Electronic Supplementary Information

A straightforward approach for one-pot synthesis of noncovalently connected graft copolymers with unique self-assembly nanostructures

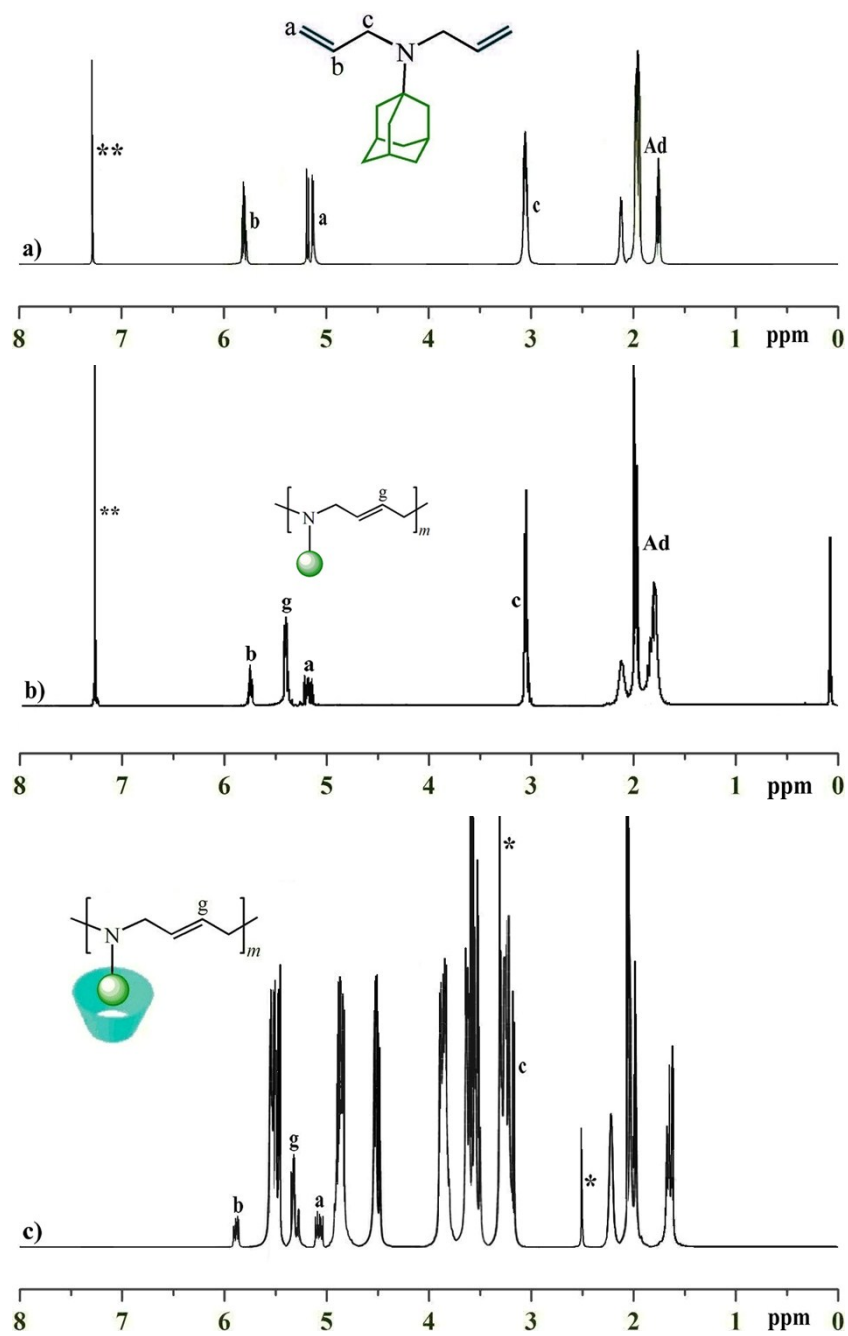Liang Ding,[*a] Wei Song,[*a] Ruiyu Jiang,[a] Lei Zhu[*b]

Fig. S1 ¹H NMR spectra for (a) Ad-diene monomer, **1a**, (b) linear polymer, **1a**, and (c) supramolecular graft copolymer, **1a**. (** CDCl₃, * DMSO-d_6 and H₂O)
