

## Supporting information

### **Epitaxial crystallization of precisely bromine-substituted polyethylene induced by carbon nanotube and graphene**

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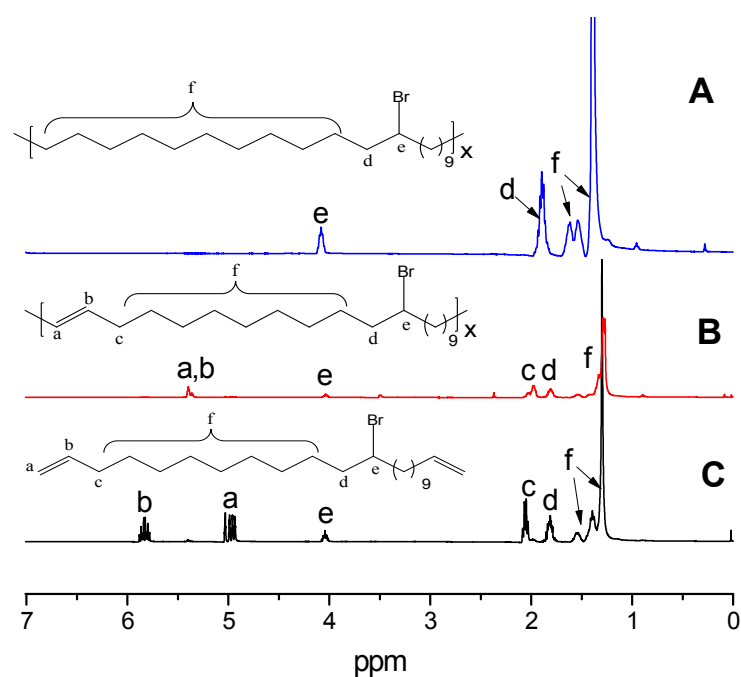
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Figure S1 shows the  $^1\text{H}$  NMR spectra for the ADMET polymer PE21Br and its precursors. Monomer is featured with the two signals of terminal alkenes appearing at 5.0 and 5.8 ppm (Figure S1C). The corresponding polymer (Figure S1B) exhibits signals of internal alkenes at 5.4 ppm, meanwhile, signals of the terminal alkene is invisible in the  $^1\text{H}$  NMR spectrum, indicative of high molecular weight of unsaturated polymer. After exhaustive hydrogenation of the unsaturated polymer, PE21Br (Figure S1A) is characterized by complete disappearance of the signals of internal alkenes at 5.4 ppm. The  $^1\text{H}$  NMR for PE21Br shows a methine proton (e) at 4.1 ppm, and methylene protons (d) at 1.9 ppm and (f) at 1.3-1.6 ppm, a perfectly sequenced polymer, corresponding to polyethylene with substituent Br on every 21st backbone carbon.



**FIGURE S1.**  $^1\text{H}$  NMR for (A) PE21Br, (B) Unsaturated polymer and (C) Monomer.