

## Supporting Information for

# Fabrication of pH- and temperature-directed supramolecular materials from 1D fiber to exclusively 2D planar structure by an ionic self-assembly approach

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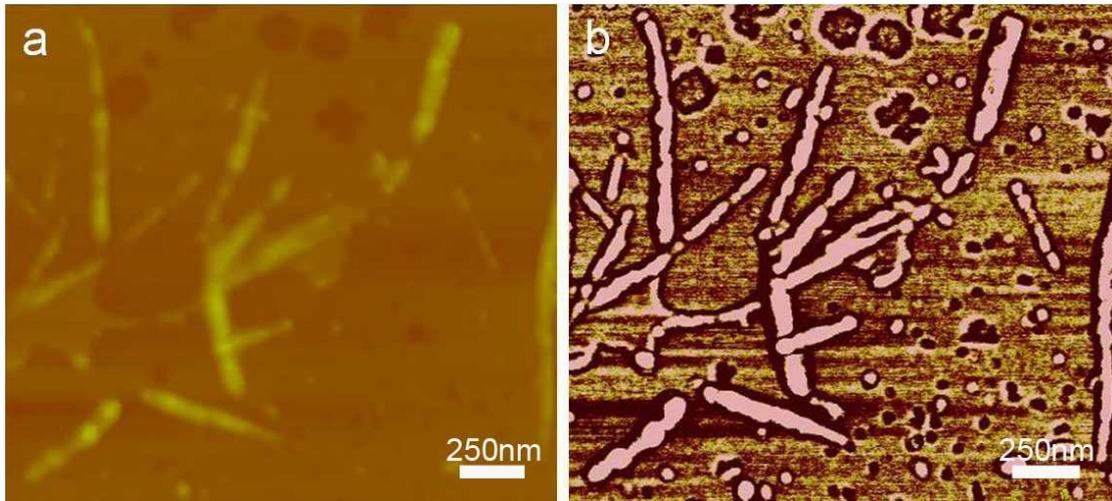
**Fig. S16** ωB97X-D/6-31G(d,p) optimized geometries of dimer (C2) between CRs and two counters.

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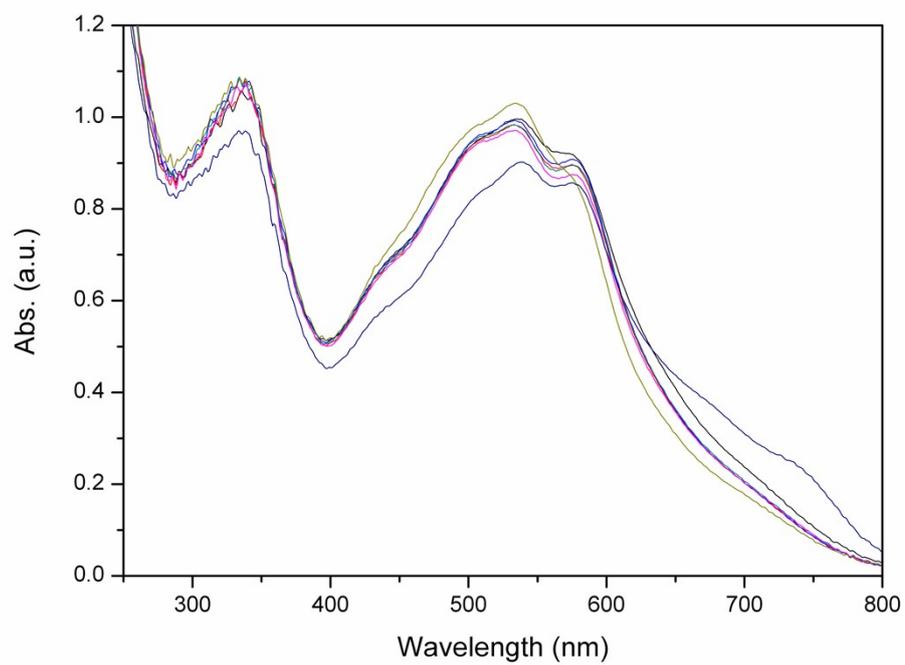
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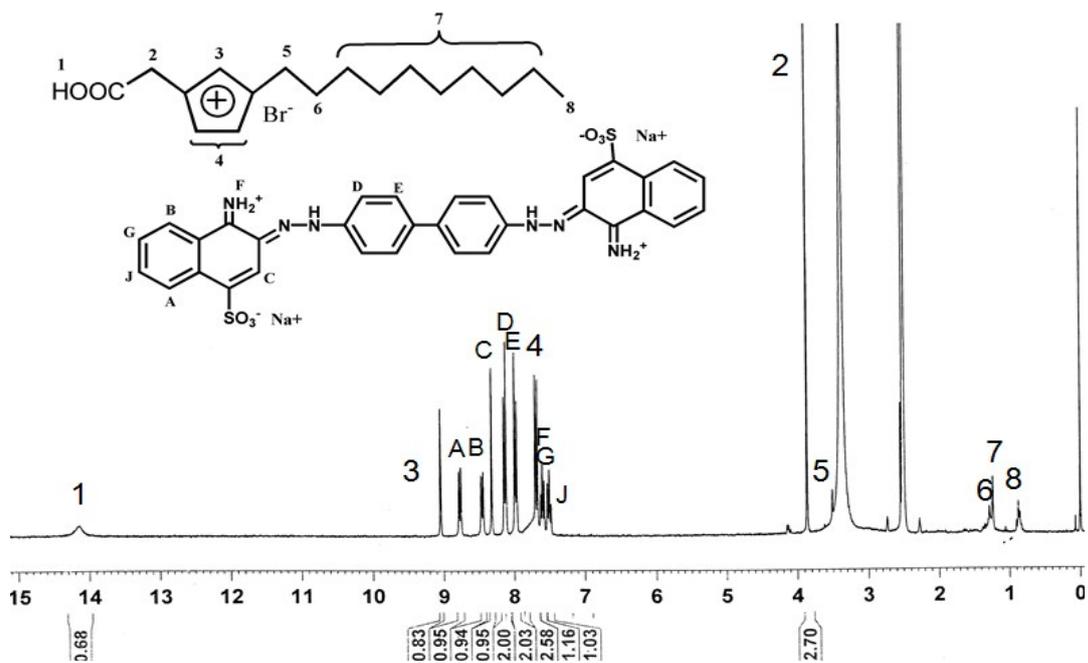
**Fig. S20** Temperature-dependent UV-Vis spectra of CR/[N-C<sub>10</sub>, N'-COOH-Im]Br complex (molar ratio=1:2) in pH 3.2 aqueous solution.