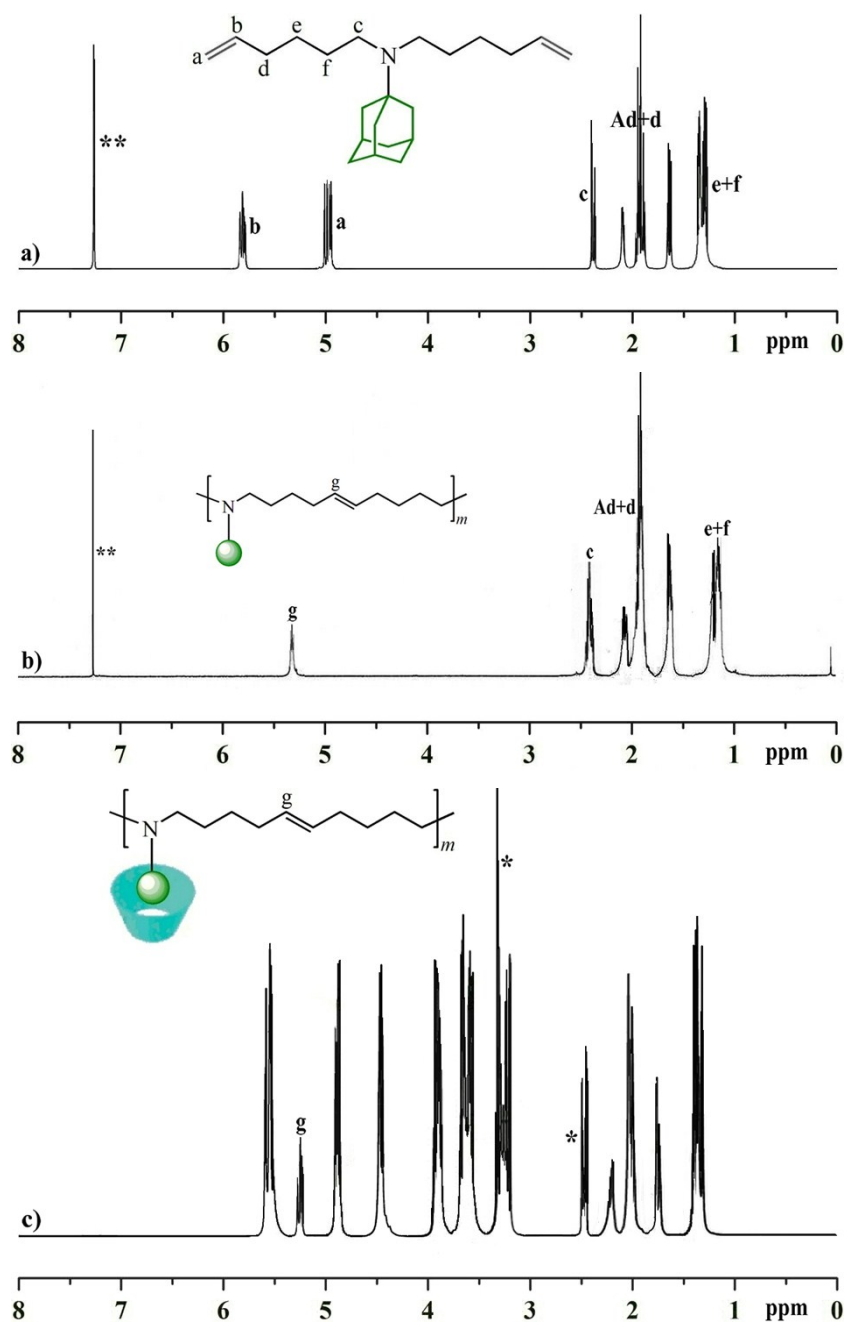
Fig. S2 ^{1}H NMR spectra for (a) Ad-diene monomer, **1b**, (b) linear polymer, **1b**, and (c) supramolecular graft copolymer, **1b**. (** CDCl$_3$, * DMSO-d_6 and H$_2$O)
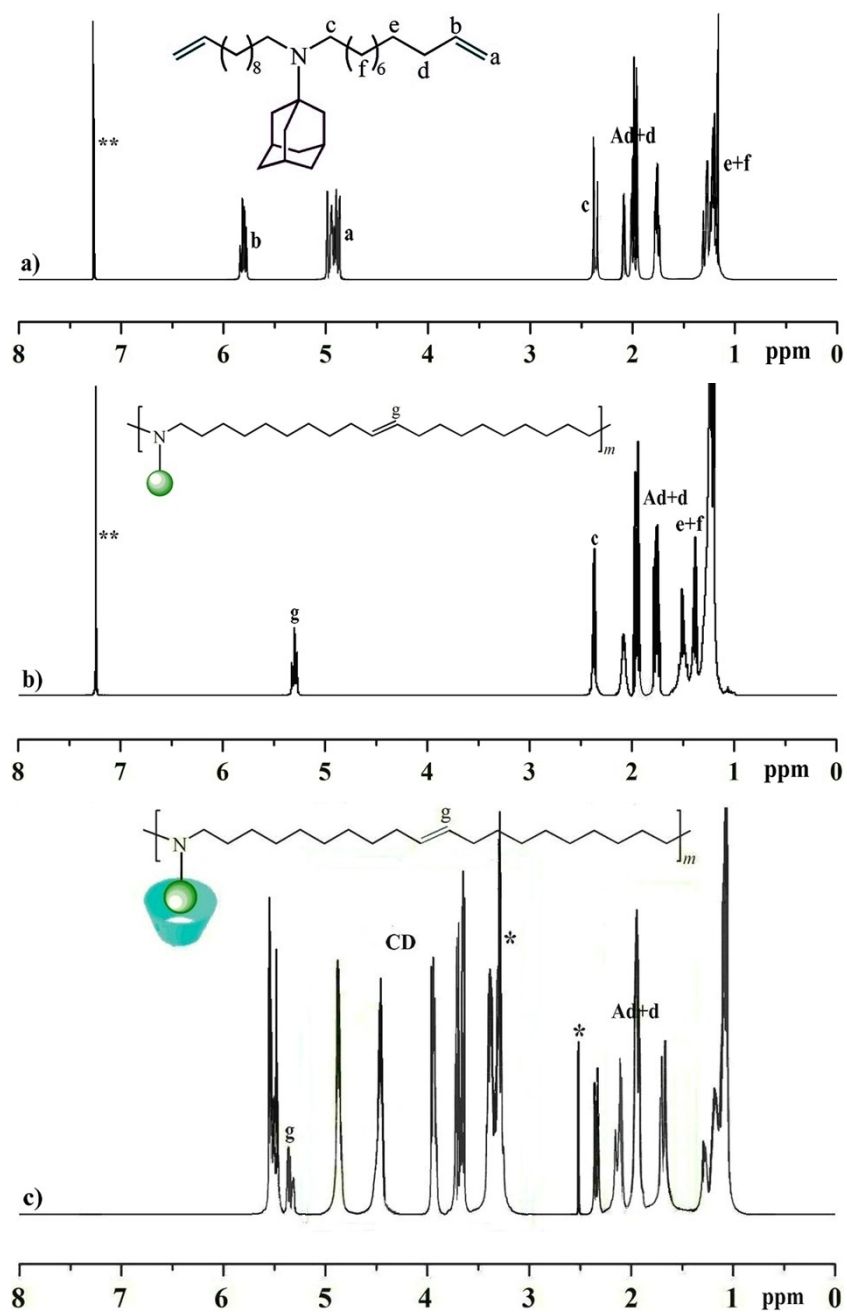
Fig. S3 ^{1}H NMR spectra for (a) Ad-diene monomer, **1c**, (b) linear polymer, **1c**, and (c) supramolecular graft copolymer, **1c**. (** CDCl$_3$, * DMSO-d_6 and H$_2$O)
