

Supporting Information

Controlling Properties of Thermogels by Tuning Critical Solution Behaviour of Ternary Copolymers

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Table S1. Polymer characteristics.

#	<i>NiPAAm</i> %	<i>TBA</i> m %	<i>HEA</i> m %	PEG-DOPAT Triblock polymers		DOPAT polymers	
				Mn, kDa	Đ	Mn, kDa	Đ
1	100	0	0	31.3	1.14	2.8	1.26
2	95	5	0	33.7	1.18	5.2	1.44
3	90	10	0	33.2	1.14	2.6	1.26
4	95	0	5	32.0	1.13	3.5	1.26
5	90	5	5	32.9	1.13	5.8	1.40
6	85	10	5	31.3	1.13	4.4	1.20
7	85	5	10	32.8	1.14	4.7	1.85
8	80	15	5	31.1	1.15	5.3	1.45
9	80	10	10	33.5	1.12	3.3	1.37
10	80	5	15	33.3	1.13	8.0	1.60
11	75	20	5	31.7	1.14	3.9	1.34
12	75	15	10	33.5	1.14	4.5	1.39
13	75	10	15	32.9	1.16	4.7	1.43
14	75	5	20	33.6	1.14	6.3	1.50

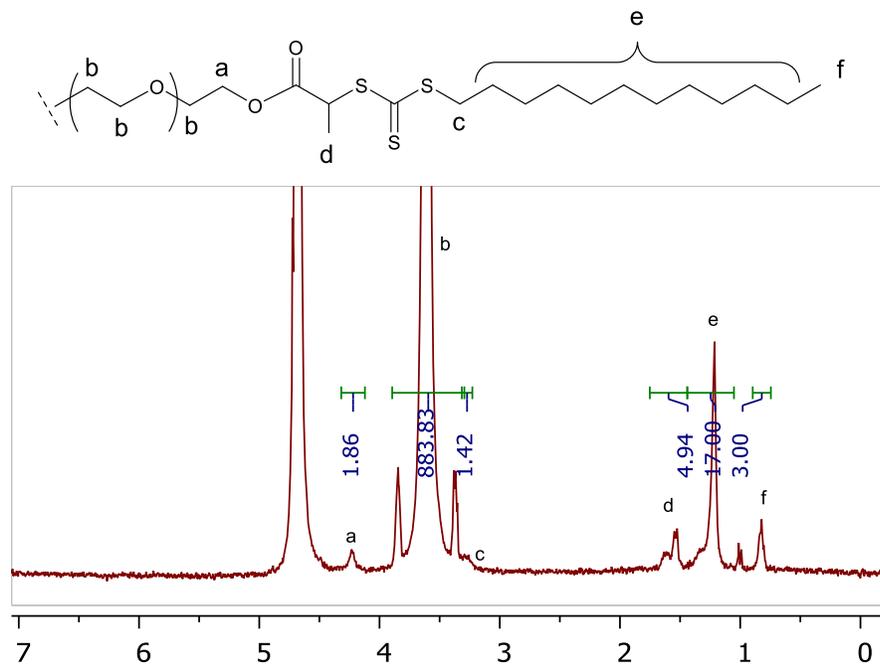


Figure S1. $^1\text{H-NMR}$ (D_2O) of PEG-DOPAT.