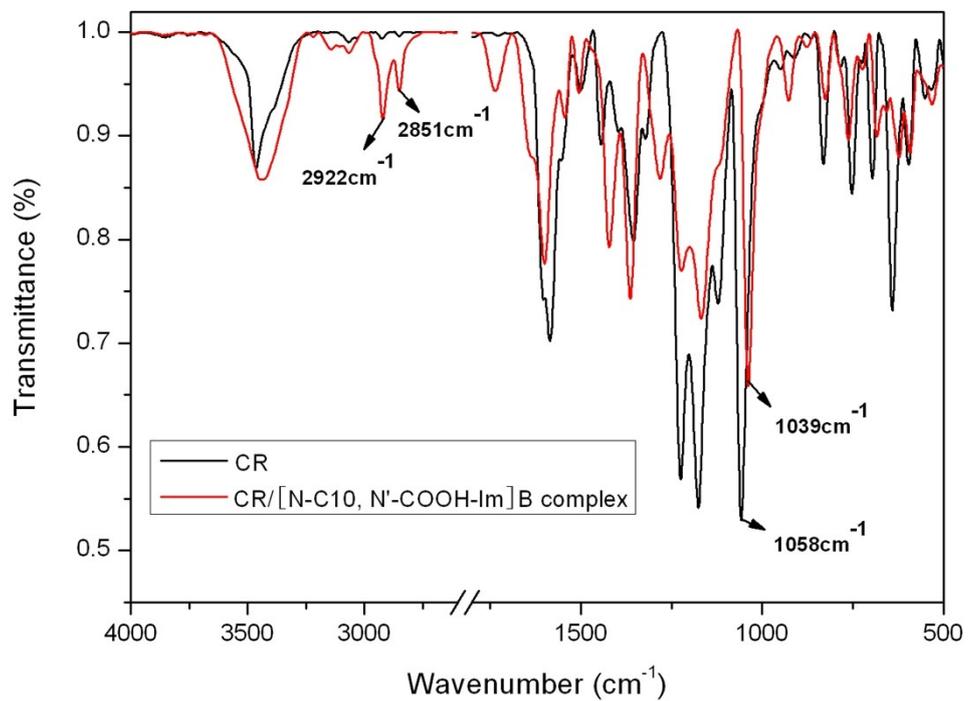
**Fig.S1** AFM images of CR/[N-C<sub>10</sub>, N'-COOH-Im]Br supramolecular nanofibers formed in pH 3.2 aqueous solution at room temperature: high magnification (a) and phase image (b).



