SUPPORTING INFO

Photo-patternable 'Clickable' Hydrogels: 'Orthogonal' Control over Fabrication and Functionalization

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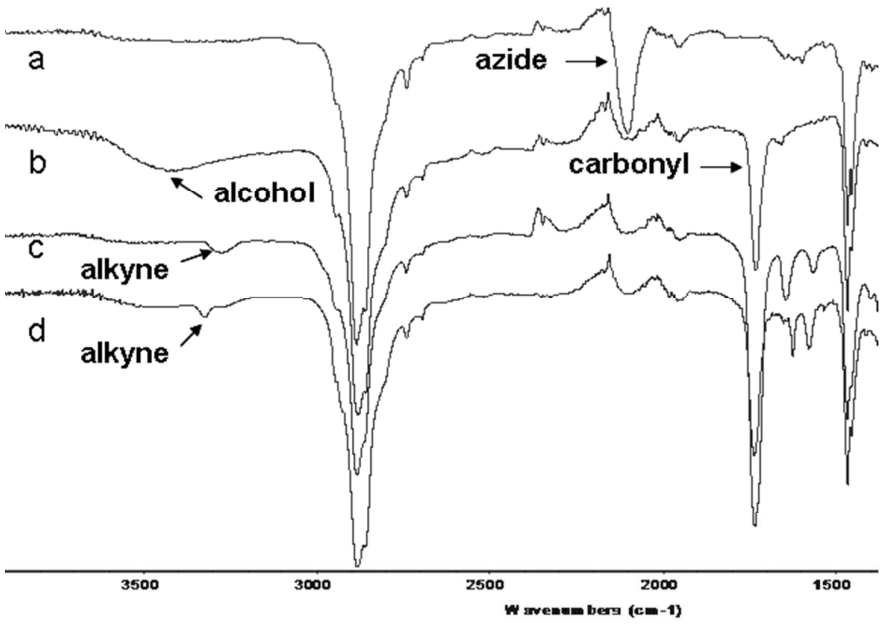

Figure S1. FTIR spectra of (a) PEG6K bisazide **5** (b) PEG-dendron copolymer **9** (c) Functionalized copolymer **16** (d) Functional **6KG3**$_{(1:1)}$ hydrogel

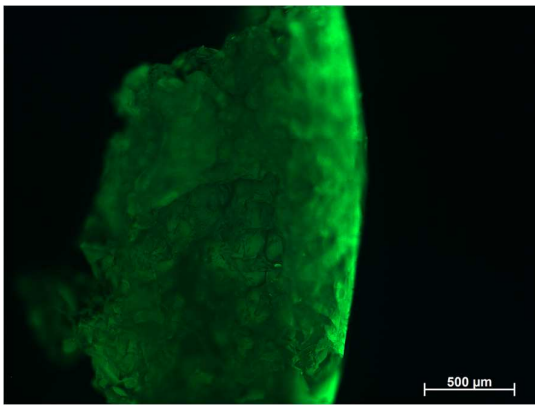

Figure S2. Representative fluorescence microscopy images of cross sectional profile of hydrogels after FITC-streptavidin functionalization.

