

Supporting information for

Modulation of the Sensitive Temperature Range of Fluorescent Molecular Thermometers Based on Thermo-Responsive Polymers

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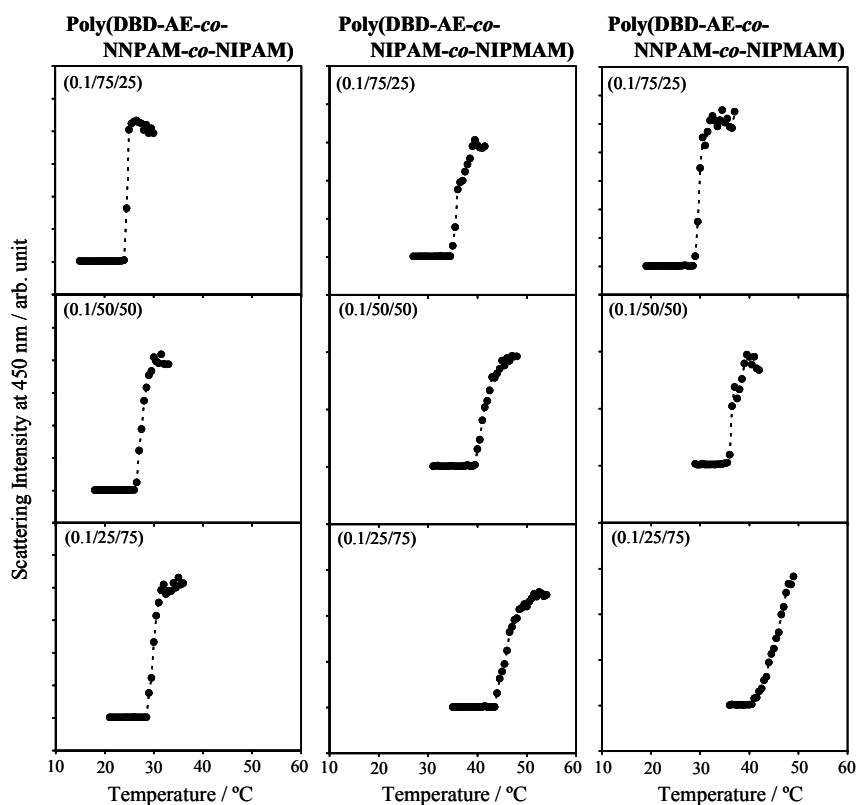


Figure S1. Relationships between the temperatures and the scattering intensities of poly(DBD-AE-co-NNPAM-co-NIPAM), poly(DBD-AE-co-NIPAM-co-NIPMAM), and poly(DBD-AE-co-NNPAM-co-NIPMAM). The excitation wavelength was 444 nm.

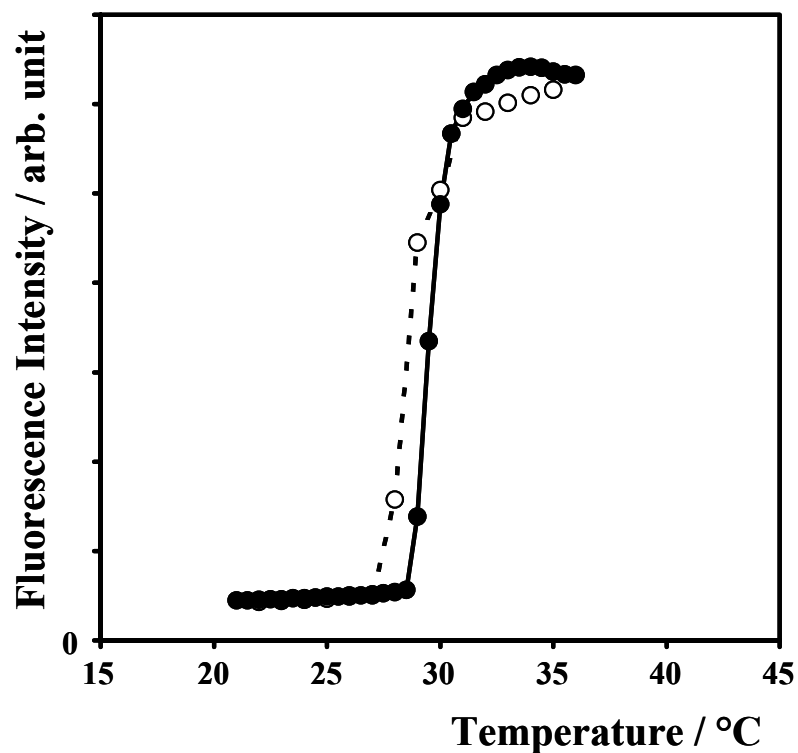


Figure S2. Hysteresis of poly(DBD-AE-*co*-NNPAM-*co*-NIPAM) (0.1/25/75) as a representative; relationships between the temperatures and the normalized fluorescence intensities at maximum emission wavelengths with heating (—●—) and cooling (---○---) in aqueous solution (0.01 w/v%). Fluorescence intensities were normalized by using the fluorescence intensity at 26 °C (T_{low}).

Table S1. Sensitivities and reproducibilities of the developed fluorescent molecular thermometers^a

copolymer	T _{low} ^b (°C)	T _{high} ^b (°C)	ΔT ^b (°C)	FE ^c	FE/ΔT (°C ⁻¹)
poly(DBD-AE- <i>co</i> -NNPAM- <i>co</i> -NIPAM)					
(0.10/75/25)	22.5	26.5	4.0	13.4	3.4
(0.10/50/50)	26.0	28.5	2.5	11.6	4.6
(0.10/25/75)	28.0	31.5	3.5	11.4	3.3
poly(DBD-AE- <i>co</i> -NIPAM- <i>co</i> -NIPMAM)					
(0.10/75/25)	34.5	38.5	4.0	11.6	2.9
(0.10/50/50)	39.0	43.5	4.5	9.29	2.1
(0.10/25/75)	43.5	48.0	4.5	7.39	1.6
poly(DBD-AE- <i>co</i> -NIPAM- <i>co</i> -NIPMAM)					
(0.10/75/25)	28.0	33.0	5.0	14.5	2.9
(0.10/50/50)	34.0	39.5	5.5	10.1	1.8
(0.10/25/75)	40.0	46.5	6.5	8.04	1.2
c.f. poly(DBD-AE- <i>co</i> -NNPAM)	19.0	23.0	4.0	14.9	3.7
c.f. poly(DBD-AE- <i>co</i> -NIPAM)	31.5	36.0	4.5	11.4	2.5
c.f. poly(DBD-AE- <i>co</i> -NIPMAM)	46.0	53.5	7.5	6.75	0.90

^aResolution of the independent variable of temperature is 0.5 °C. ^bDefinitions are described in text. ^cRatio of the fluorescence intensities at T_{high} to that at T_{low}.