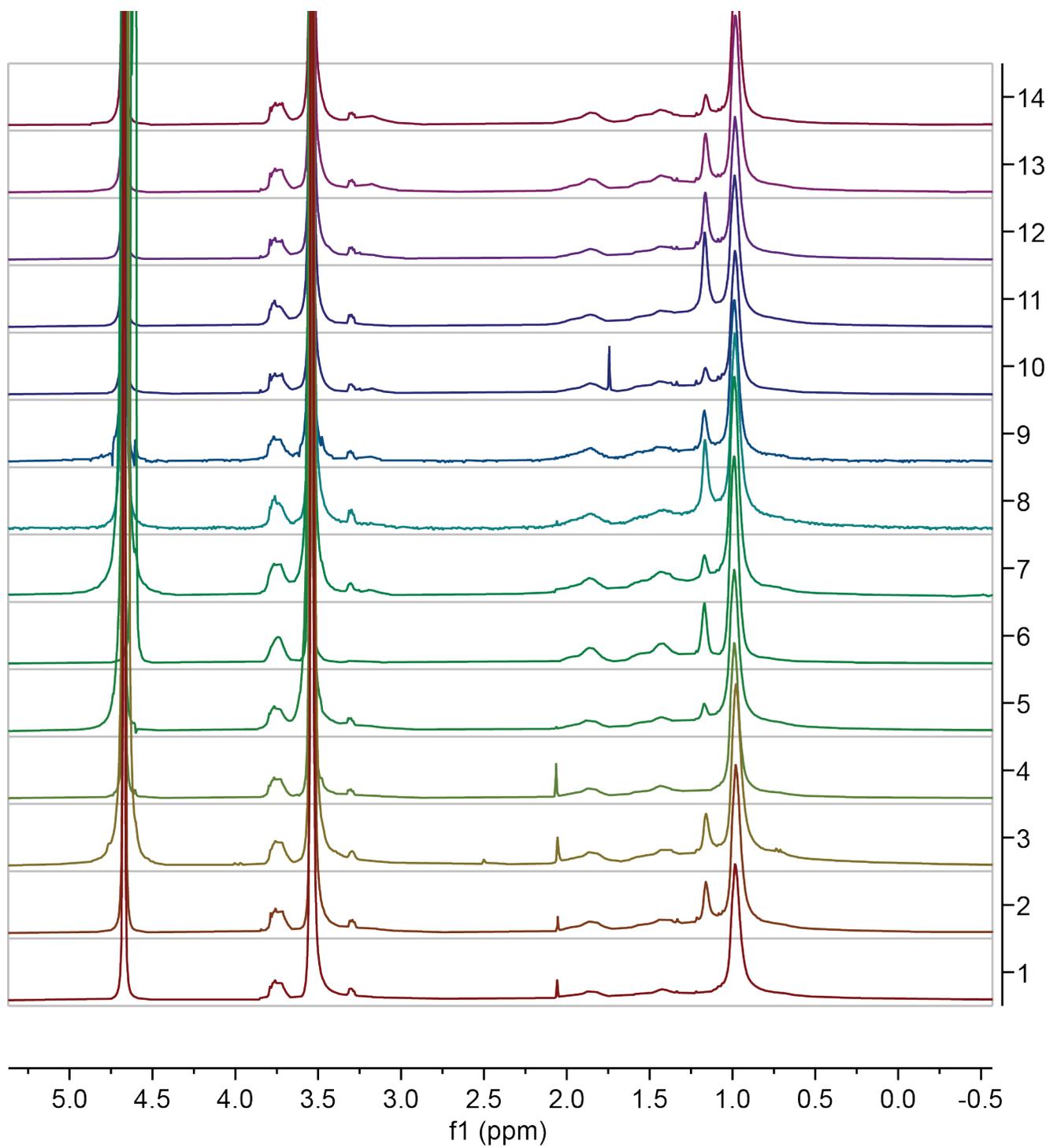


Figure S2. $^1\text{H-NMR}$ (D_2O) of polymers made with PEG-DOPAT.

