

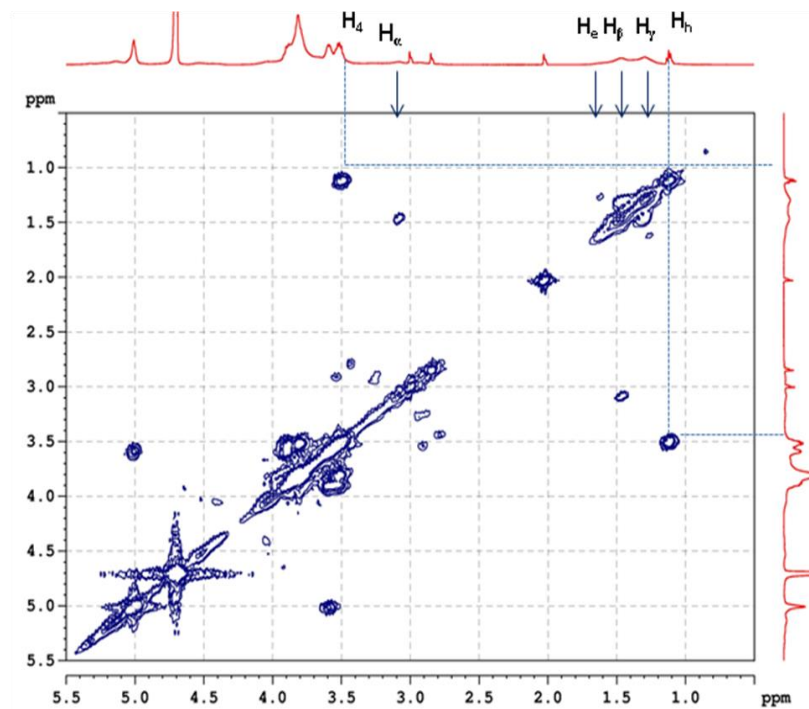
## **Supporting Information**

### **Preparation and Characterization of a Polymer-Based “Molecular Accordion”**

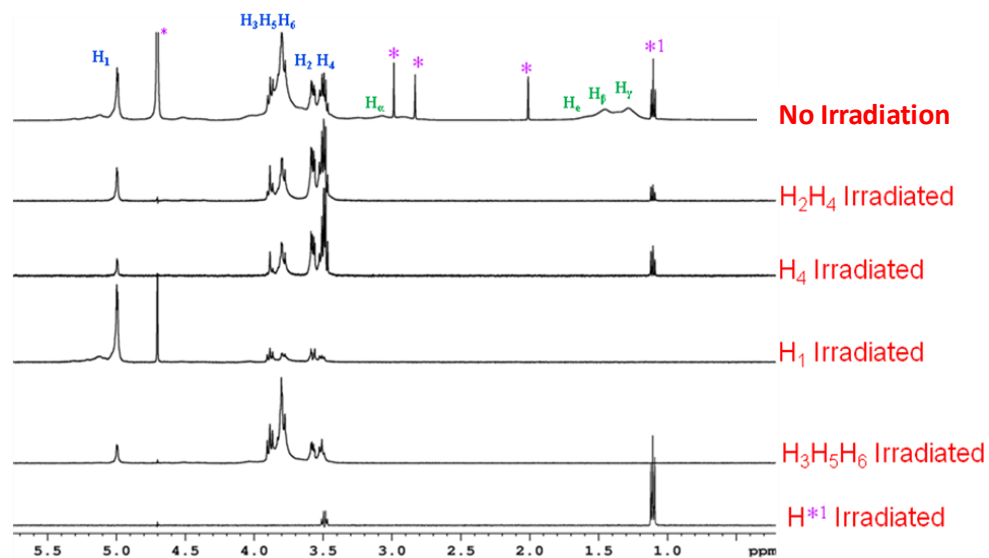
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Canada