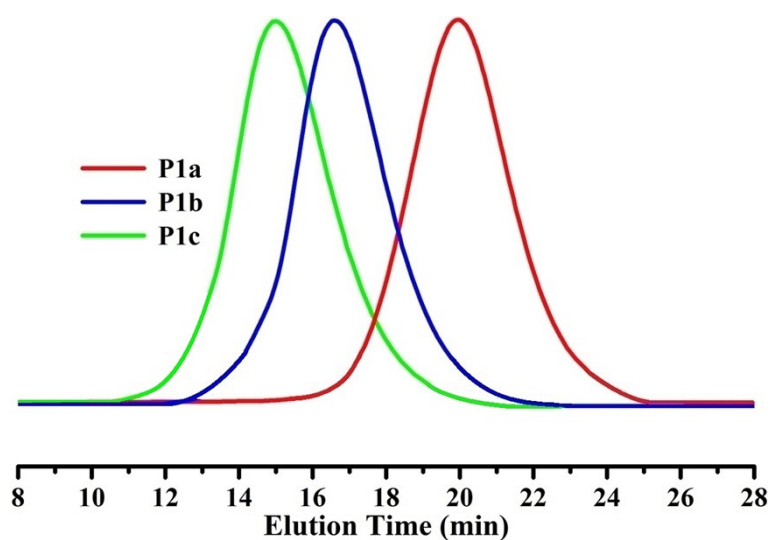
Fig. S4 GPC traces of the Polymers via ADMET polymerization of Ad-diene monomers using **C3** as catalyst.

Table S1 Conditions for ADMET polymerization of Ad-diene monomers and analytical data of the polymers[a]

Entry	Monomer	Catalyst	Yield (%)[b]	T (°C)	$M_{n,GPC}$[c]	M_w/M_n[c]
1	**1a**	**C1**	–	60	–	–
2	**1a**	**C2**	87	60	2100	2.05
3	**1a**	**C3**	84	60	1600	1.70