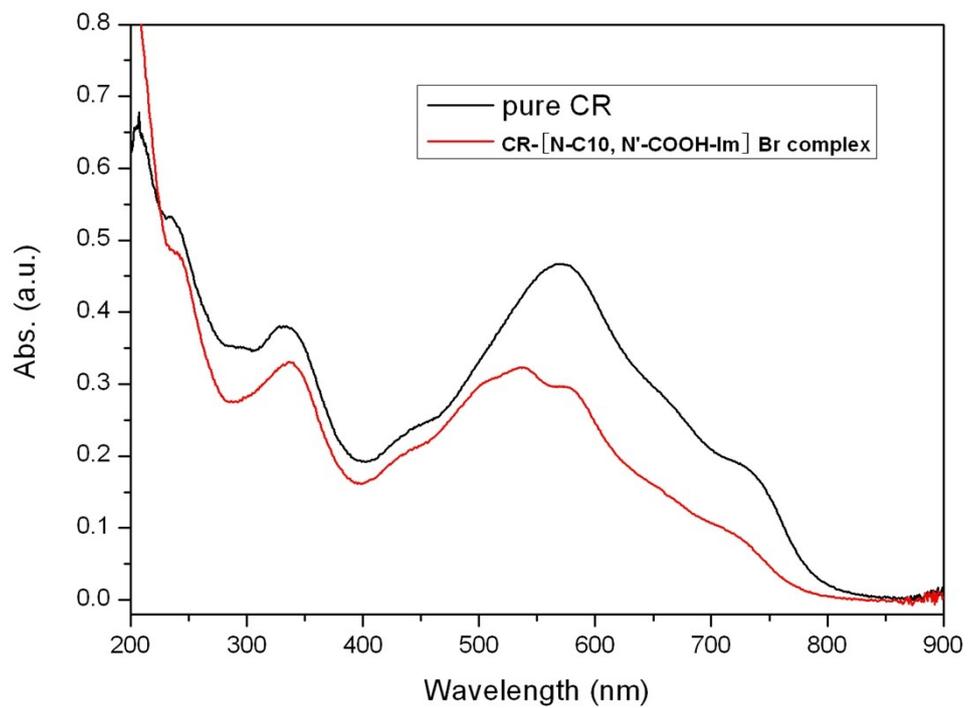
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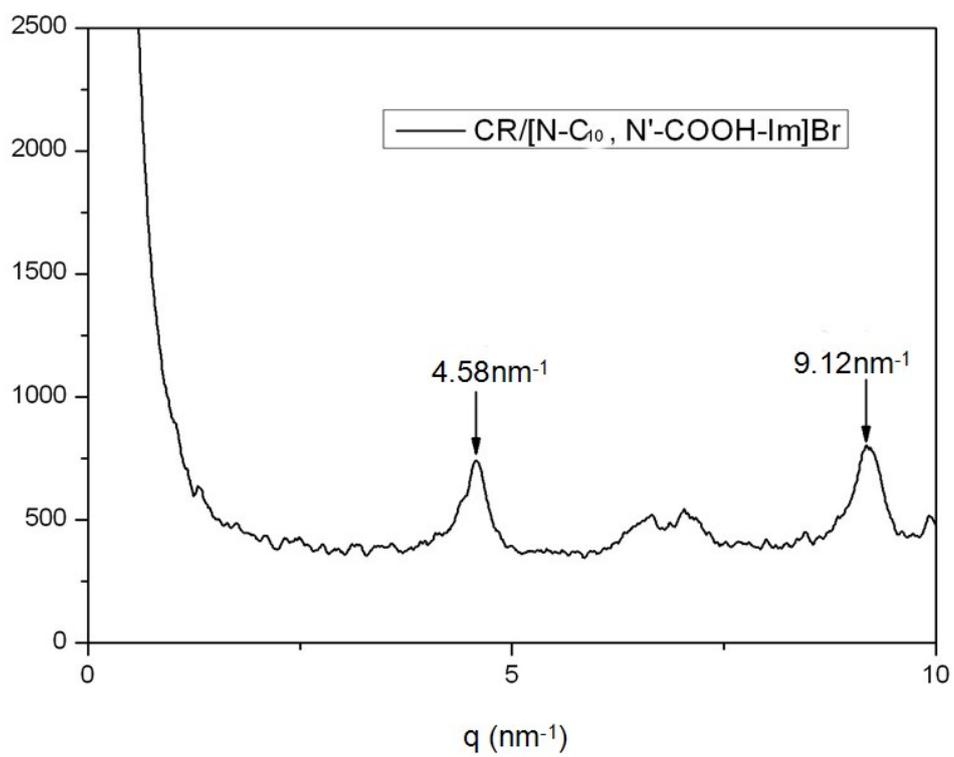