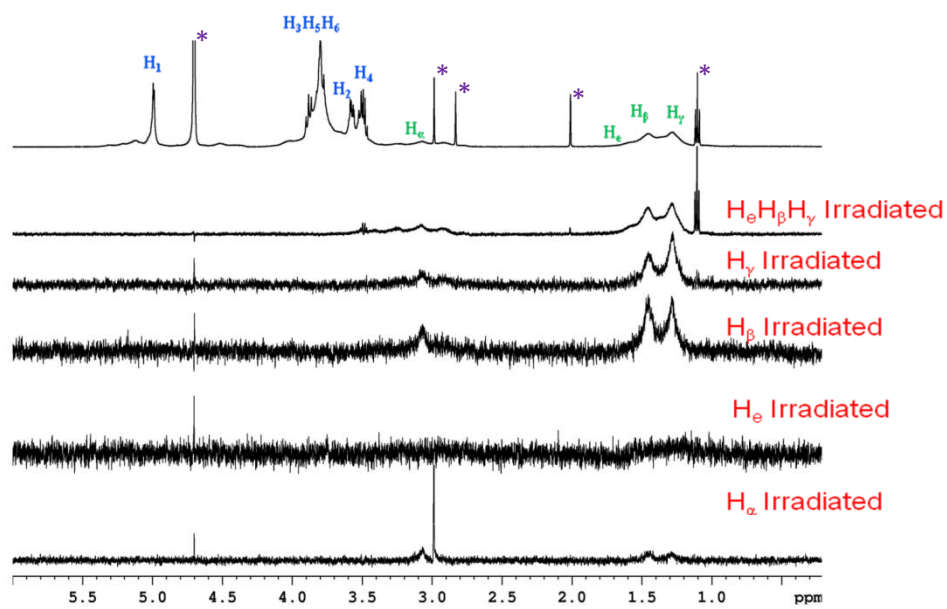
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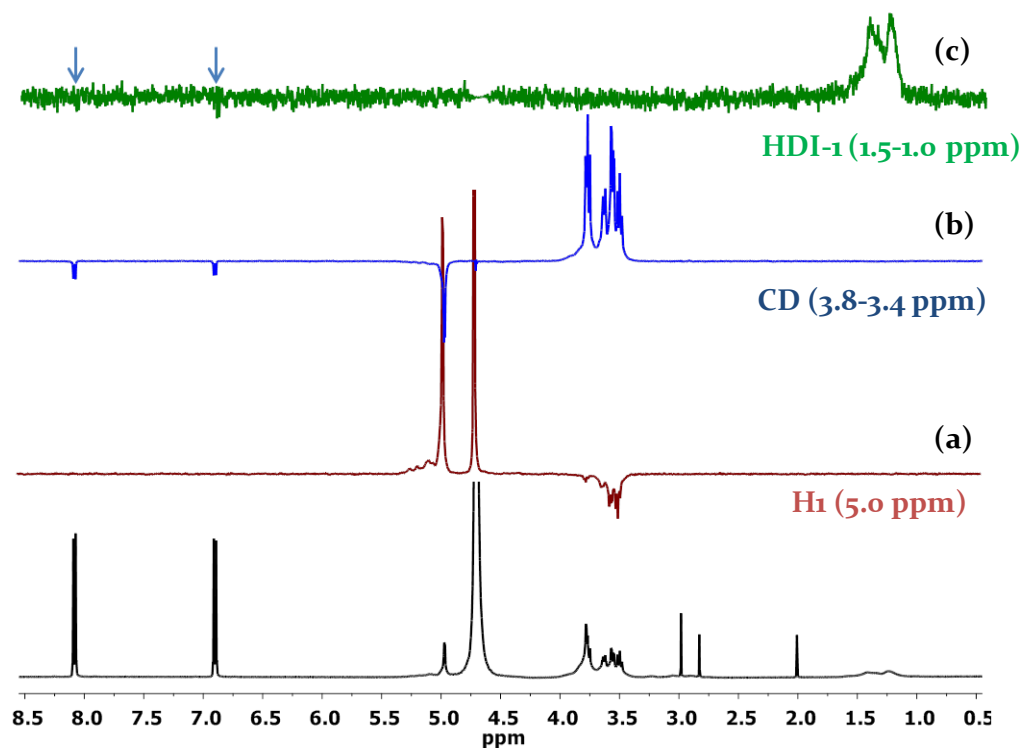
**Figure S1.** 2-D  $^1\text{H}$  COSY NMR Results of HDI-1 polymer showing connectivity of the protons of the HDI cross-linker.