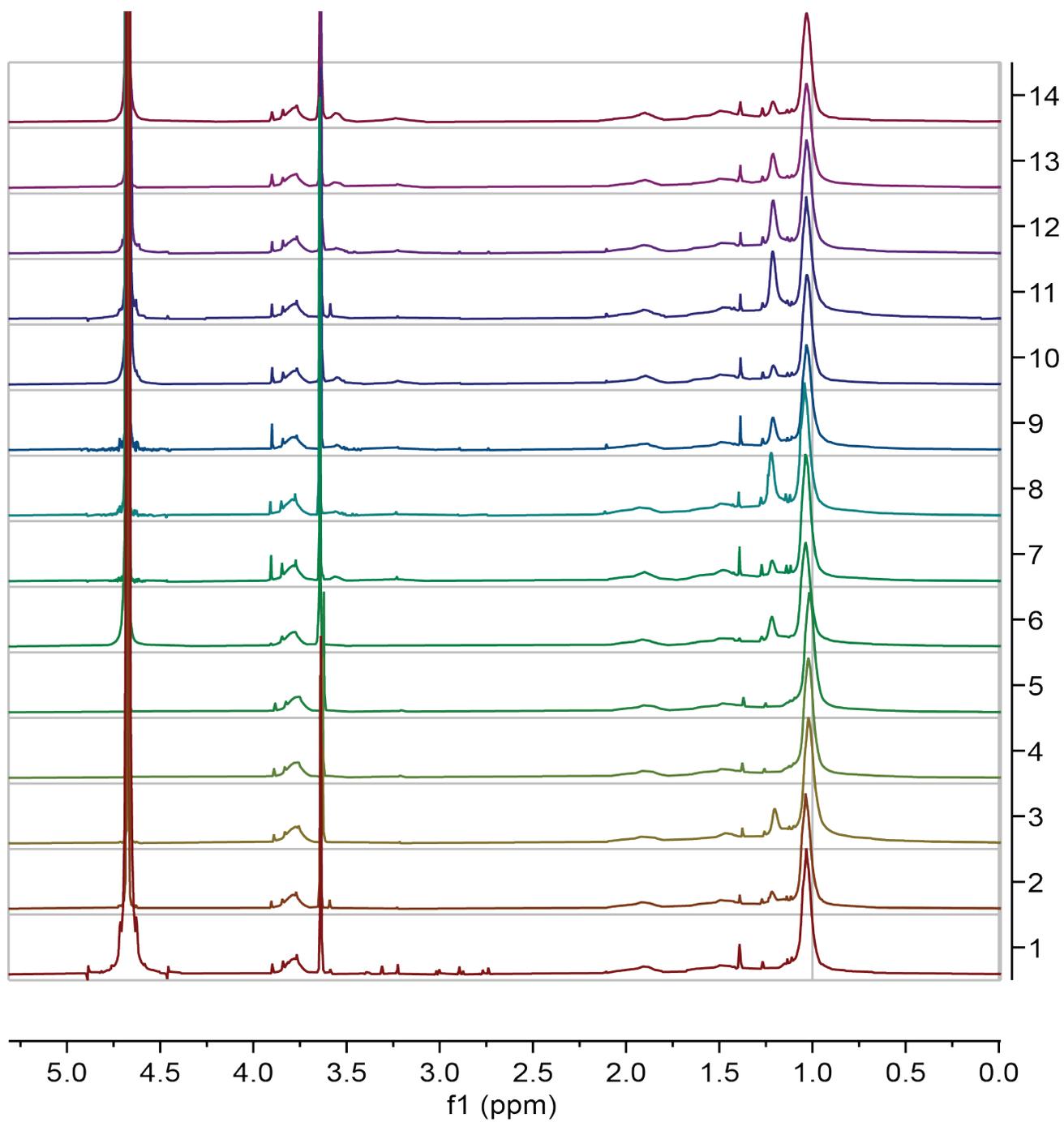


Figure S3. $^1\text{H-NMR}$ (D_2O) of polymers made with DOPAT.

