## Supporting Information

**Determination of composition of P(VCL-t-BOCAPMA) copolymers by FT-IR technique.** To characterize copolymer composition with FT-IR technique, we have synthesized homopolymers of VCL and t-BOCAPMA – PVCL and P(t-BOCAPMA), respectively. Figure 1S shows that PVCL has a strong adsorption band at 1633 $cm^{-1}$ associated with the stretching vibration of the carbonyl group in VCL ring, while in the spectrum of P(t-BOCAPMA), there are two overlapping peaks at 1689 and 1638 $cm^{-1}$ (peaks 1 and 2, respectively) associated with two types of carbonyl groups of t-BOC and of methacrylamide groups, respectively. To separate the overlapping peaks 1 and 2 of P(t-BOCAPMA), as well as to separate absorbances of P(t-BOCAPMA)/PVCL mixtures in region 1 and 2, we have applied curve-fitting using GRAMS Spectroscopy software. For the P(t-BOCAPMA) homopolymer, the ratio of integral intensities of the peaks centered at 1689 $cm^{-1}$ and 1638 $cm^{-1}$ (peaks 1 and 2, respectively) was found to be $A_2/A_1 = 0.8$. For mixtures of P(t-BOCAPMA) and PVCL with known compositions, the ratio of extinction coefficients in region 2, $R_e$, was calculated from the following equation:

$$R_e = \frac{f_{P(t-BOCAPMA)}(A_{\Sigma 2} - 0.8A_1)}{A_1(1 - f_{P(t-BOCAPMA)})} \qquad (1)$$

where $A_1$ and $A_{\Sigma 2}$ are total integral absorbances of P(t-BOCAPMA)/PVCL mixtures in regions 1 and 2, respectively, and ($f_{\text{P(t-BOCAPMA)}}$ is a molar fraction in repeating units of P(t-BOCAPMA) in the mixture.

The $R_e$ value was found to be 1.46. This value was then used to calculate the unknown fraction $f$ of t-BOCAPMA monomer units in P(VCL-t-BOCAPMA) copolymers:

$$f = \frac{1.46A_1}{A_{\Sigma 2} + 0.66A_1} \qquad (2)$$

**Fig. S1.** FT-IR spectra of P(t-BOCAPMA) (top) and PVCL (bottom) homopolymers.

**Determination of composition of P(VCL-t-BOCAPMA) copolymers by H$^1$ NMR.** Figure S2 shows the NMR spectrum of one of P(VCL-t-BOCAPMA) copolymers (i.e. that containing 9% of t-BOCAPMA units as determined by FT-IR), before (a) and after (b) hydrolysis of a t-BOC protective group. From the change in the integral intensity ($\Delta I_a$) in the region of 1-2 ppm, the fraction of t-BOC-containing units in the P(VCL-t-BOCAPMA) copolymers was calculated as follows:

$$f = \frac{\Delta I_a / 9}{\Delta I_a / 9 + \Delta I_d} \qquad (3)$$

where $\Delta I_a$ is the integral intensity in the area of 1-2 ppm, and $\Delta I_d$ is the integral intensity in the area of 4-5 ppm associated with –C***H***-N protons in the PVCL ring (Fig. 2S, d). Significantly, FT-IR and NMR techniques gave consistent results. The estimated amount of amino-containing groups in the hydrolyzed P(VCL-t-BOCAPMA) copolymer shown in Fig. S2 was 8.5%, while FT-IR analysis yielded 9%.

As seen in Fig. S3, the 1694 cm$^{-1}$ peak associated with t-BOC carbonyl groups (-NH-C=O) present in the P(VCL-t-BOCAPMA-9) copolymer (A), disappeared after acidic hydrolysis of the copolymer (B), confirming complete removal of t-BOC groups.

**Fig. S2.** H$^1$ NMR spectra of P(VCL-t-BOCAPMA-9) (A) and PVCL-co-NH$_2$-9 (B), copolymers in CDCl$_3$.

**Figure S3.** FT-IR spectra of P(VCL-t-BOCAPMA-9) (top) and PVCL-co-NH$_2$-9 (bottom) copolymers.

**GPC analysis of PVCL-co-NH$_2$-X copolymers**. GPC analysis of the PVCL-co-NH$_2$-X copolymers revealed bimodal molecular weight distribution, probably caused by locally high concentrations of t-BOCAPMA resulting from drop-wise addition of the monomer. Table 1 summarizes data on synthesis and characterization of the PVCL-co-NH$_2$-X copolymers.

