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Supporting Information for *Macromol. Rapid Commun.* **2006**, 27, 821.

RAFT Polymerization of *N*-Isopropylacrylamide and Acrylic Acid under γ -Irradiation in Aqueous Media

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Table S1. RAFT polymerization of NIPAAm in water by γ -initiation at room temperature with BPATT as RAFT agent. $[M]_0=1.5 \text{ mol L}^{-1}$.

$\frac{[M]_0}{[CTA]_0}$	Time min	$x_p^{(a)}$ %	$M_n^{th(b)}$ kg/mol	$M_n^{exp(c)}$ kg/mol	$PDI^{(c)}$
1000 ^(d)	105	23	26.3	49	1.13
1000 ^(d)	150	63	71.6	84	1.09
1000 ^(d)	210	79	89.7	96.5	1.09
1000 ^(d, e)	310	88	100	105	1.12
1500 ^(e)	185	92	157	191	1.21
2000 ^(e)	265	93	210.7	249	1.28

^(a) Monomer conversion is calculated by ^1H NMR in D_2O . ^(b) The theoretical number-average molecular weight is calculated according to the equation, $M_n^{th}=M_M*\text{conv}*[M]_0/[CTA]_0+M_{CTA}$. ^(c) The experimental number-average molecular weight, M_n^{exp} , and the polydispersity index, PDI , were measured by size-exclusion chromatography (SEC) using polystyrene standards in N,N -dimethylacetamide (DMAc) (0.03%w/v LiBr, 0.05% BHT). ^(d) Kinetic study with samples collected at pre-selected reaction times. ^(e) Final samples of experiments with varying ratios monomer/CTA.

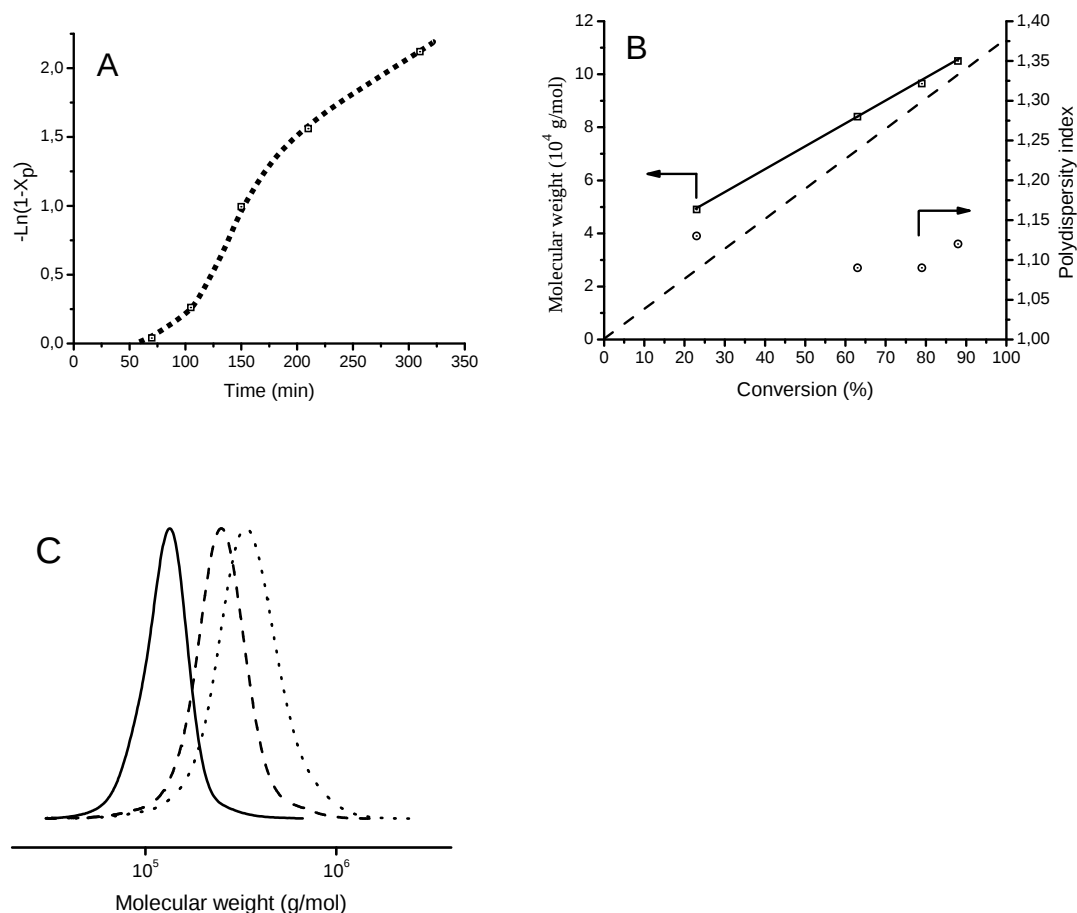


Figure S1. RAFT polymerization of NIPAAm under γ -radiation in water (1.5 mol L^{-1}) using BPATT at ambient temperature. (A) First-order time-conversion plot for $[M]_0/[CTA]_0=1000$. ($\bullet \bullet \bullet$) Extrapolation. (B) Molecular weight and polydispersity index versus conversion for $[M]_0/[CTA]_0=1000$. ($- -$) Theoretical number average molecular weight evolution. (C) Dependence of the molecular weight distribution on the ratio monomer/CTA. $[M]_0/[CTA]_0 =$ ($—$) 1000, ($- -$) 1500, ($\bullet \bullet \bullet$) 2000.