

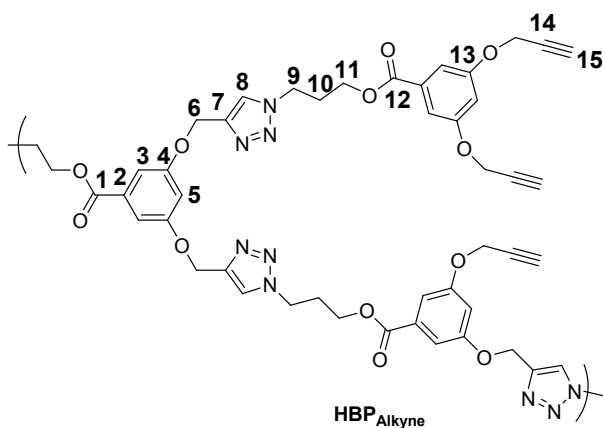
# Noncovalent Immobilization of Pyrene Terminated Hyperbranched Triazole-based Polymeric Ionic Liquid onto Graphene for Highly Active and Recyclable Catalysis of CO<sub>2</sub>/Epoxide Cycloaddition

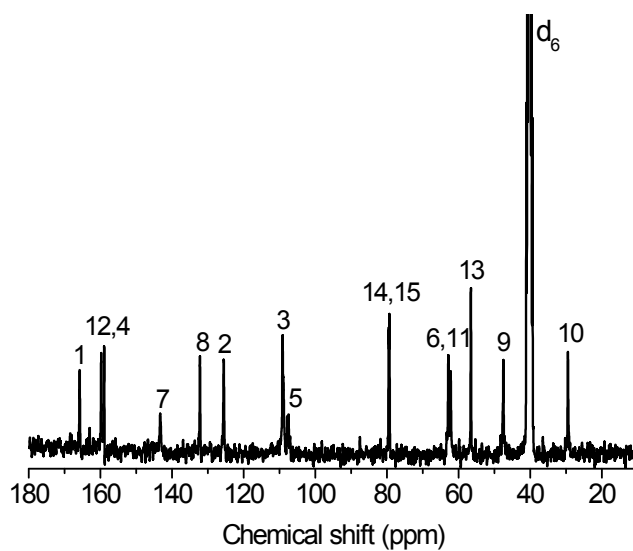
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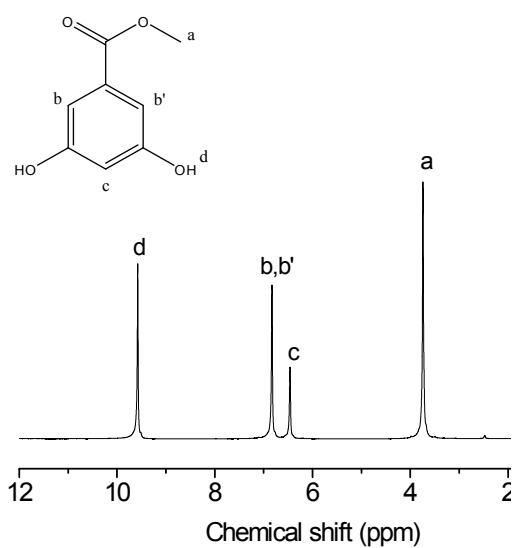
E-Mail: [ysye@hust.edu.cn](mailto:ysye@hust.edu.cn); [xlxie@mail.hust.edu.cn](mailto:xlxie@mail.hust.edu.cn)