**Table 1.** Percentage of amino-containing units and molecular weights of the synthesized PVCL-co-NH$_2$ copolymers.

| Copolymer | % of NH$_2$ units | | Molecular mass, GPC | |
|---|---|---|---|---|
| | NMR | FT-IR | Peak 1 | Peak 2 |
| PVCL-co-NH$_2$-5 | 4.5 | 5 | $M_w$ 367 kDa<br>$M_n$ 360 kDa | $M_w$ 202 kDa<br>$M_n$ 200 kDa |
| PVCL-co-NH$_2$-9 | 8.5 | 9 | $M_w$ 375 kDa<br>$M_n$ 370 kDa | $M_w$ 206 kDa<br>$M_n$ 203 kDa |
| PVCL-co-NH$_2$-20 | 19 | 20 | $M_w$ 381 kDa<br>$M_n$ 376 kDa | $M_w$ 210 kDa<br>$M_n$ 204 kDa |

Fig. S1

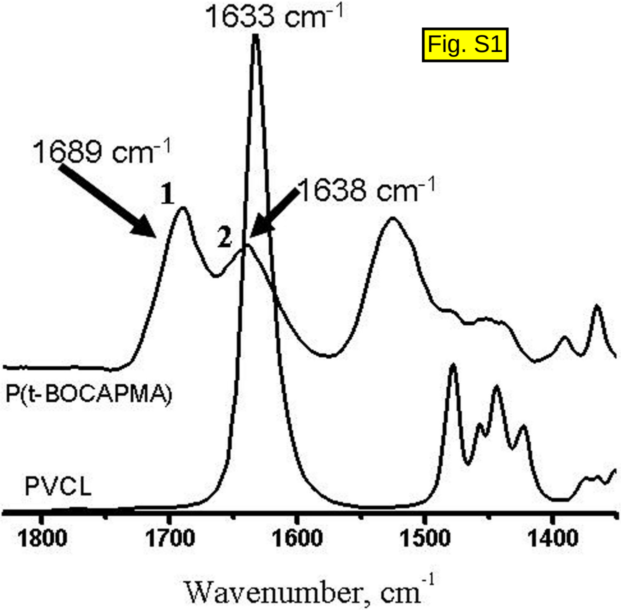

1633 cm$^{-1}$
1689 cm$^{-1}$
1
2
1638 cm$^{-1}$
P(t-BOCAPMA)
PVCL
1800
1700
1600
1500
1400
Wavenumber, cm$^{-1}$