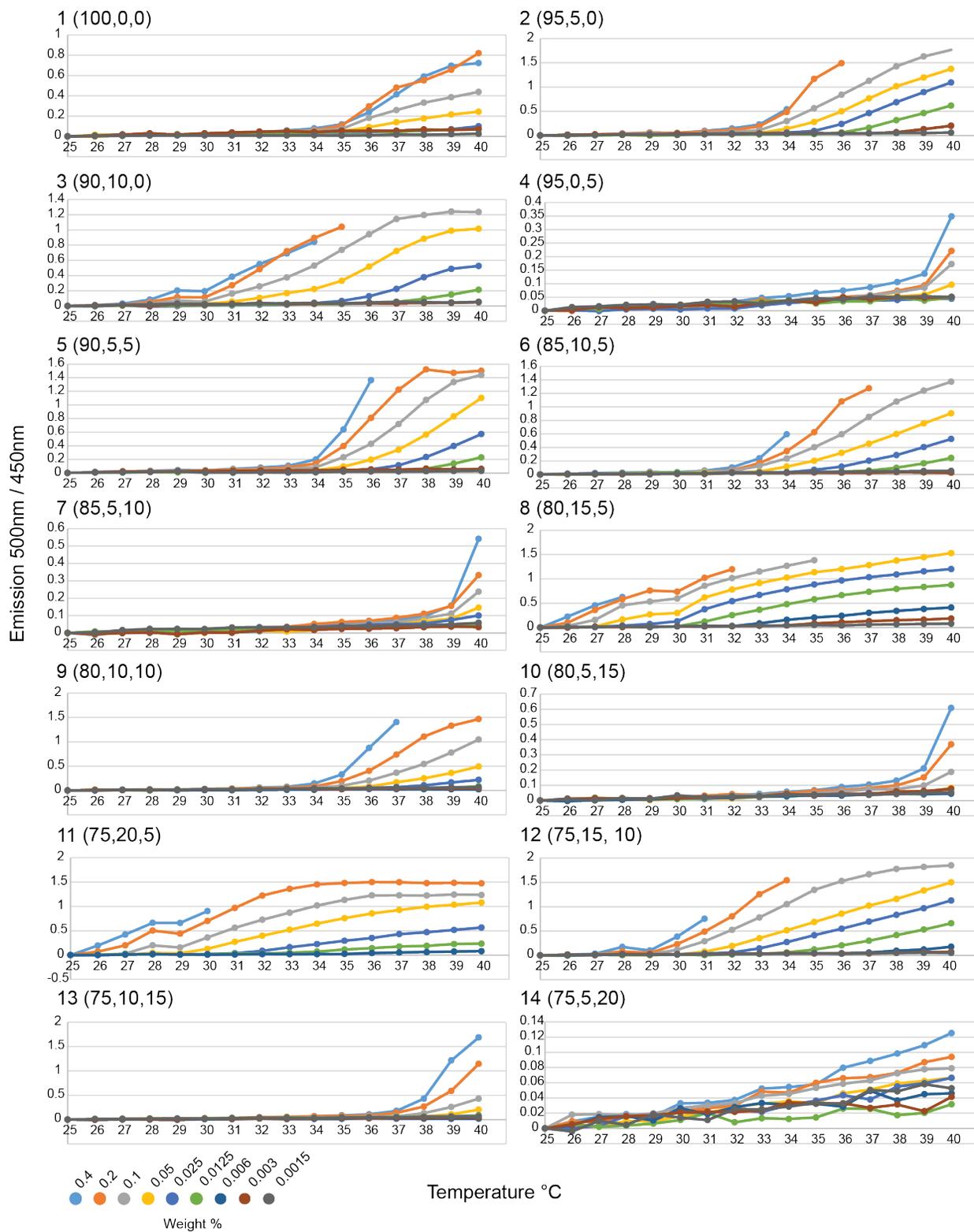


Figure S4. LCST of DOPAT made polymers, measured by fluorescence using dansyl hydroxypropyl sulfonamide, varying concentration of polymer in solution.

Table S2. LCST data from Figure S4.

	Polymer #													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I NIPAM %	100	95	90	95	90	85	85	80	80	80	75	75	75	75
II TBAM %		5	10		5	10	5	15	10	5	20	15	10	5
III HEAM %				5	5	5	10	5	10	15	5	10	15	20
	LCST °C													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
4 mg/mL	35	32	29	39	33	32	39	26	34	39	26	28	37	-
2 mg/mL	35	32	29	39	34	33	39	27	35	39	27	30	37	
1 mg/mL	36	33	31	39	35	33	40	27	36	39	28	30	38	
0.5 mg/mL	37	34	32		36	34	40	28	37		29	32		
0.25 mg/mL		36	36		37	36		30	38		30	33		
0.13 mg/mL		37	39		39	39		31			33	35		
0.06 mg/mL		38						34			35	39		
0.03 mg/mL		39						36						

