Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary information

Fig. S1 ^{1}H NMR spectra of P(HEMA) (a), P(HEMA-b-NIPAM) (b) and R-P(HEMA-b-NIPAM) (c). The hydrogen of benzene can be identified at 8.0~7.5 ppm region. The hydroxy group of HEMA can be identified at 4.8 ppm. The two neighbouring methylene groups of HEMA can be identified at 3.8 and 3.6 ppm. The methyl group of HEMA can be identified at 0.9~0.7 ppm region. The NH can be identified at 7.7 ppm. The CH of isopropyl of NIPAM can be identified at 4.2 ppm. The methylene group of NIPAM can be identified at 1.6 ppm. And the two methyl groups can be identified at 1.2 ppm. For (c), the disappearance of 8.0~7.5 ppm region indicates that the S-S of CPADB in P(HEMA-b-NIPAM) was reduced to mercapto group.

Fig. S2 ^{1}H NMR spectra of P(PEGMA-co-NIPAM) (a) and R-P(PEGMA-co-NIPAM) (b). The hydrogen of benzene can be identified at 8.0~7.5 ppm region. The $-OCH_2CH_2O-$ group of PEGMA can be identified at 3.7 ppm. The two methyl groups of PEGMA can be identified at 1.4 ppm and 3.3 ppm respectively. The NH can be identified at 7.7 ppm. The CH of isopropyl of NIPAM can be identified at 4.2 ppm. The methylene group of NIPAM can be identified at 1.6 ppm. And the two methyl groups can be identified at 1.2 ppm. For (b), the disappearance of 7.5~8.0 ppm region indicates that the S-S of CPADB residue in P(PEGMA-co-NIPAM) was reduced to mercapto group.

Fig. S3 Fluorescence images of green fluorescence positive AD-293 cells transfected with PEI/P(HEMA-b-NIPAM)-1/pDNA at N/P=10 (a), PEI/P(HEMA-b-NIPAM)-3/pDNA at N/P=10 (b), PEI/P(PEGMA-co-NIPAM)-1/pDNA at N/P=10 (c) and PEI/P(PEGMA-co-NIPAM)-3/pDNA at N/P=10 (d). The magnification is 200. “1” and “3” represented the multiple of the weight of P(HEMA-b-NIPAM) or P(PEGMA-co-NIPAM) to that of PEI.

Fig. S4 Agarose gel retardation assay and DNase protection assay of PEI/P(HEMA-b-NIPAM)/pDNA complexes. The symbols (+) and (-) represent samples treated with or without DNase enzyme respectively.

Fig. S5 Cell uptake fluorescence images of FITC-PEI/pDNA at N/P=10 (a), (b) and FITC-PEI/P(HEMA-b-NIPAM)-3/pDNA at N/P=10 (c), (d); The magnification is 300×; (a), (c) are at green and blue light merged field, (b), (d) are at blue light field.