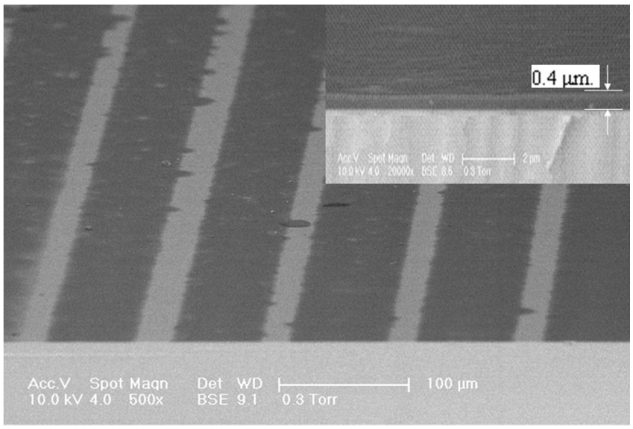

Figure S3. SEM images of patterned. hydrogel G36K $_{(1:1)}$ by PDMS molding

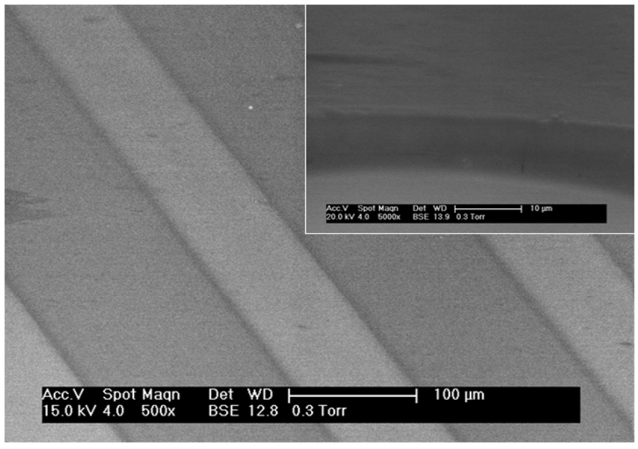

Figure S4. SEM images of patterned. hydrogel G36K $_{(1:1)}$ by photopatterning.