4	**1a**	**C3**	90	80	1800	1.88
5	**1b**	**C1**	84	60	4300	1.65
6	**1b**	**C2**	75	60	7200	1.83
7	**1b**	**C3**	86	60	5700	1.66
8	**1b**	**C3**	86	80	6100	1.75
9	**1c**	**C1**	89	60	7500	1.58
10	**1c**	**C2**	82	60	11200	1.82
11	**1c**	**C3**	93	60	9300	1.64
12	**1c**	**C3**	91	80	10100	1.79

[a] Polymerizations were conducted at 60–80 °C for 24 h using $[\mathbf{M/C}]_0 = 50:1$.

[b] Isolated yield after precipitation, and obtained gravimetrically from the dried polymer.
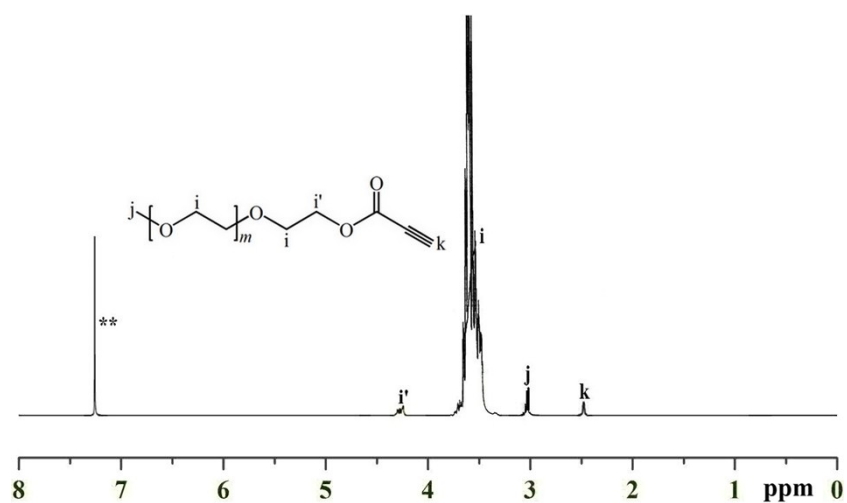
Fig. S5 ^{1}H NMR spectrum for alkyne-ended MPEG. (** CDCl$_3$)
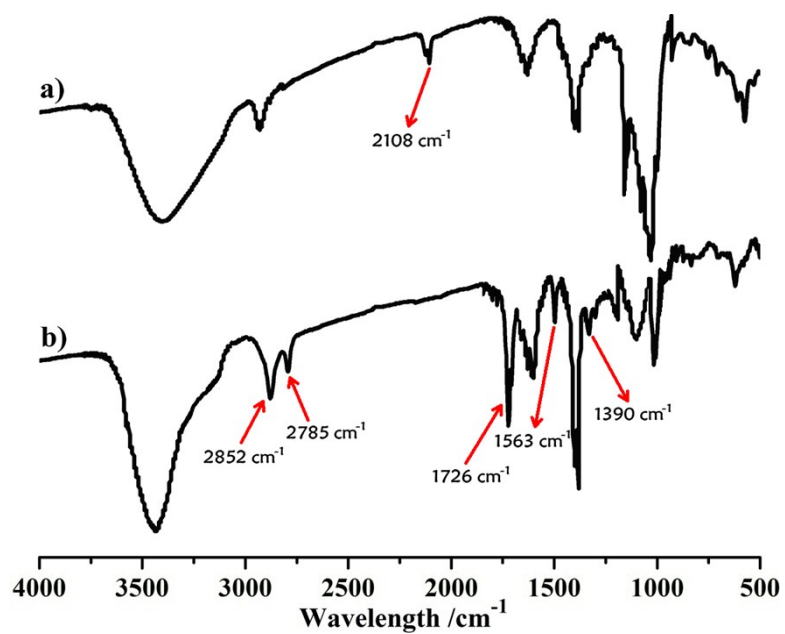

Fig. S6 ATR–IR spectra for (a) azide-modified β-CD and (b) MPEG-substituted β-CD.
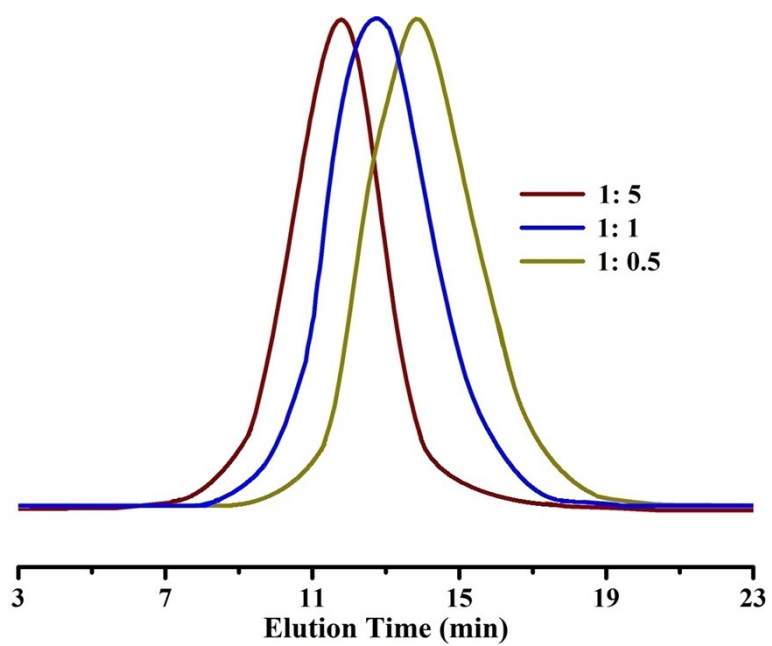
Fig. S7 GPC traces of supramolecular graft copolymer, **1c** by ADMET polymerization using different ratios of **M1c**/MPEG-β-CD.