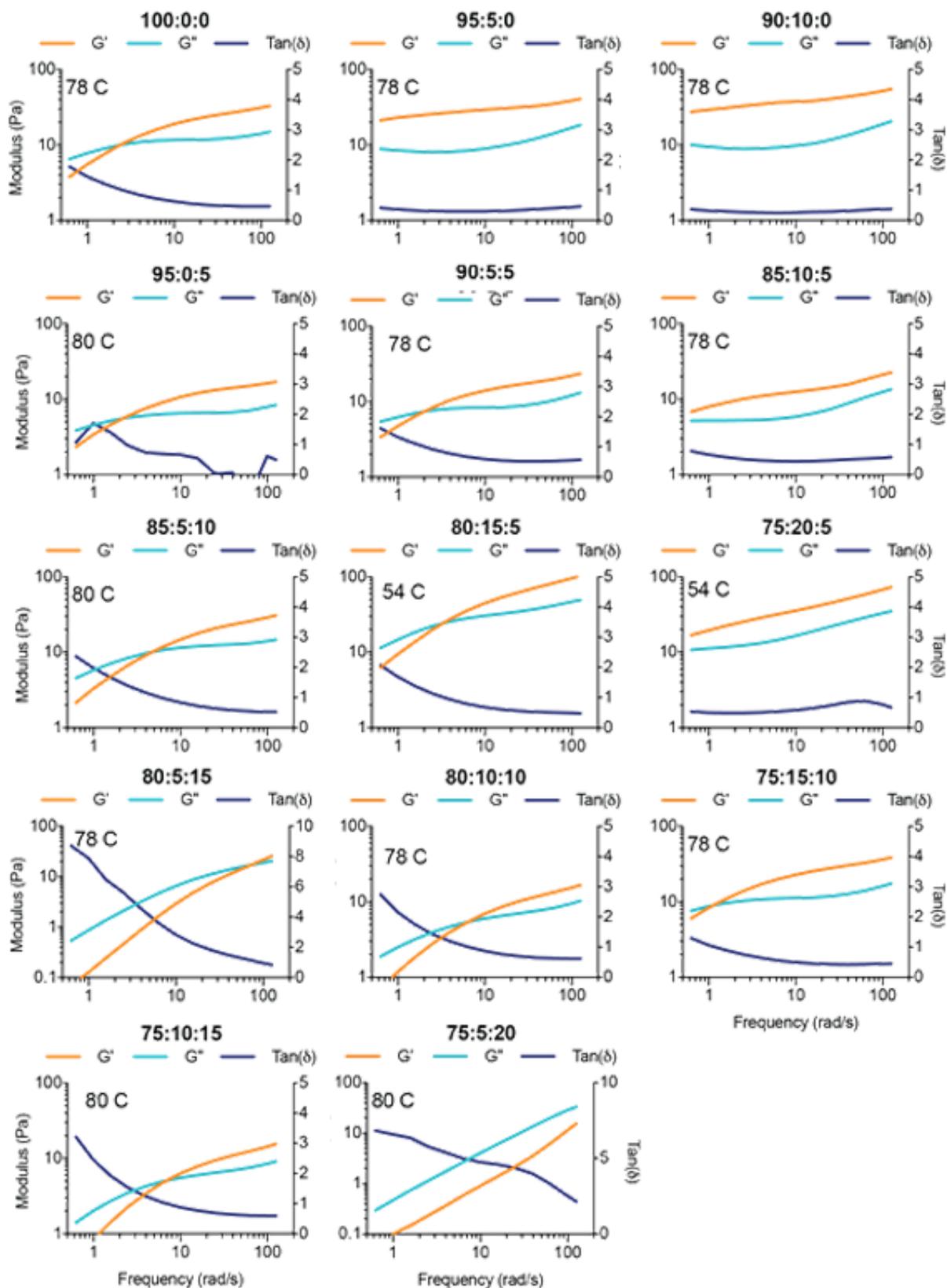


Figure S5. Frequency sweep measured above T_{gel} for all compositions of PEG-DOPAT polymers.