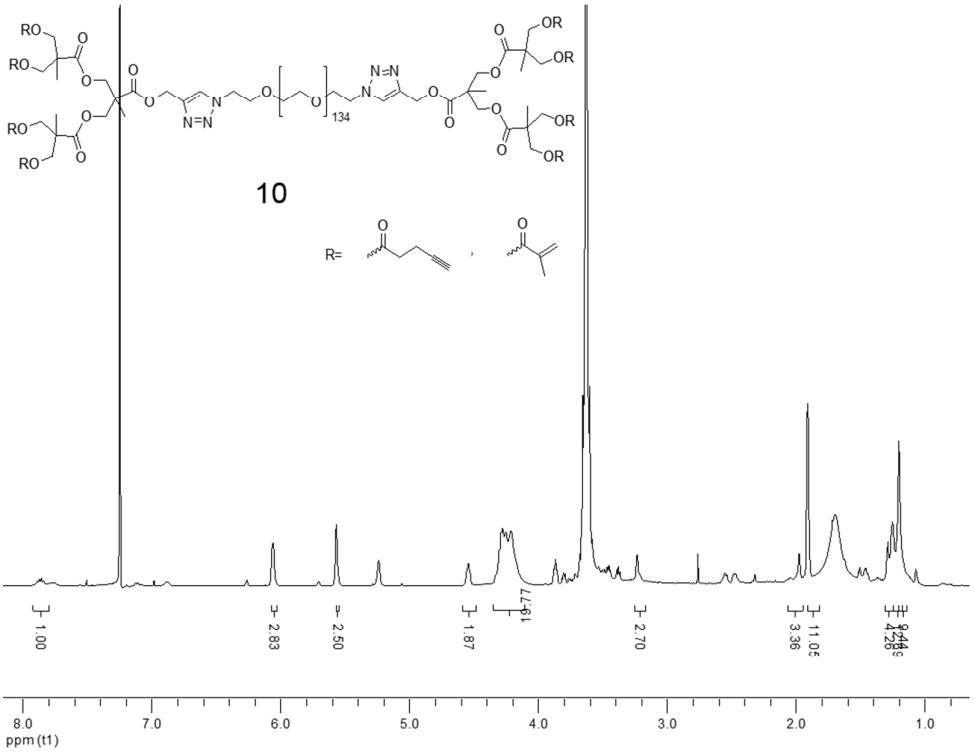

Figure S5. [1]H NMR spectrum of copolymer **10** *(alkene: alkyne = 2:1)*

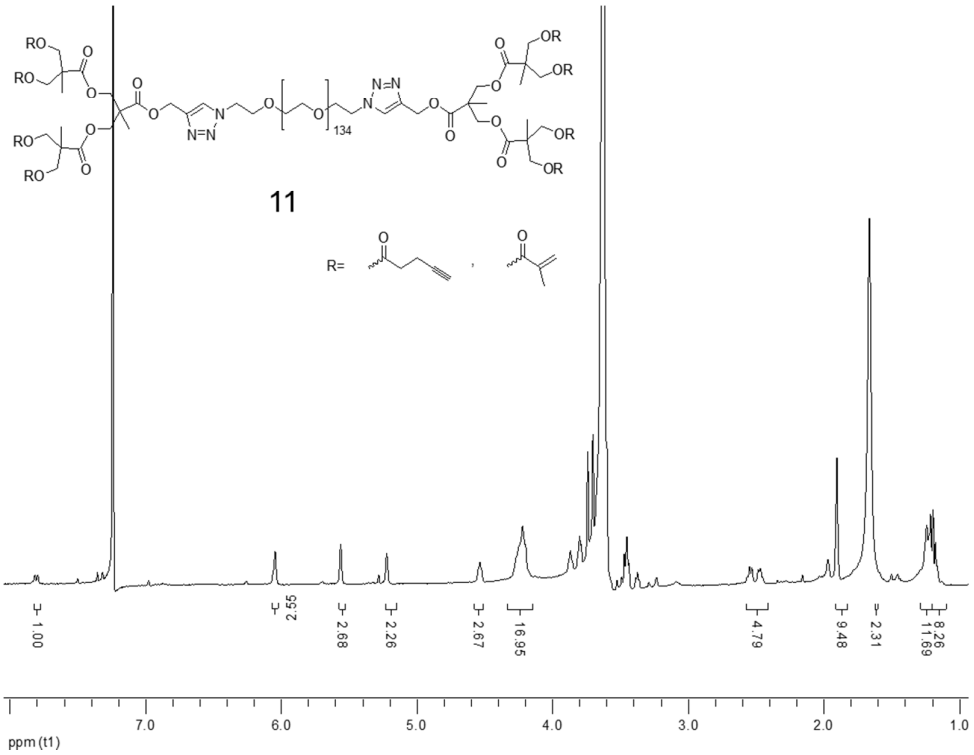

Figure S6. [1]H NMR spectrum of copolymer **11** *(alkene: alkyne = 1:1)*

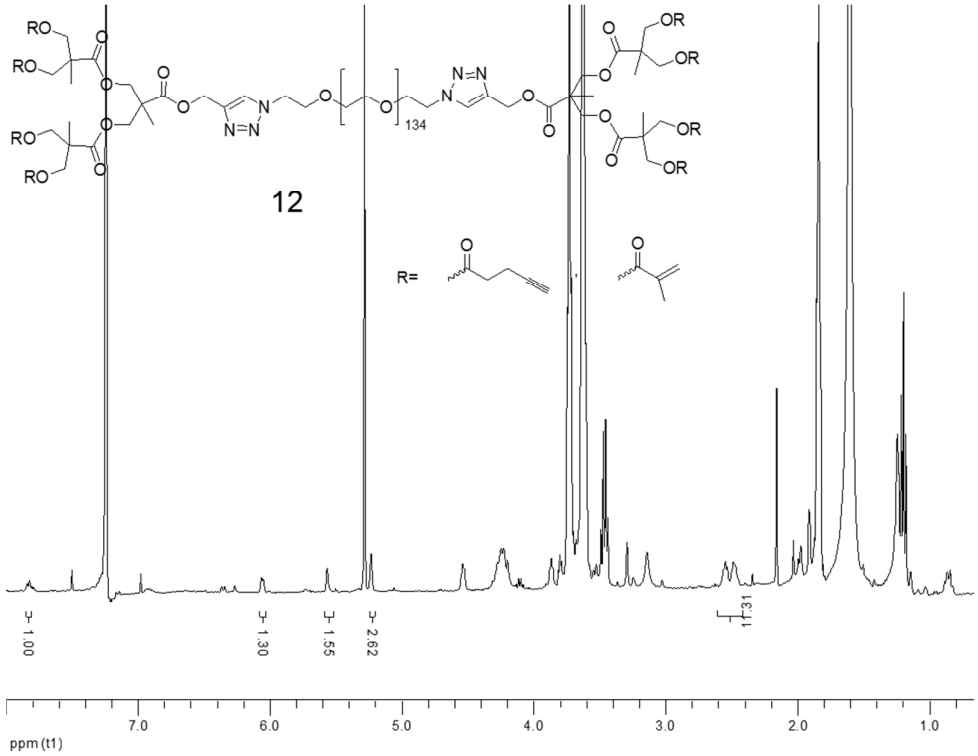

Figure S7. ^{1}H NMR spectrum of copolymer **12** *(alkene: alkyne = 1:2)*

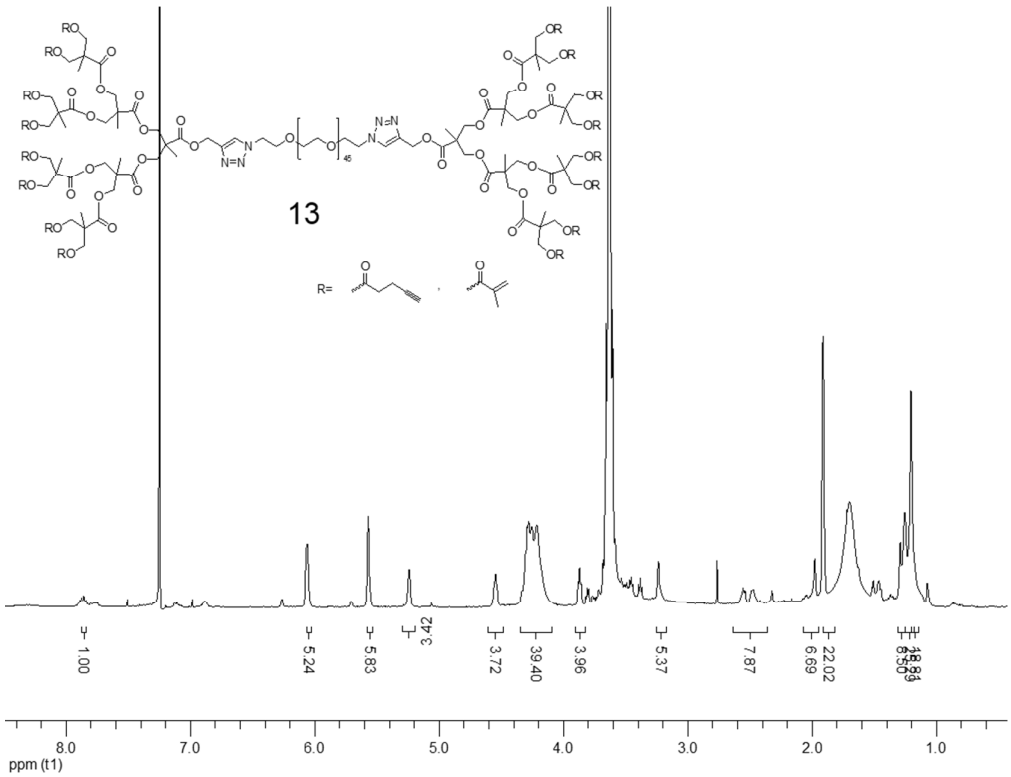

Figure S8. ^{1}H NMR spectrum of copolymer **13** *(alkene: alkyne = 1:1)*