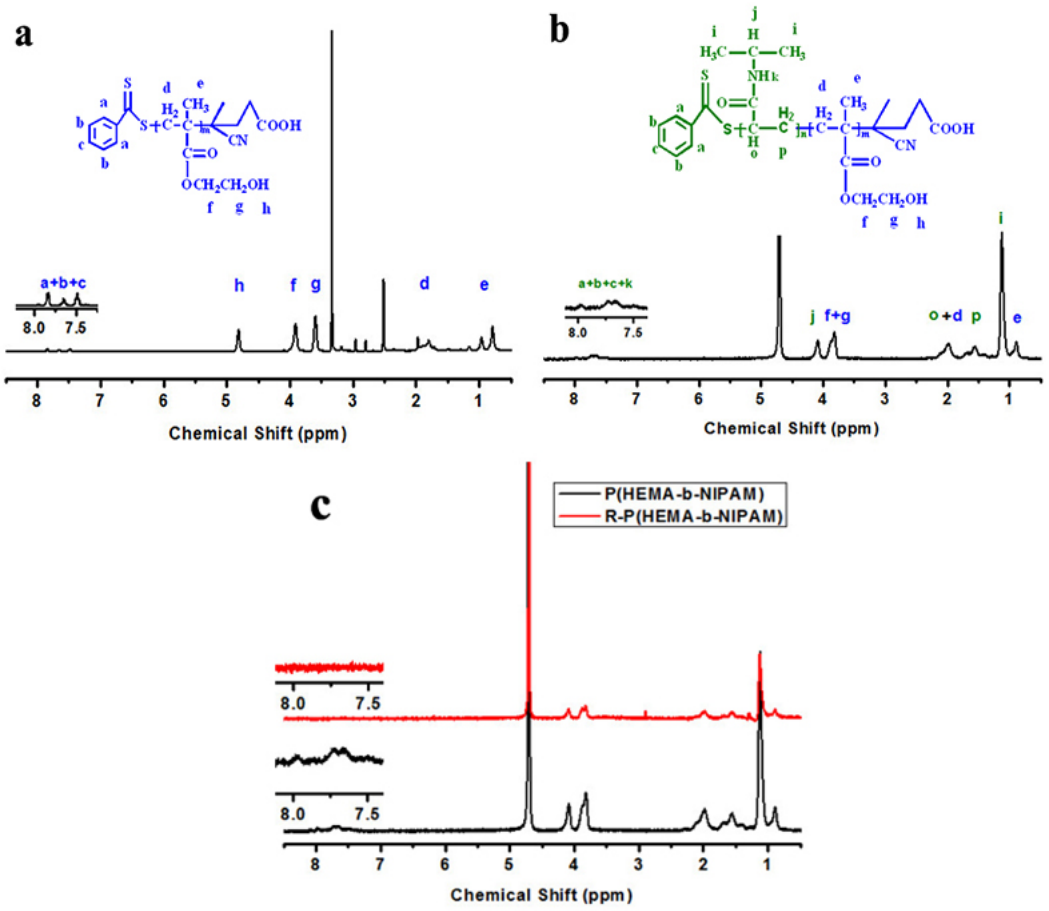

Fig. S1

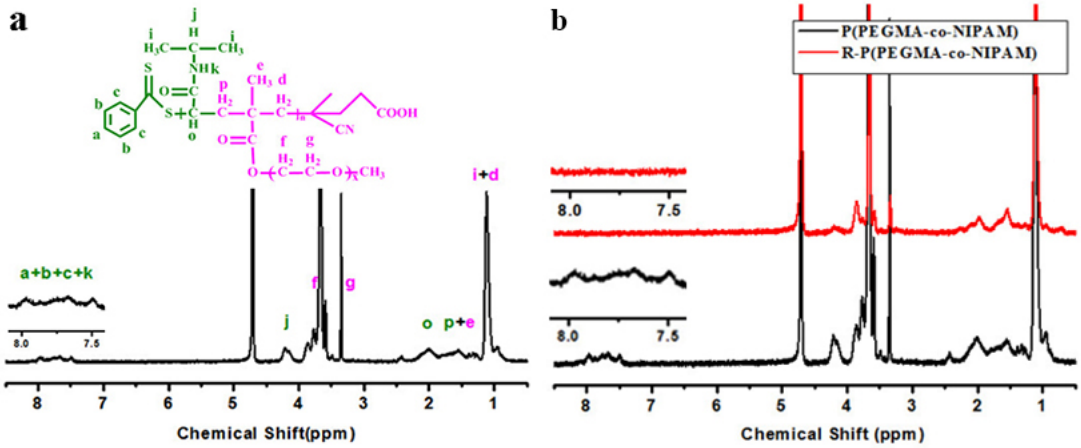
a
a+b+c+k
8.0
7.5
j
f
g
o
p+e
i+d
8
7
6
5
4
3
2
1
Chemical Shift(ppm)
b
P(PEGMA-co-NIPAM)
R-P(PEGMA-co-NIPAM)
8.0
7.5
8.0
7.5
8
7
6
5
4
3
2
1
Chemical Shift (ppm)