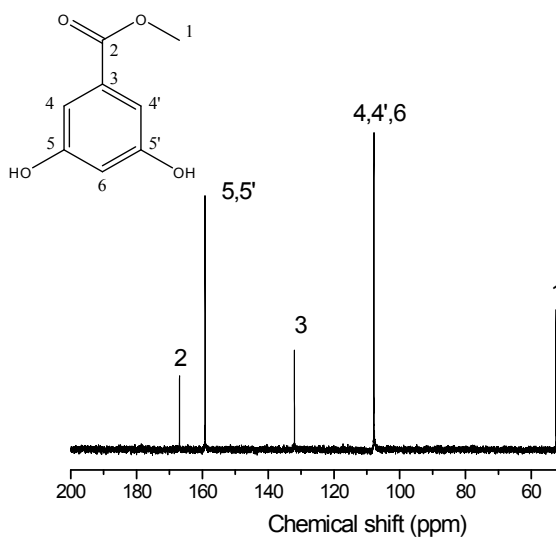


**Fig. S1.**  $^{13}\text{C}$  NMR spectra of alkyne-HBP.

**(a)  $^1\text{H}$  NMR**

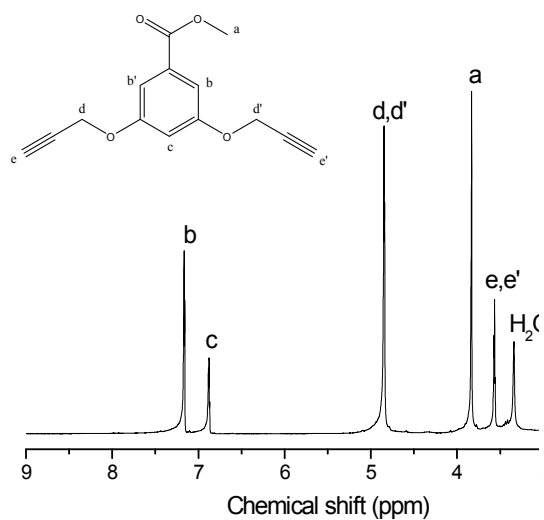


**(b)  $^{13}\text{C}$  NMR**



**Fig. S2.** (a)  $^1\text{H}$  NMR and (b)  $^{13}\text{C}$  NMR spectra of compound **1**.

(a)  $^1\text{H}$  NMR



(b)  $^{13}\text{C}$  NMR

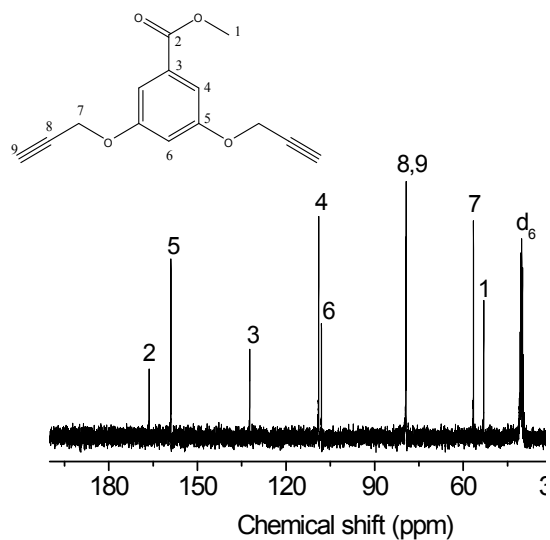
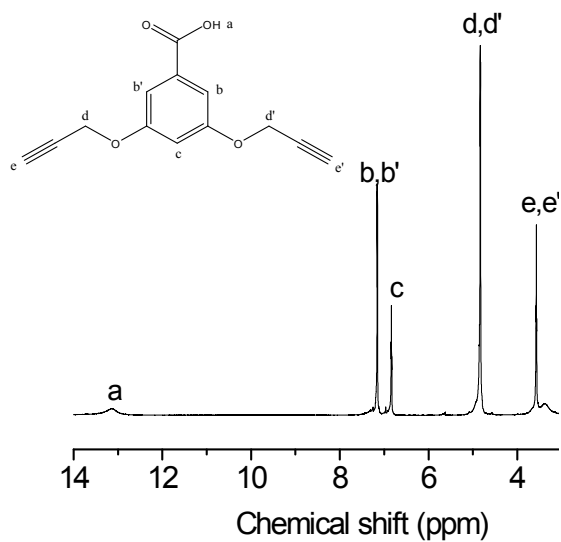


Fig. S3. (a)  $^1\text{H}$  NMR and (b)  $^{13}\text{C}$  NMR spectra of compound 2.

(a)  $^1\text{H}$  NMR



(b)  $^{13}\text{C}$  NMR

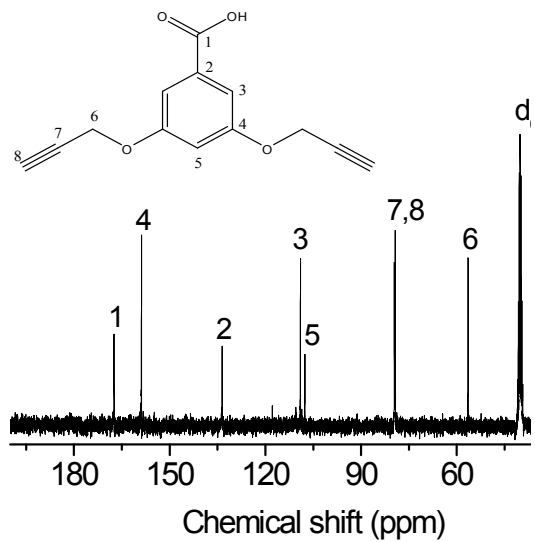
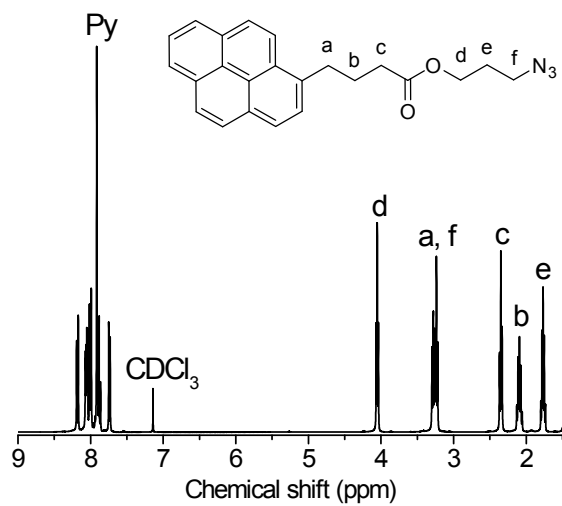
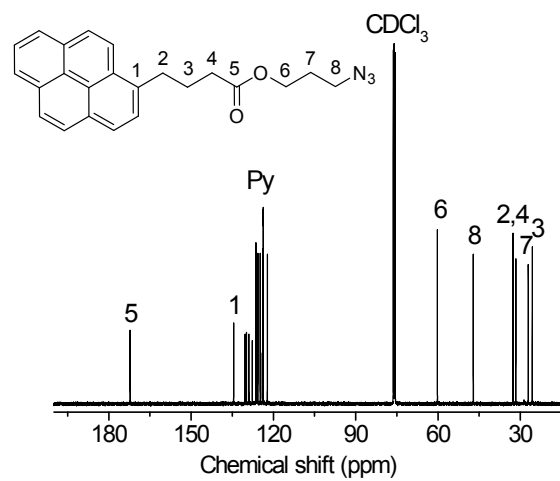


Fig. S4. (a)  $^1\text{H}$  NMR and (b)  $^{13}\text{C}$  NMR spectra of compound 3.

(a)  $^1\text{H}$  NMR



(b)  $^{13}\text{C}$  NMR



**Fig. S5.** (a)  $^1\text{H}$  NMR and (b)  $^{13}\text{C}$  NMR spectra of azido-pyrene (Py-N<sub>3</sub>).