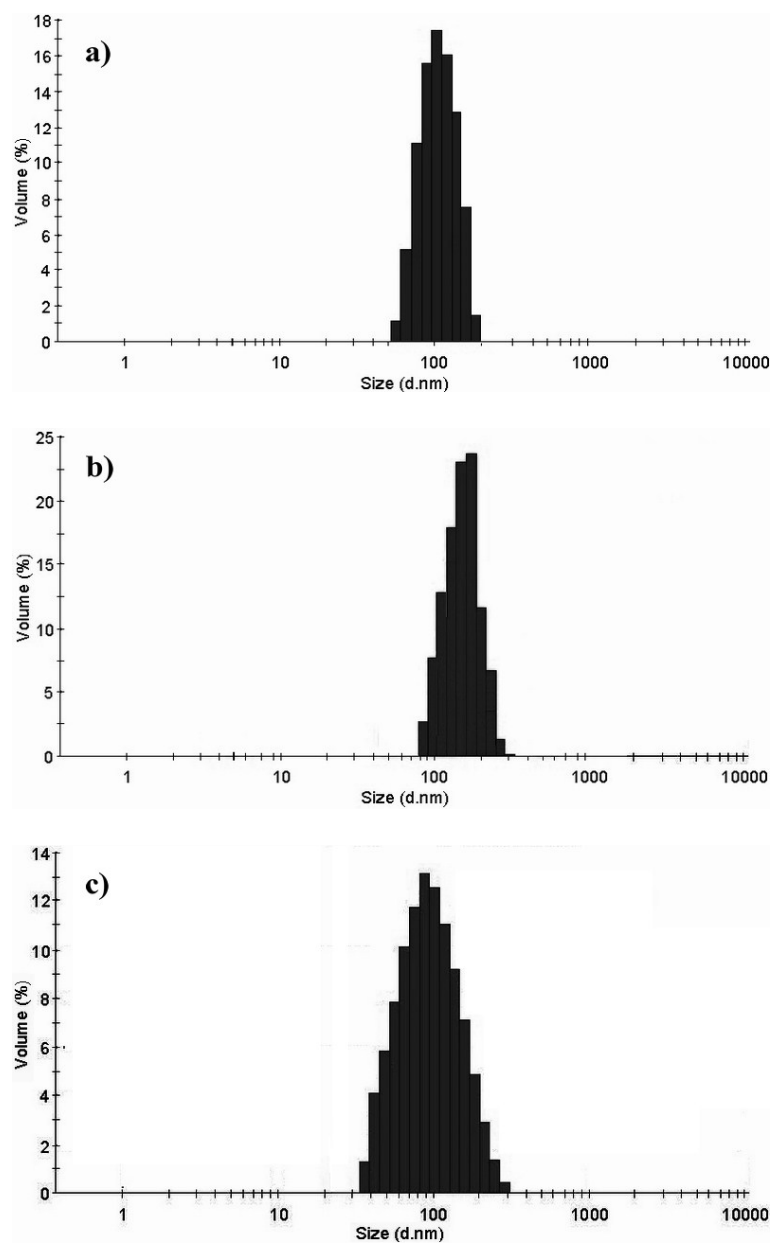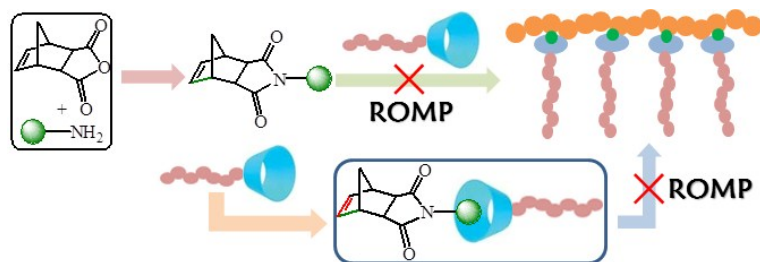
Fig. S8 Size and distribution of polymeric nanoparticles determined by means of DLS (a) **SG-P1a**, (b) **SG-P1c**, and (c) **L-P1c**.

Scheme S1   Schematic Illustration of Supramolecular Graft Copolymer via One-Pot ROMP and the Host–Guest Recognition.