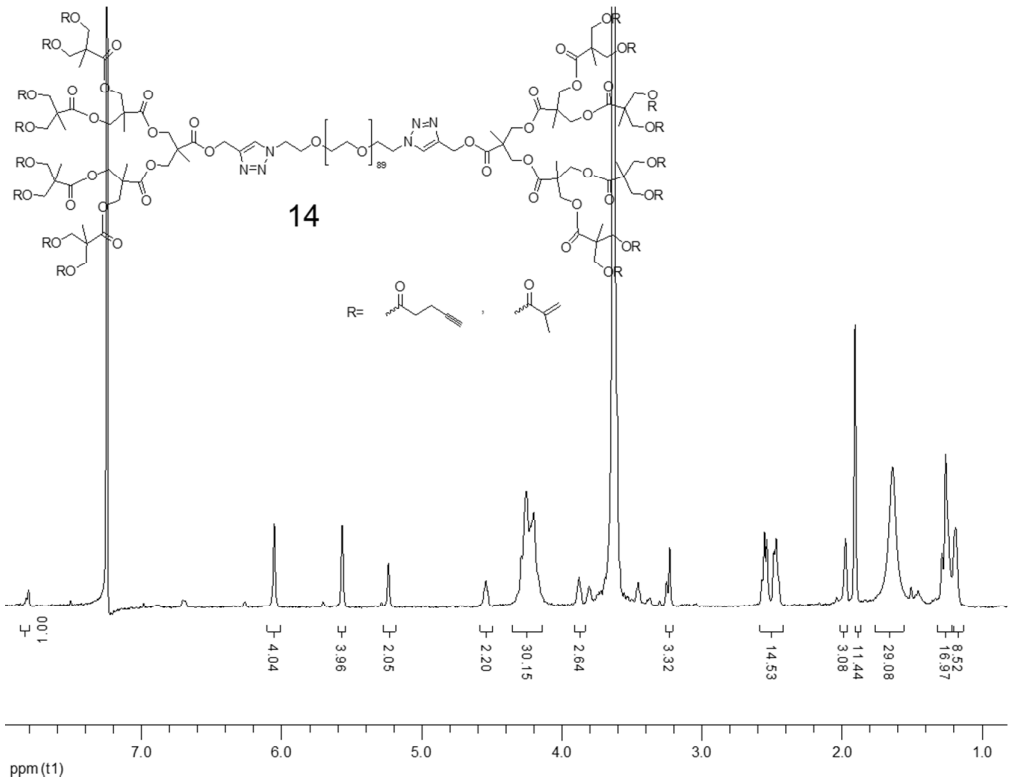

Figure S9. [1]H NMR spectrum of copolymer **14** *(alkene: alkyne = 1:1)*

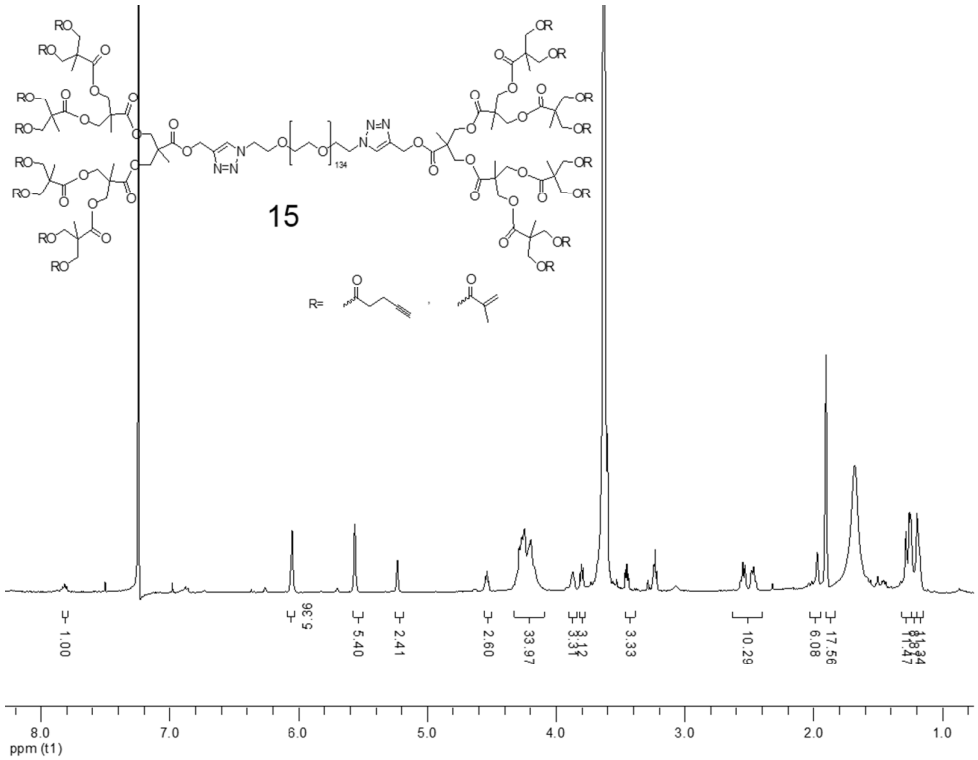

Figure S10. [1]H NMR spectrum of copolymer **15** *(alkene: alkyne = 2:1)*

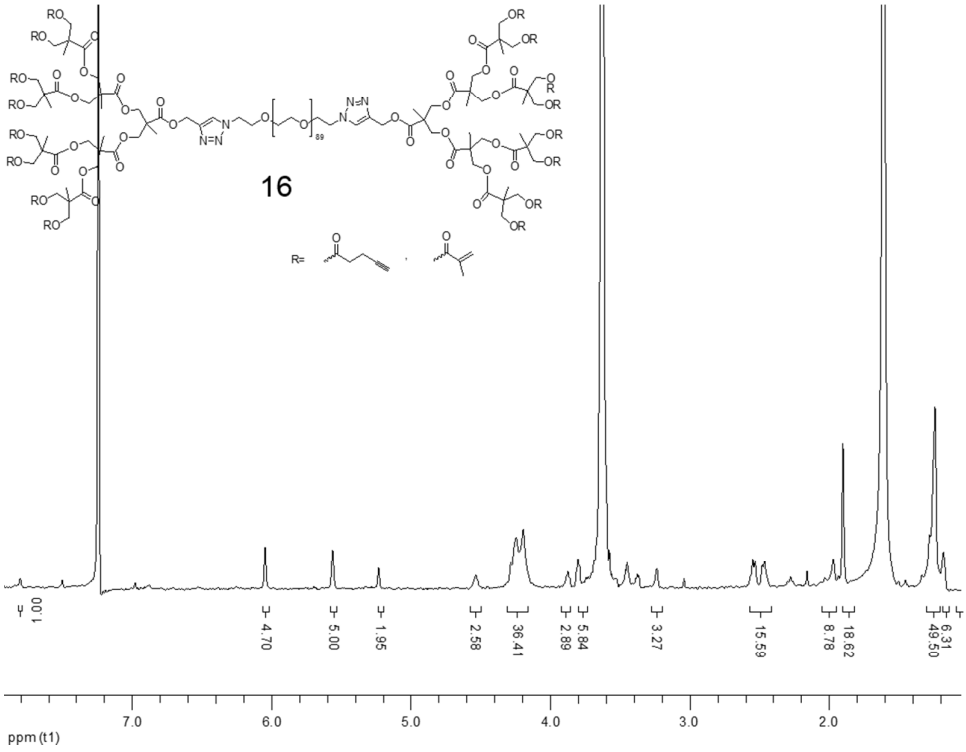

Figure S11. [1]H NMR spectrum of copolymer **16** *(alkene: alkyne = 1:1)*

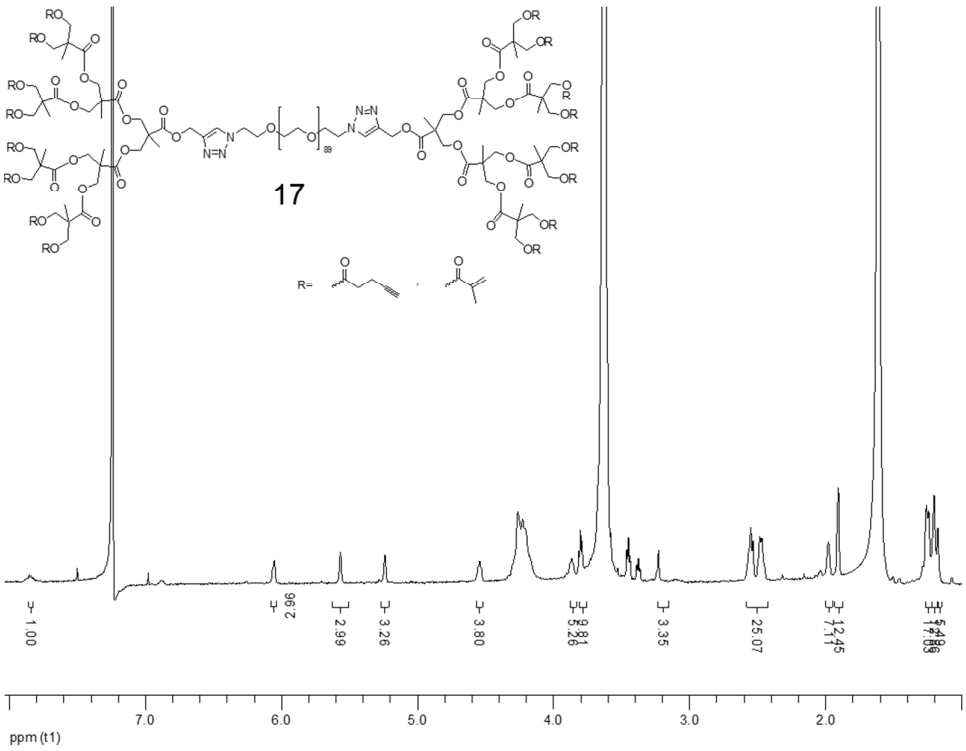

Figure S12. [1]H NMR spectrum of copolymer **17** *(alkene: alkyne = 1:2)*

