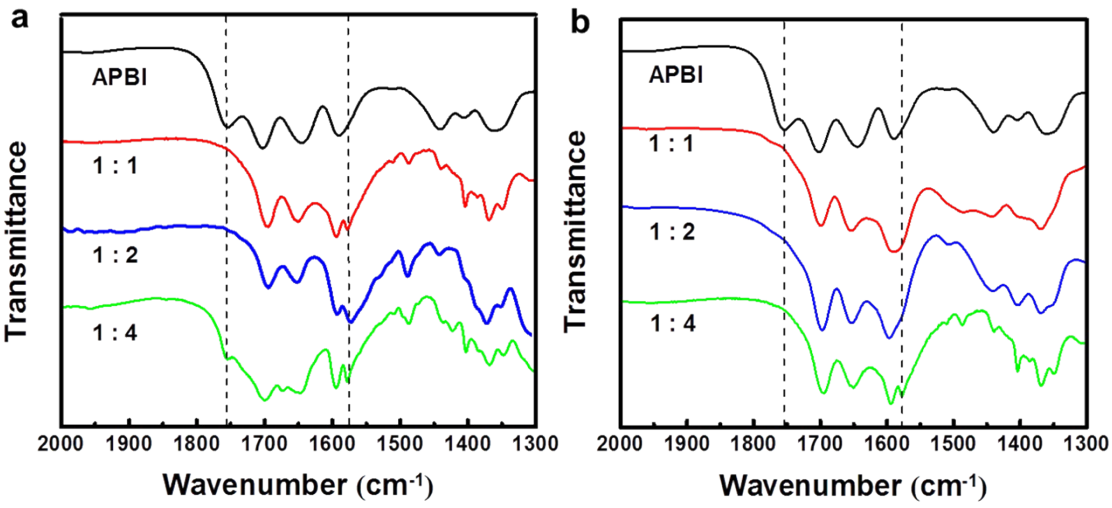

Figure S7. FT-IR spectra of APBI and a) APBI-4K$^+$/OPA, b) APBI-4K$^+$/TPA with different molar ratios.

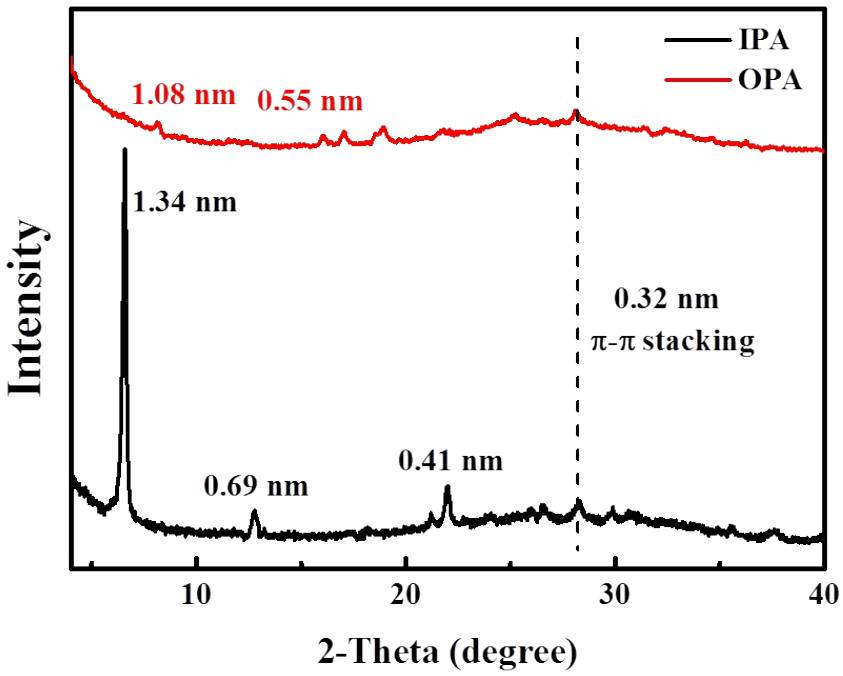

Fig. S8 The XRD pattern of the freeze-dried gels of APBI-4K$^+$/IPA and APBI-4K$^+$/OPA.

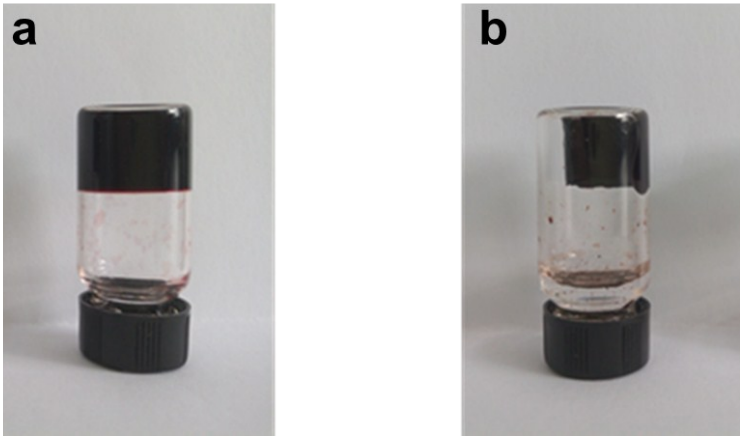

Fig. S9 The gels formed with APBI and different concentrations of GdL (a 5 mg/mL; b 10 mg/mL).