**Fig.S4** FTIR spectrum of CR and CR/[N-C<sub>10</sub>, N'-COOH-Im]Br complex (molar ratio=1:2).

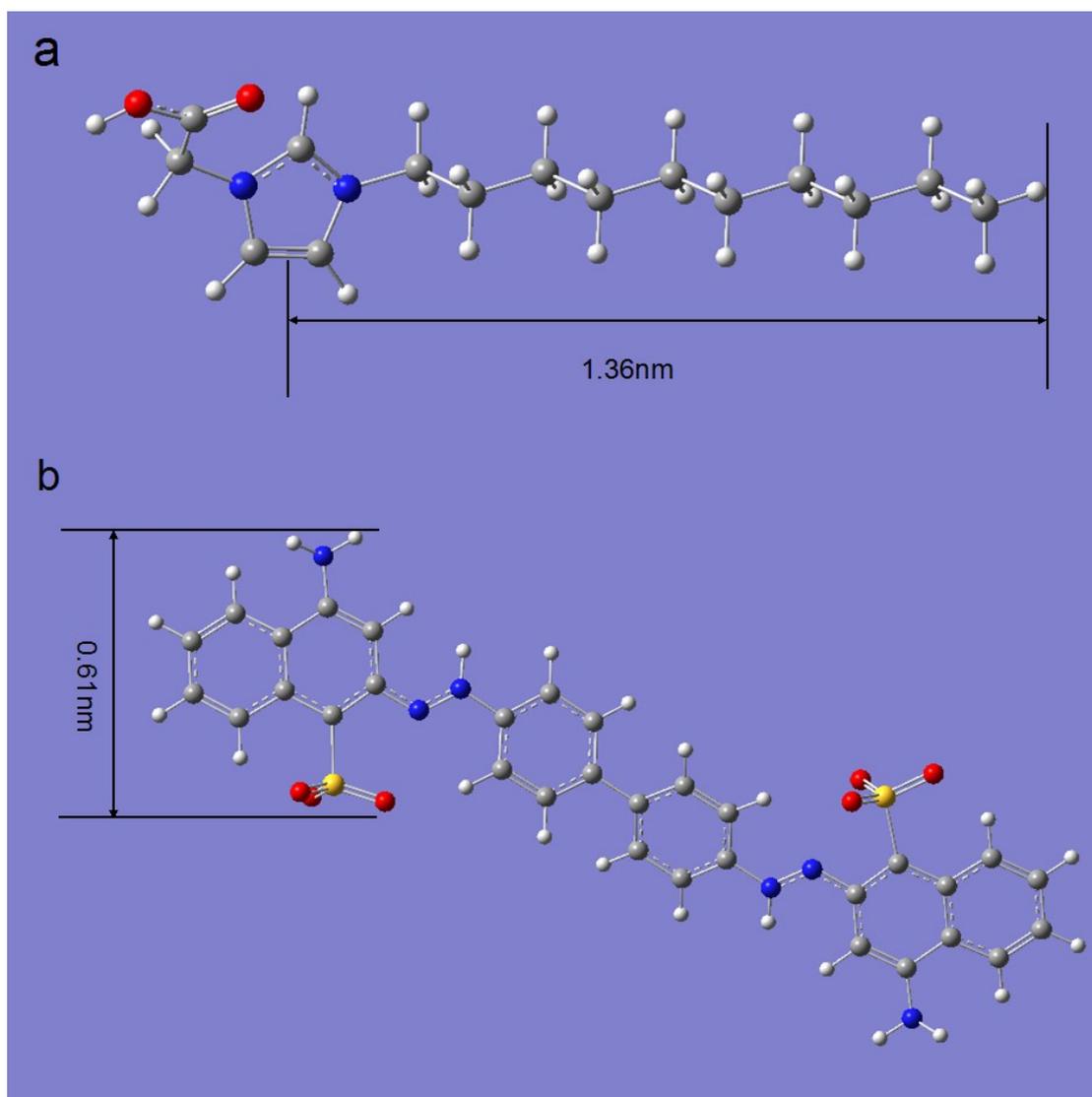


**Fig. S5** UV-Vis spectra of CR and CR/[N-C<sub>10</sub>, N'-COOH-Im]Br complex

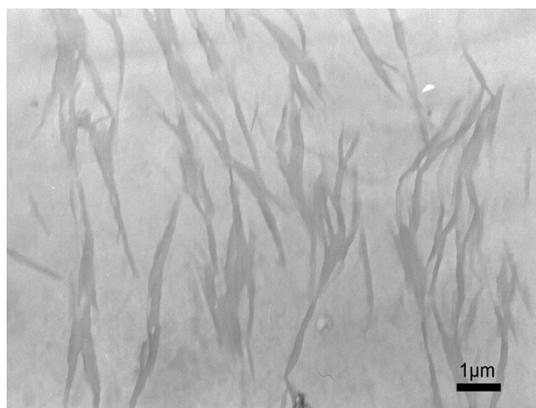
(molar ratio=1:2) in pH 3.2 aqueous solution at room temperature.



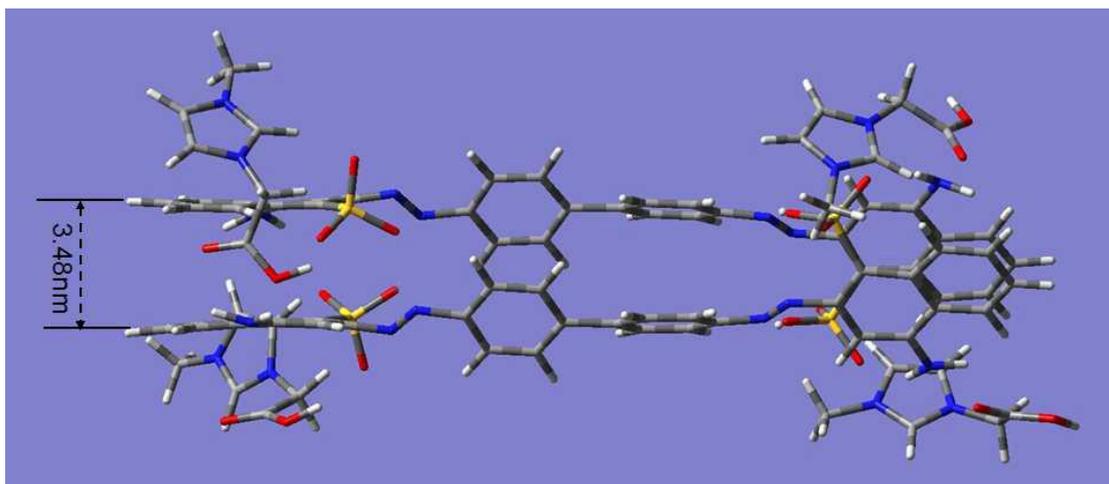
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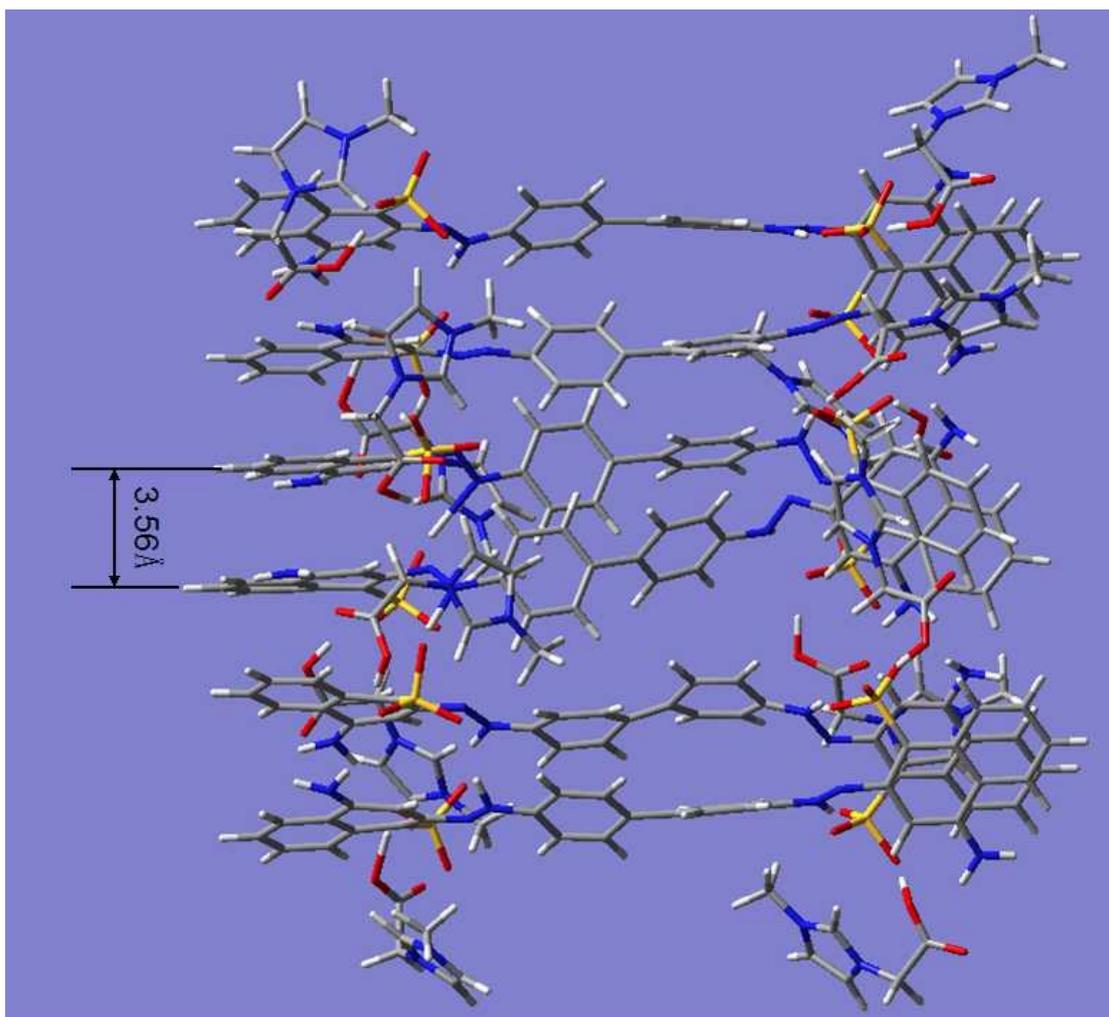
**Fig. S7** Optimized structures of [N-C<sub>10</sub>, N'-COOH-Im]Br (a) and CR (b).