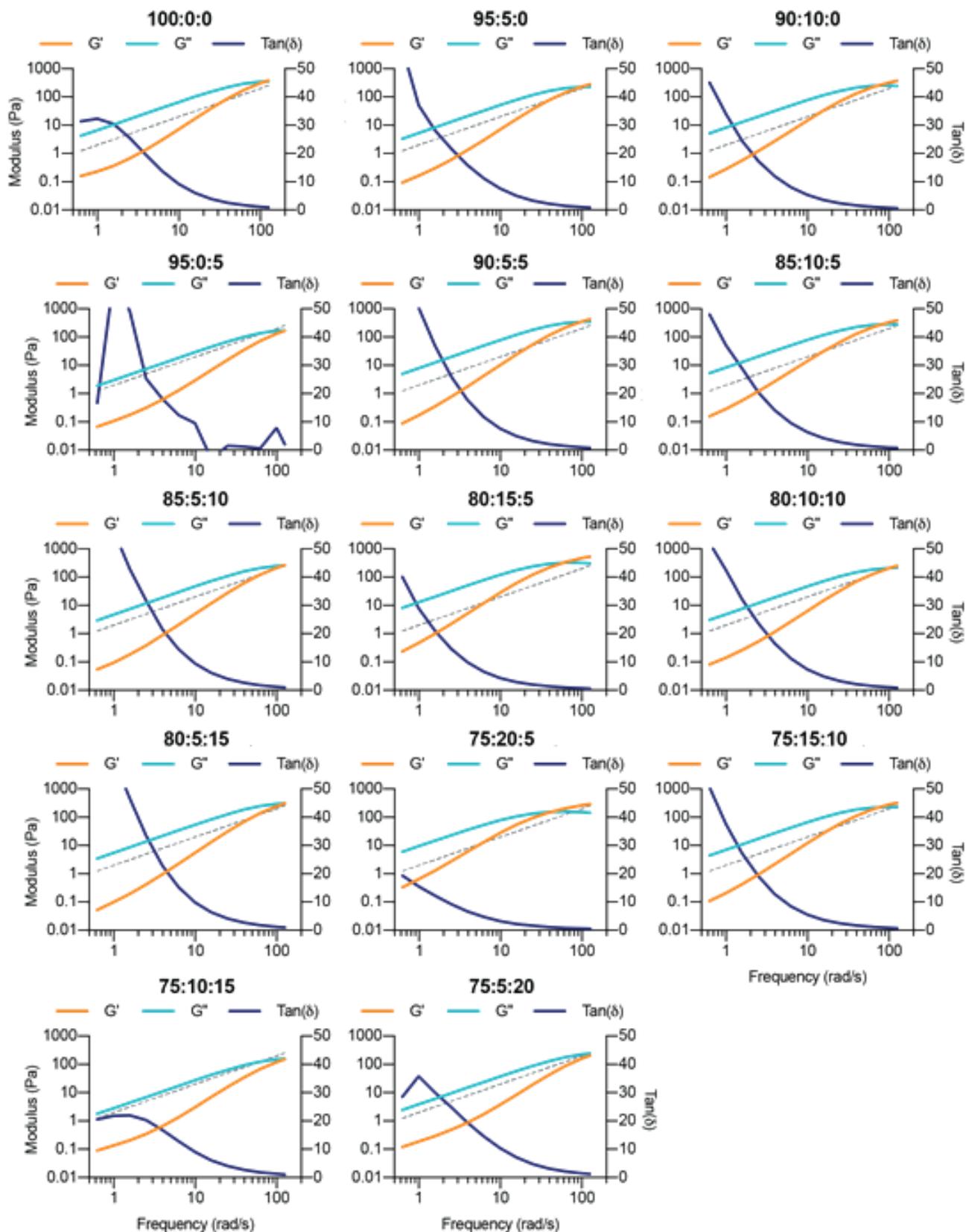


Figure S6. Frequency sweep measured at 25 °C for all compositions of PEG-DOPAT polymers.