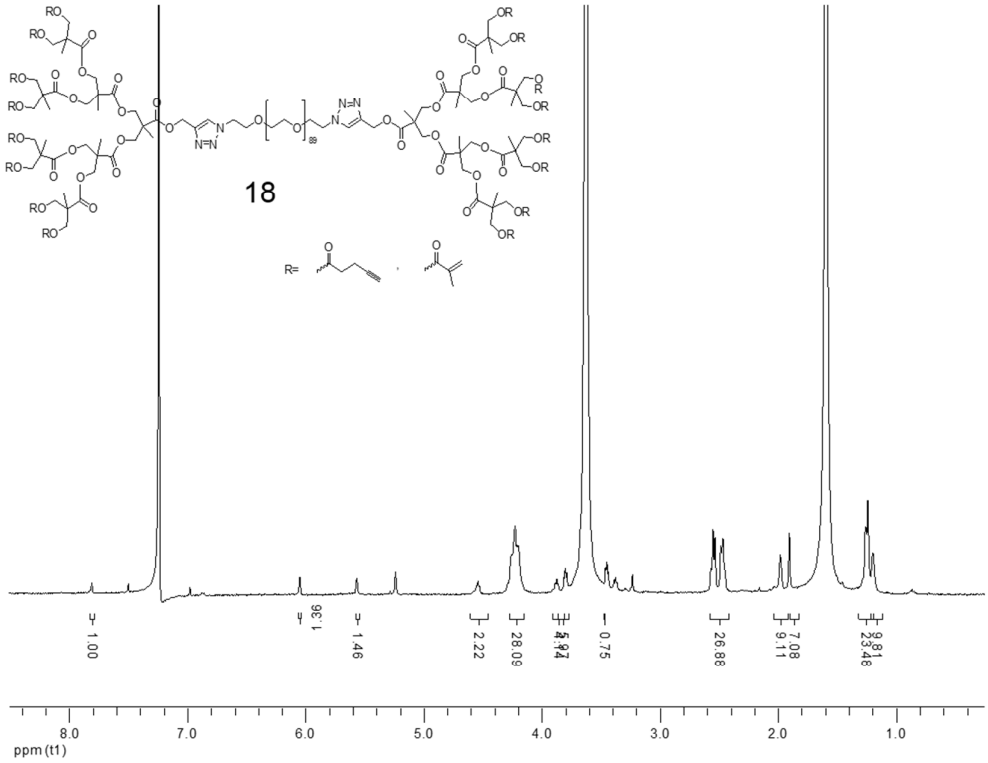

Figure S13. ^{1}H NMR spectrum of copolymer **18** *(alkene: alkyne = 1:3)*

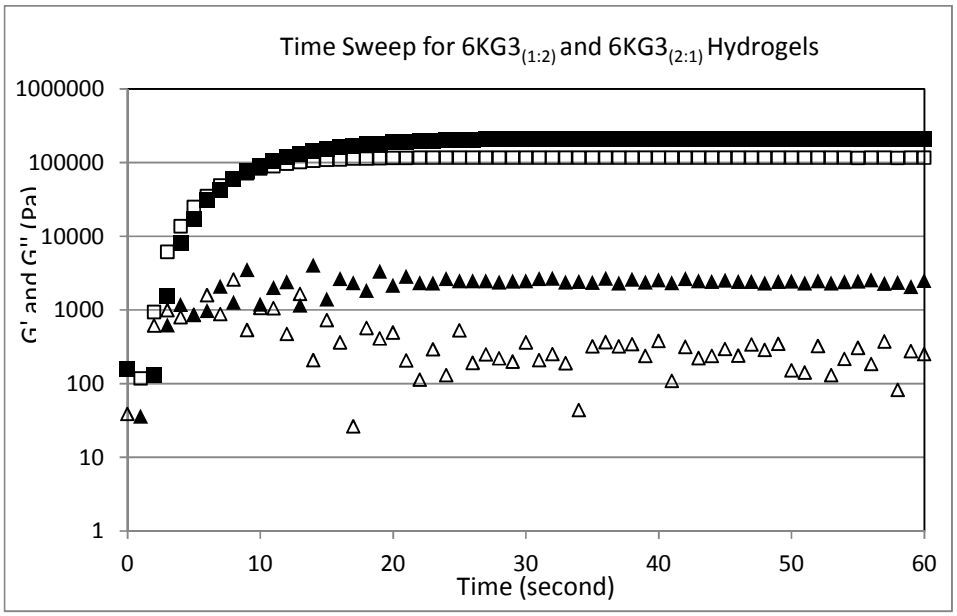

Figure S14: Evolution of moduli with gelation time for 6KG3(1:2) and 6KG3(2:1) Hydrogels. □ (G'), Δ (G") for 6KG3$_{(1:2)}$; ■ (G'), ▲ (G") for 6KG3$_{(2:1)}$ during gelation under UV light (4 watt).

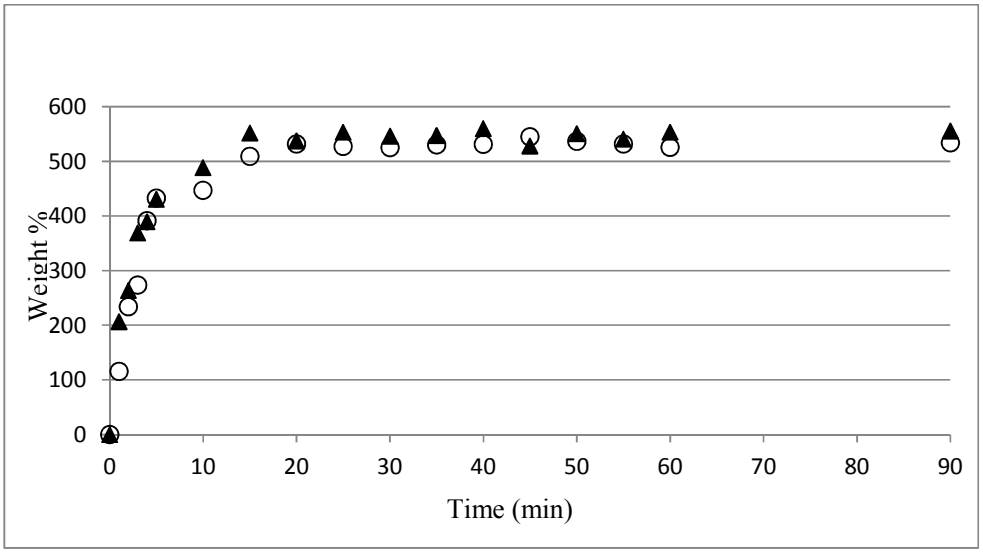