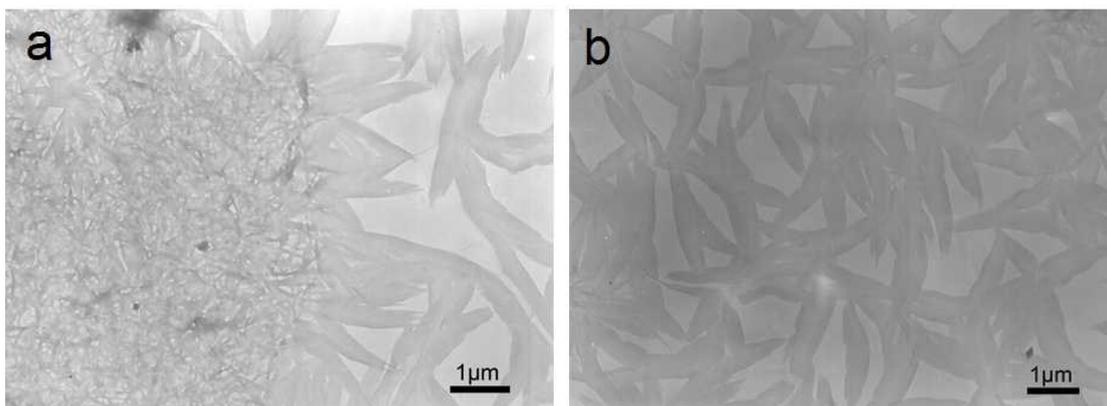
**Fig. S8** TEM image of CR/[N-C<sub>12</sub>, N'-COOH-Im]Br complex (molar ratio=1:2) in pH 3.2 aqueous solution at room temperature.



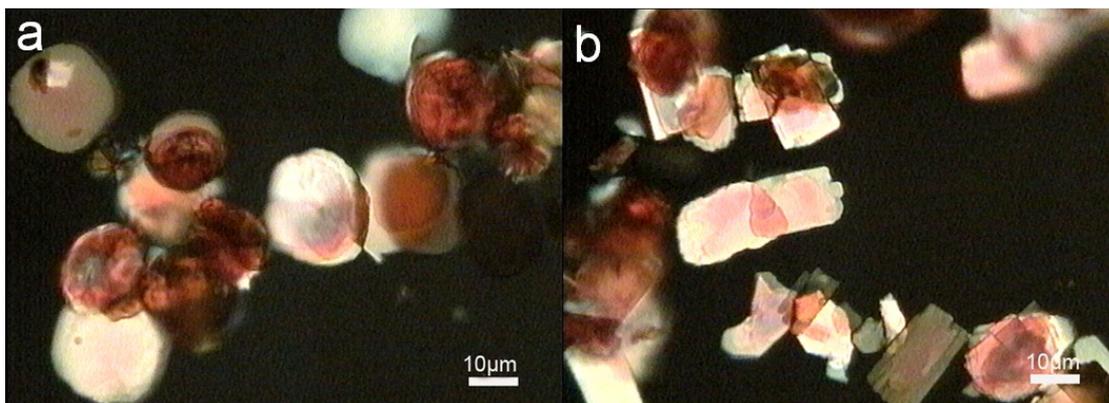
**Fig. S9**  $\omega$ B97X-D/6-31G(d,p) optimized geometries of dimer (C2) between CRs and four counters.