Fig. S2

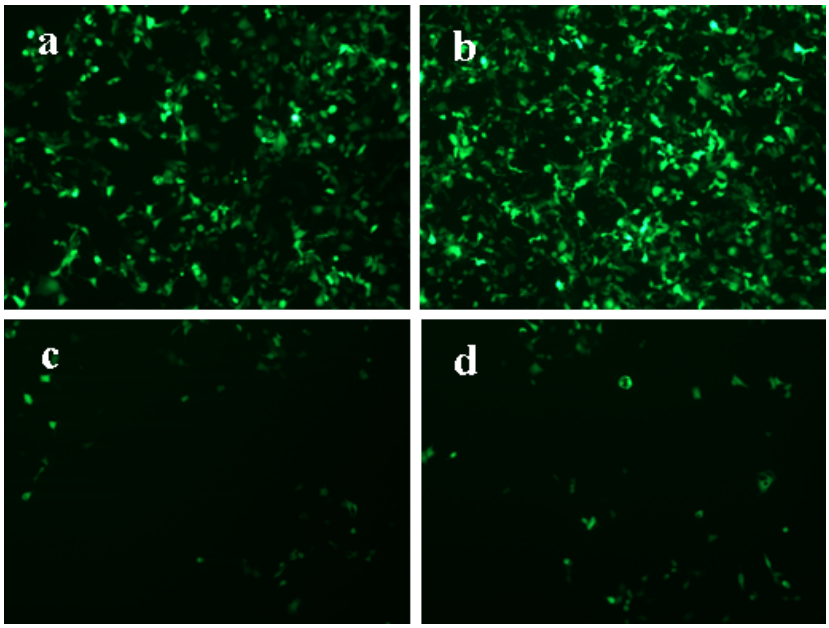

Fig. S3

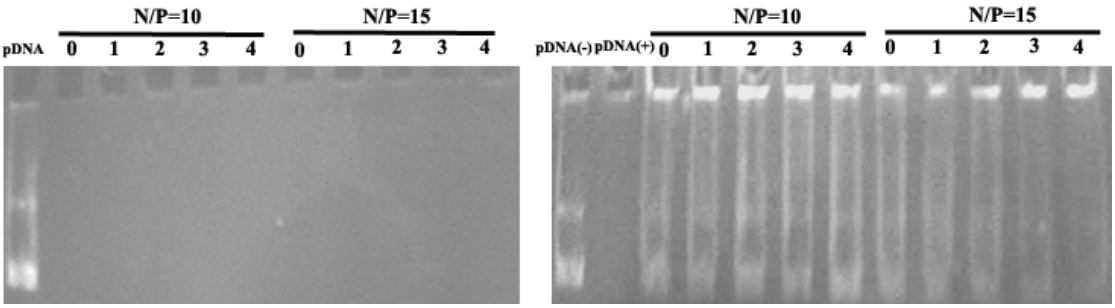

Fig. S4

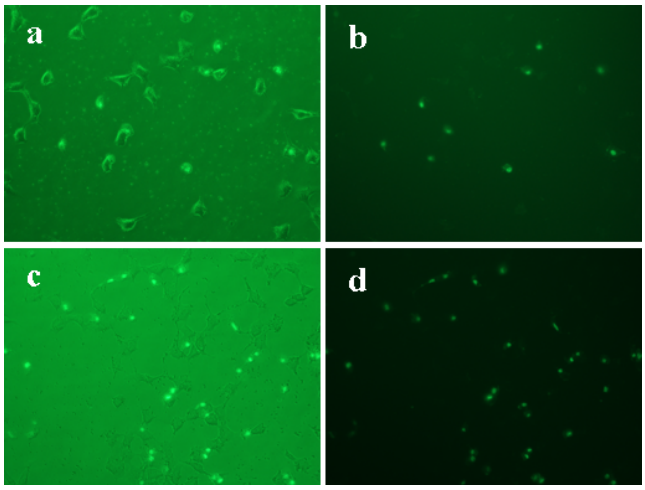

Fig. S5