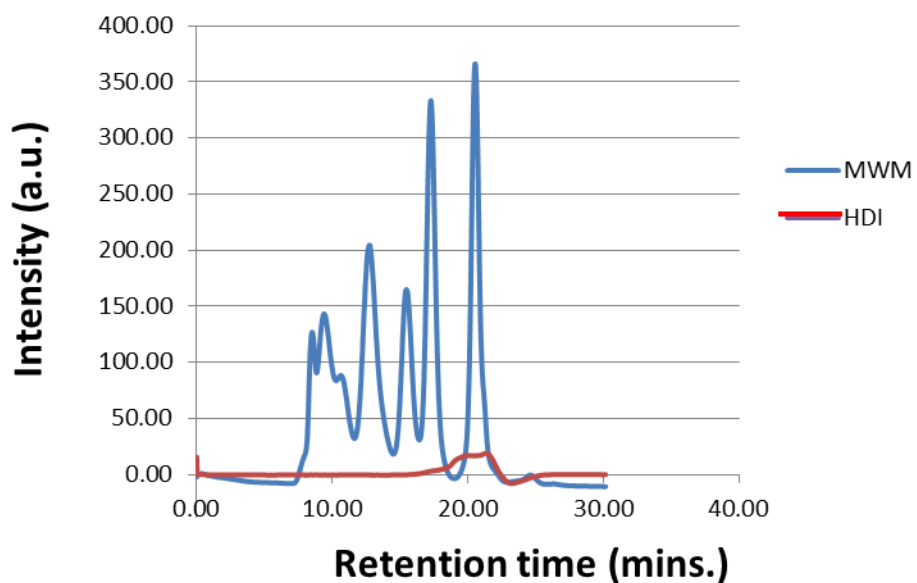
**Figure S2.** 1-D TOCSY NMR spectra for HDI-1 polymer.