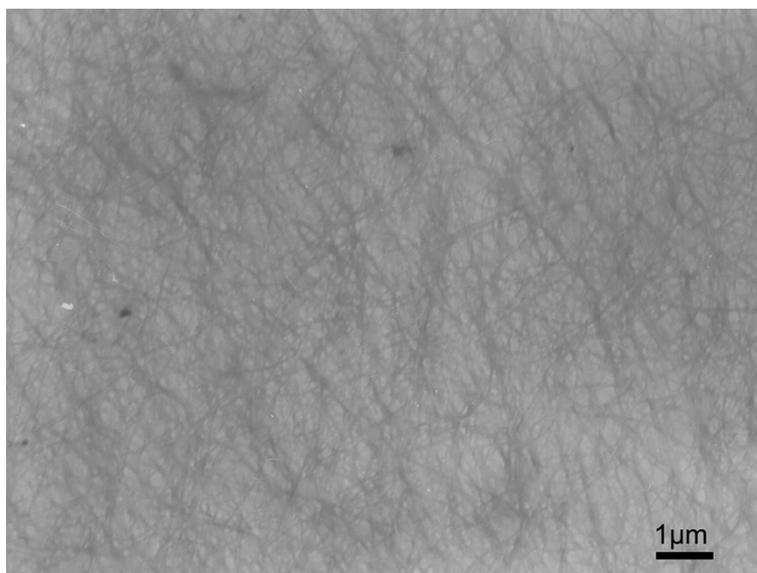
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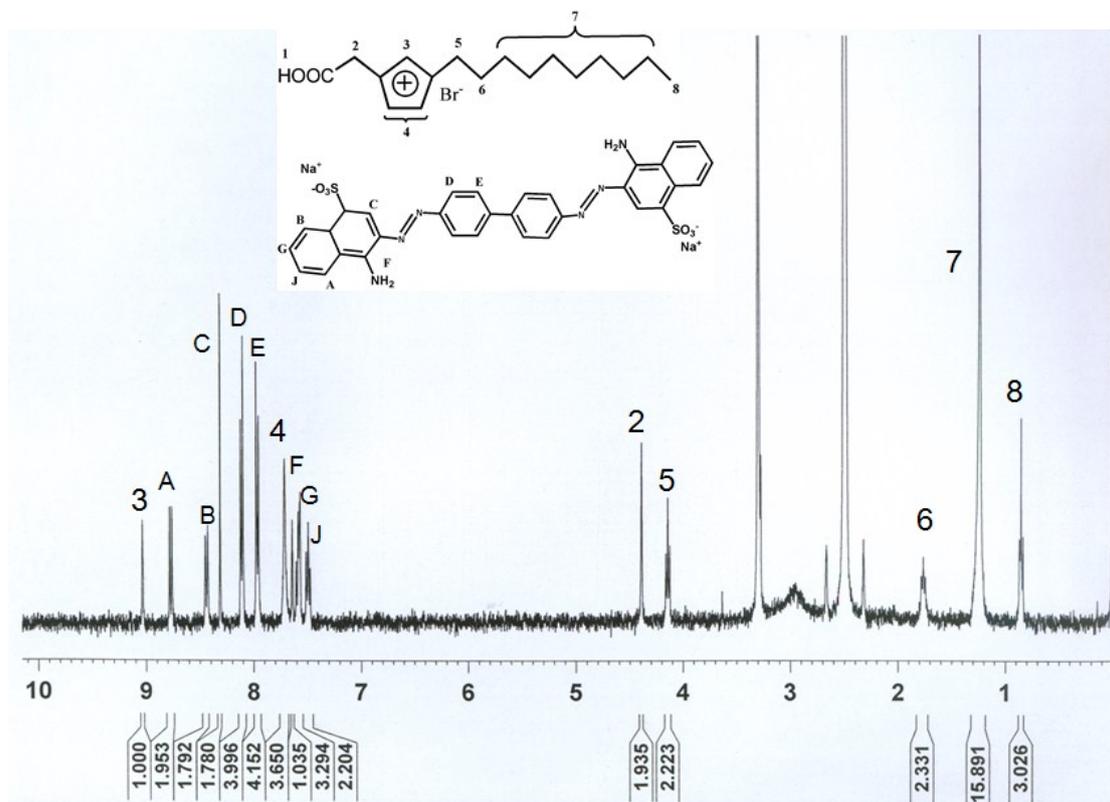
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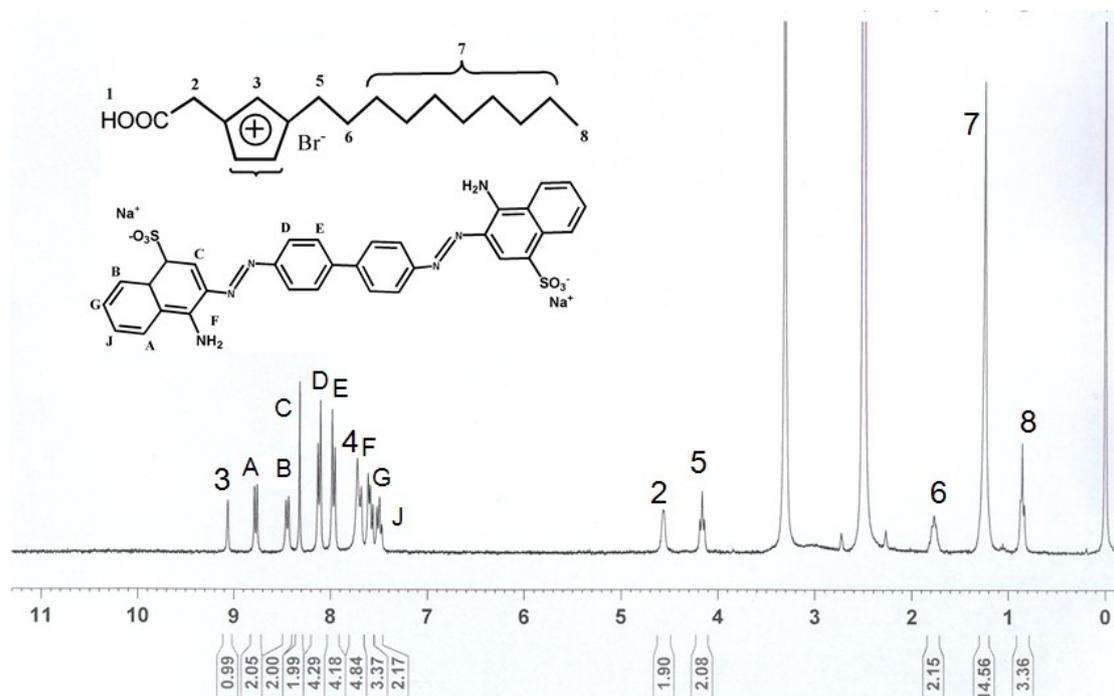
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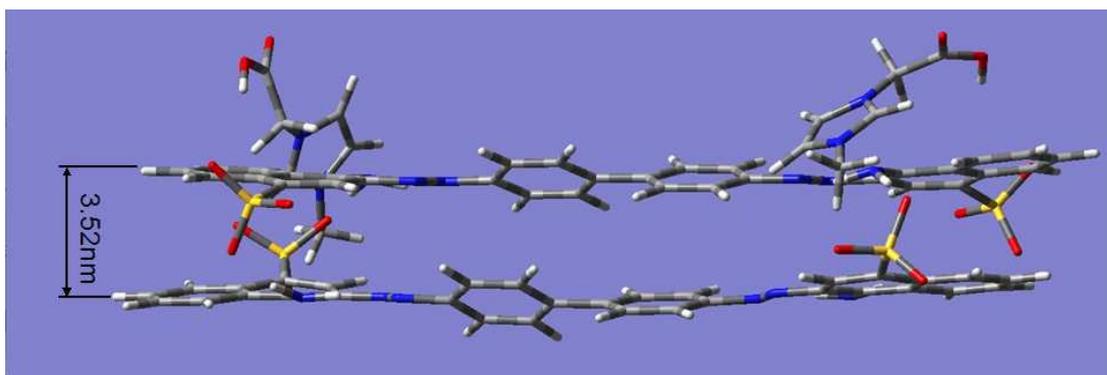
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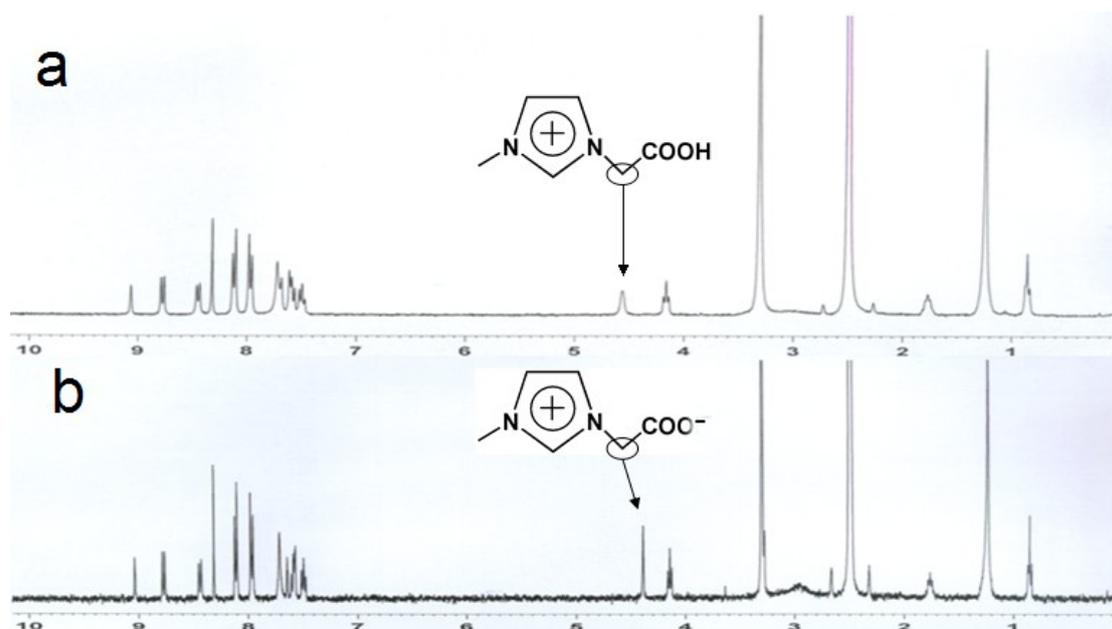
**Fig. S14**  $^1\text{H}$  NMR spectra of CR/[N-C<sub>10</sub>, N'-COOH-Im] Br supramolecular structures formed in pH 5.8 aqueous solution.