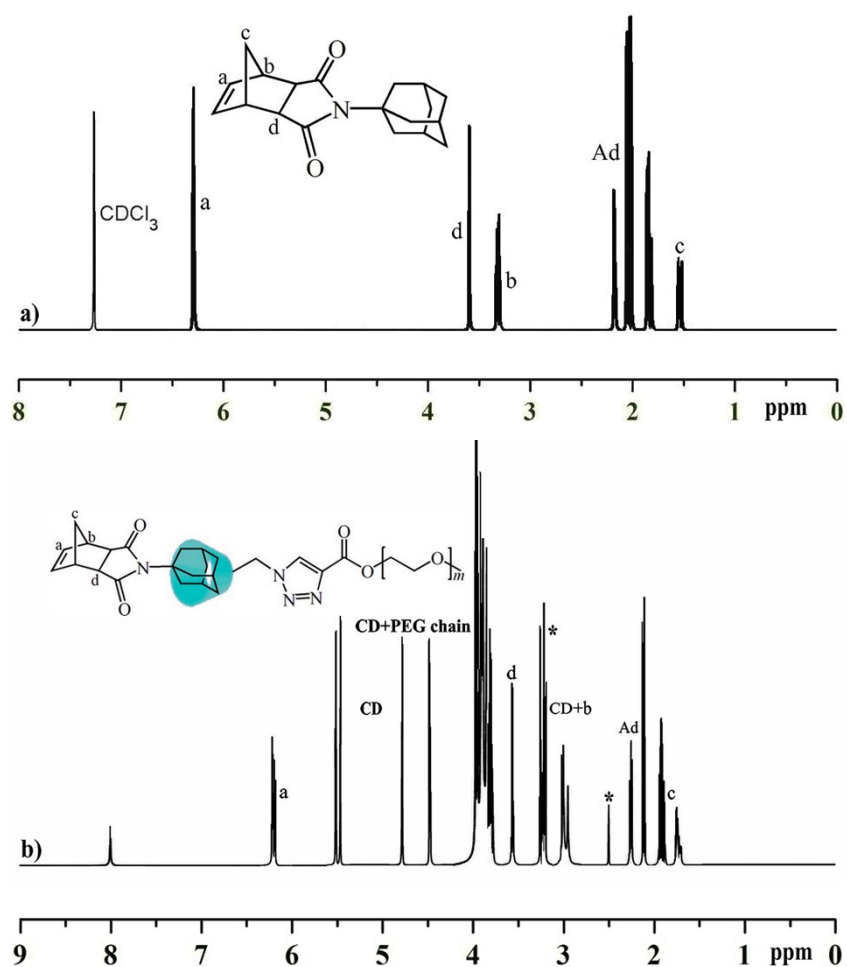

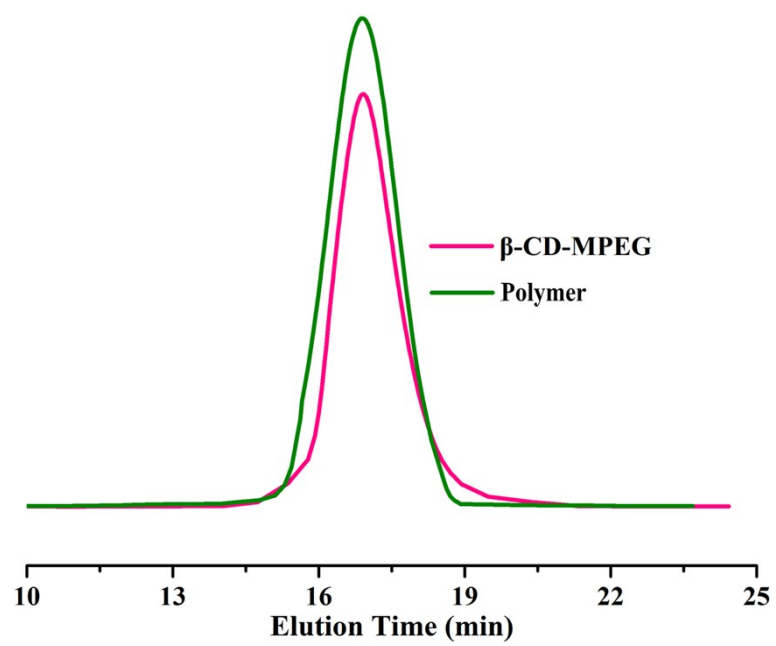**Fig. S9** ^{1}H NMR spectra for (a) Ad-ROMP monomer and (b) supramolecular macromonomer. (* DMSO-d_6 and H$_2$O)

Fig. S10 GPC traces of MPEG-β-CD and polymer obtained by ROMP.