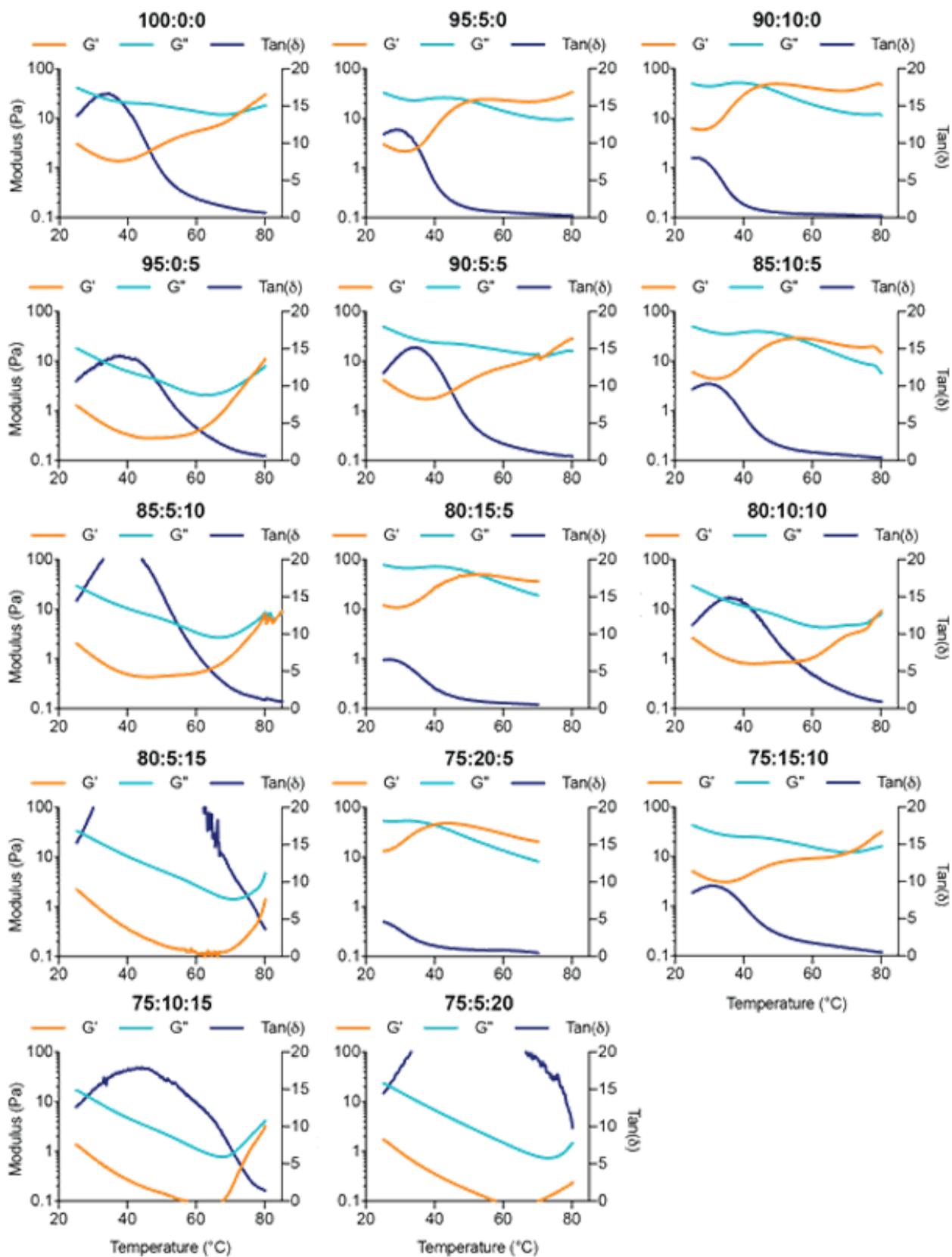


Figure S7. Temperature ramp for all compositions of PEG-DOPAT polymers.

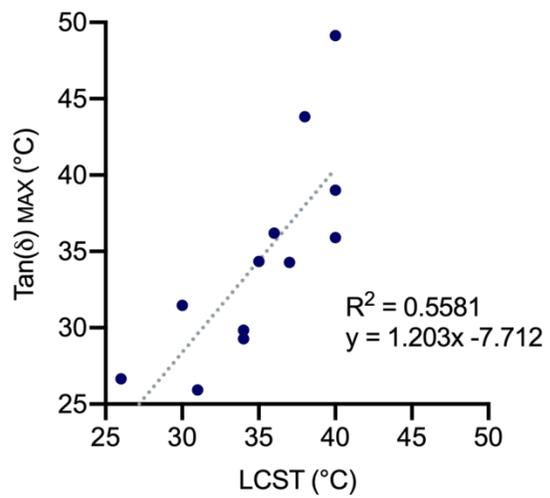


Figure S8. LCST measured by fluorescence at 4 mg/mL, versus $\text{Tan}(\delta)_{\text{max}}$.

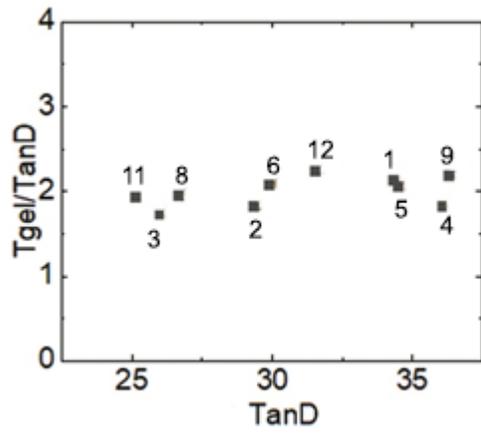


Figure S9. $T_{gel}/\tan(\delta)$ max ($^{\circ}\text{C}$) versus $\tan(\delta)$ max. A consistent factor of 2 was observed for all compositions.