Figure S15. Water uptake comparison of hydrogels synthesized with or without NVP : (▲) **6KG3$_{(1:3)}$with NVP**, (○) **6KG3$_{(1:3)}$ without NVP**

Conversion of Biotin Azide Conjugation. N% ratios of all the hydrogel samples were measured by elemental analyzer before and after biotin azide conjugation. Obtained N% values of hydrogels before functionalization with biotin azide belongs to the triazole units between dendrons and PEG chain, and the N-atom of N-vinylpyrrolidone (NVP). The addition degrees of NVP to one dendron polymer dendron conjugate was found by comparing with theoretical N% values for each NVP addition. Obtained N% values of hydrogels after functionalization with biotin azide include also the newly formed triazole units and N-atoms of biotin. Biotin azide conversion values were found by comparison with theoretical N% values for each biotin azide conjugation to one dendron-polymer conjugate containing an NVP unit.

Table S1. Biotin-azide conversion and no. of N-atoms (from biotin-azide) after conjugation

	6KG3$_{(2:1)}$	**6KG3$_{(1:1)}$**	**6KG3$_{(1:2)}$**	**6KG3$_{(1:3)}$**
(N%) Before Biotin-N_3 Conjugation[a]	2.7660	2.7378	2.8816	2.7325
(N%) After Biotin-N_3 Conjugation[a]	4.9576	5.2948	5.9836	6.9956
No. of N atoms (from Biotin-N_3)	20	23	30	42
Biotin-N_3 Conjugation (%)	75.05	57.50	56.29	70.00

[a] measured using CHNS elemental analyzer.