Supporting Information

Poly(vinylcaprolactam)-based Biodegradable Multi-responsive Microgels for Drug Delivery

Yang Wang[a], *Jinshan Nie*[b], *Baisong Chang*[a], *Yangfei Sun*[c], *Wuli Yang*[a,]*

a State Key Laboratory of Molecular Engineering of Polymers and Department of Macromolecular Science, Fudan University, Shanghai 200433, P.R. China.

b Department of Gastroenterology, Taicang No.1 People Hospital, the Affiliated Hospital of Soochow University, Taicang 215400, Jiangsu Province, P.R. China.

c State Key Laboratory of Genetic Engineering and School of Life Sciences, Fudan University, Shanghai, 200433, China.

*E-mail: wlyang@fudan.edu.cn (W. L. Yang)

Table S1. The reproducibility recipes and colloidal data of microgels

Sample	D_h (nm)			PI		
	No1	No2	No3	No1	No2	No3
P(VCL-s-s-MAA-0[a])	125	129	120	0.04	0.06	0.03
P(VCL-s-s-MAA-1)	135	140	132	0.07	0.06	0.08
P(VCL-s-s-MAA-2)	177	168	173	0.07	0.01	0.04
P(VCL-s-s-MAA-3)	237	246	240	0.08	0.05	0.03
P(VCL-s-s-MAA-4)	281	283	290	0.06	0.05	0.04
P(VCL-s-s-MAA-3)-PEG[b]	202	195	210	0.04	0.06	0.05

[a] weight ratio of MAA in respect to sum of MAA and VCL.

[b] 10 mg of PEGMA was used in the recipe.

[c] The hydrodynamic diameter (D_h) was determined in phosphate buffer of 7.4 at 25 ^oC by DLS.

[d] PI, polydispersity index of the particle size, PI= $\langle \mu^2 \rangle / \Gamma^2$.

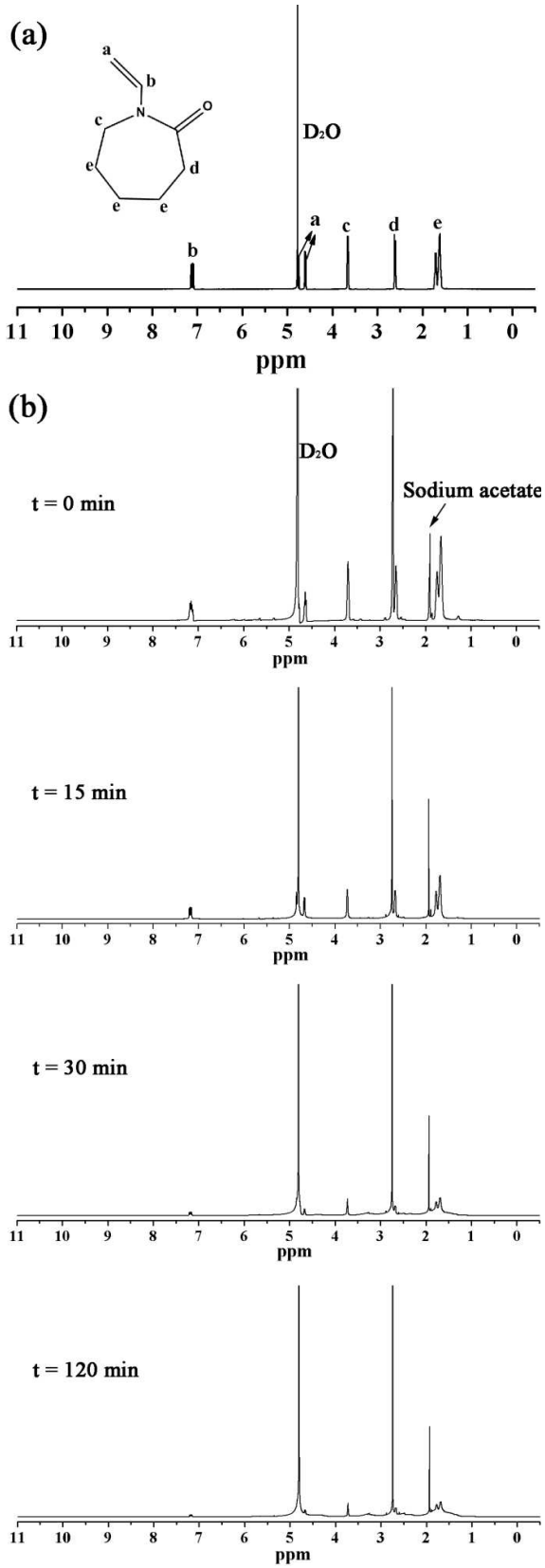

Figure S1 ^{1}H NMR spectrum of VCL in D_2O (a) and ^{1}H NMR spectra corresponding to the samples withdrawn in reaction of P(VCL-*s*-*s*-MAA-3) (b) at different reaction time.

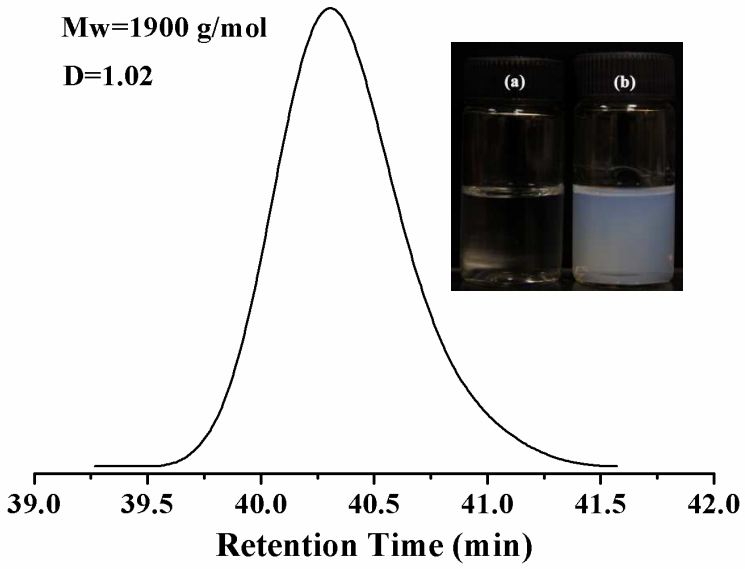

Figure S2 The molecular weight of copolymer poly (VCL-*co*-MAA) by GPC measurement and the appearance of the resulting copolymer at low temperature (insert right (a)) and high temperature (insert right (b)).