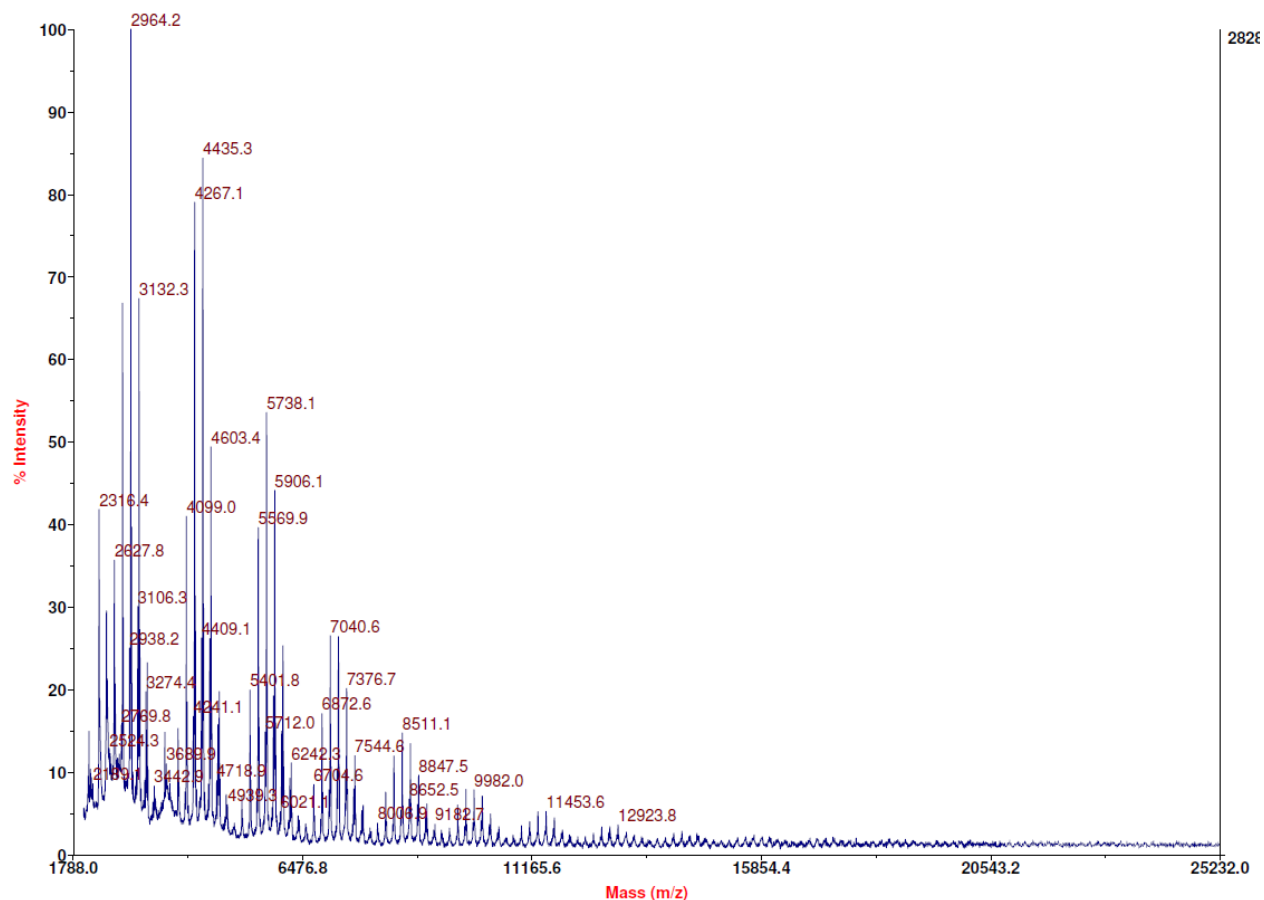
**Figure S3.** 1-D TOCSY NMR spectra for HDI-1 polymer. The <sup>1</sup>H nuclei of HDI cross-linker were irradiated.



**Figure S4.** 1-D selective gROESY results for 1:3 HDI-1/PNP system at 298 K, showing irradiation of (a) H<sub>1</sub> ~5.0 ppm, (b) β-CD nuclei ~3.8-3.4.0 ppm, (c) HDI-1 nuclei ~1.5-1.0 ppm.



**Fig. S5:** GPC results for HDI-1 (Red line) and Biorad molecular weight markers (Blue line: Biorad catalogue no. 151-1901) obtained using a Superdex200 10/300 GL column with an aqueous eluent containing tris buffer at pH 8.0 with 500 mM NaCl and 2 mM BME ( $\beta$ -mercaptoethanol) at 295 K. The estimated molecular weight of HDI-1 is 12,000 Daltons according to standard molecular weight markers.



**Fig. S6:** MALDI-TOF results for HDI-1 using a Voyager DE STR MALDI Mass Spectrometer operating in positive ion linear mode, calibrated with angiotensin 1 ( $m/z$  1,296.6853) where 2 mg of sample was placed in an Eppendorf sample tube and ground with a 200- $\mu$ L pipette tip with 50  $\mu$ L of 75% acetonitrile and 0.1% aqueous trifluoroacetic acid.