Fig. S2

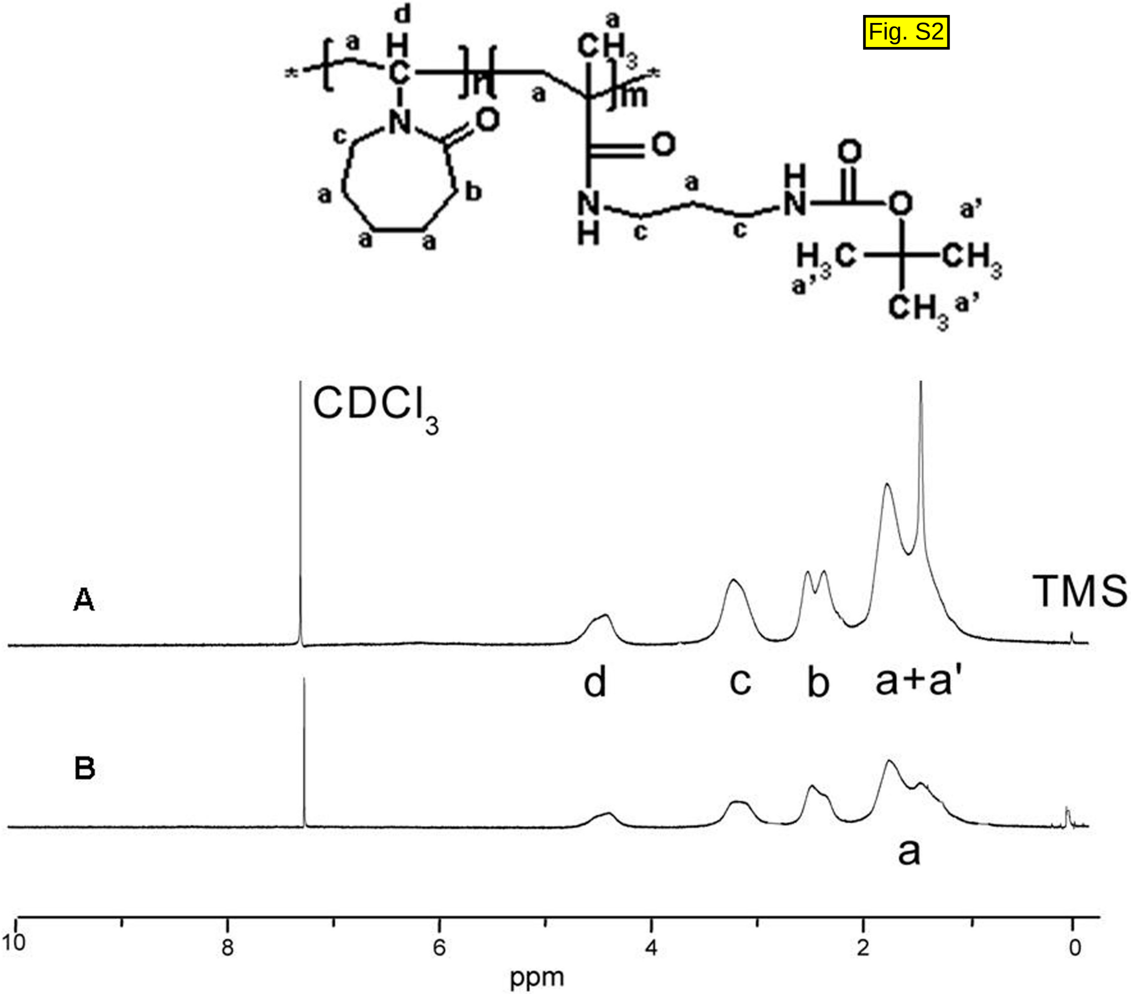
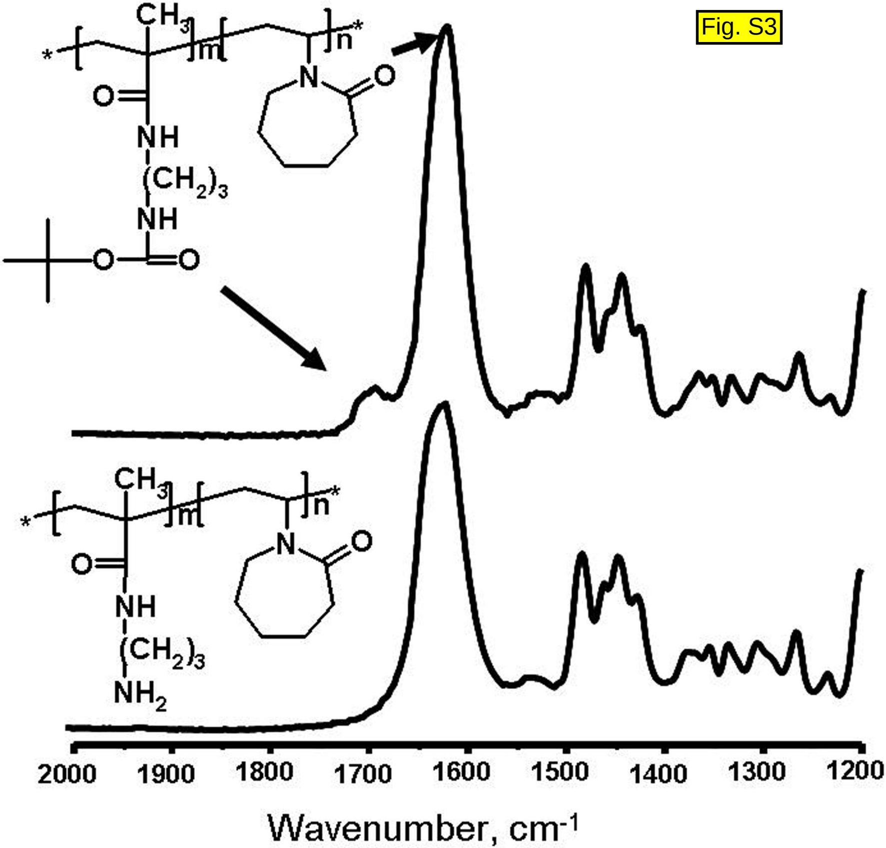

d
H
C
a
n
m
CH3
N
O
c
a
b
NH
c
c
HN
O
O
H3C
CH3
CH3
a'
CDCl3
TMS
A
B
d
c
b
a+a'
a
10
8
6
4
2
0
ppm

Fig. S3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n
N
O
NH
(CH2)3
NH
O
O
NH2
2000
1900
1800
1700
1600
1500
1400
1300
1200
Wavenumber, cm-1