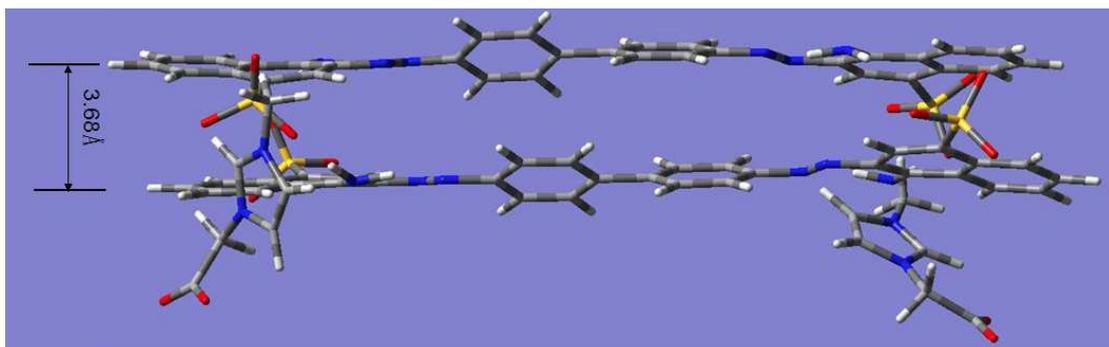
**Fig. S15**  $^1\text{H}$  NMR spectra of CR/[N-C<sub>10</sub>, N'-COOH-Im] Br supramolecular structures in pH=9.0.



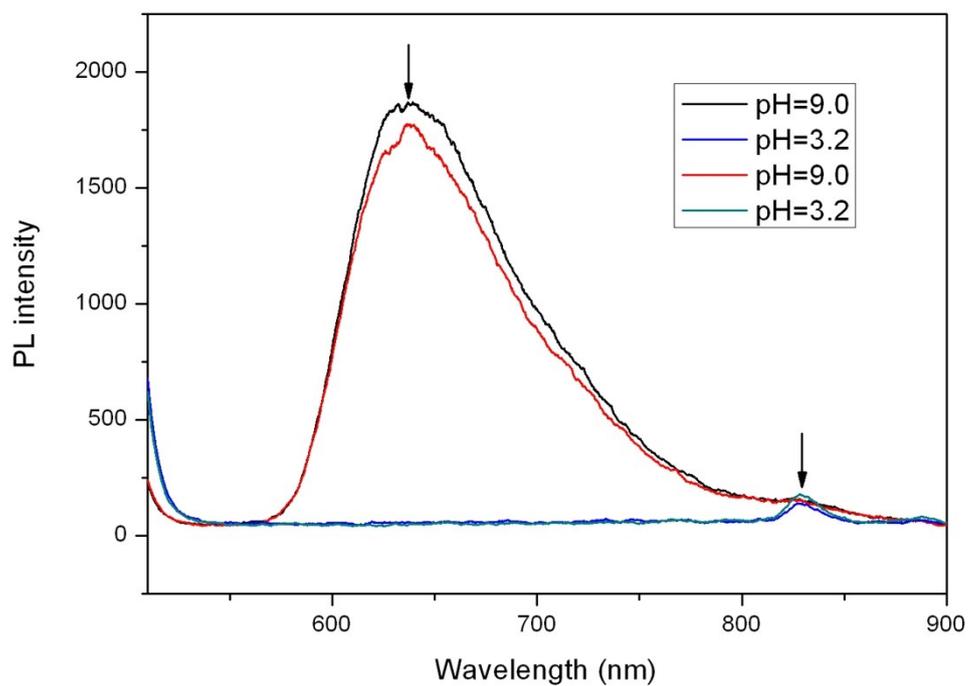
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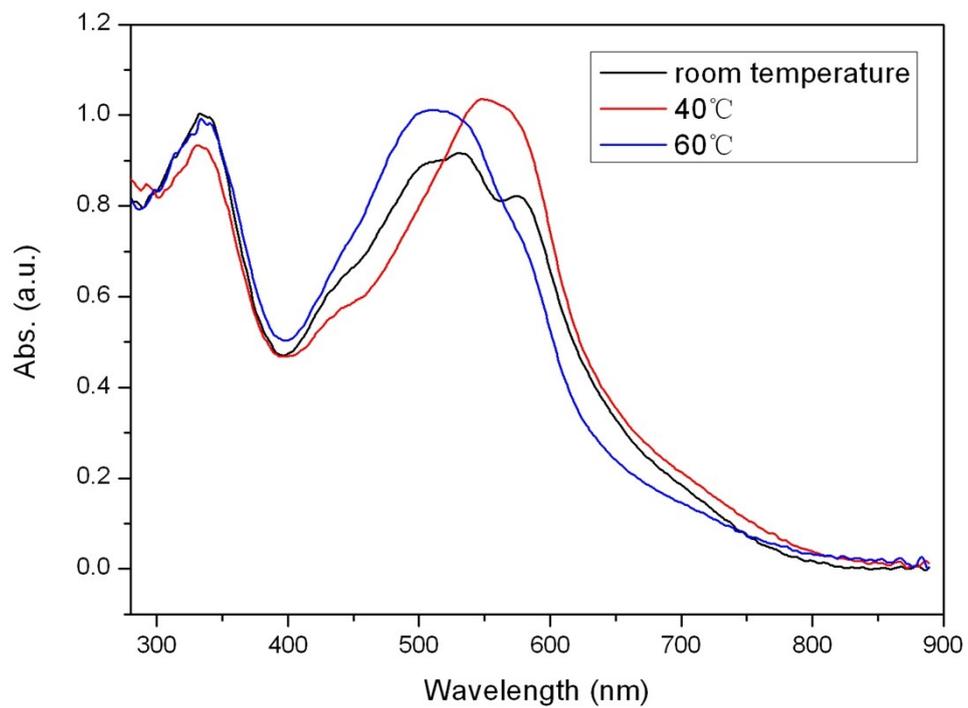
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