

Supporting Information

Chitosan Grafted with Thermoresponsive Poly(di(ethylene glycol) Methyl Ether Methacrylate) for Cell Culture Applications

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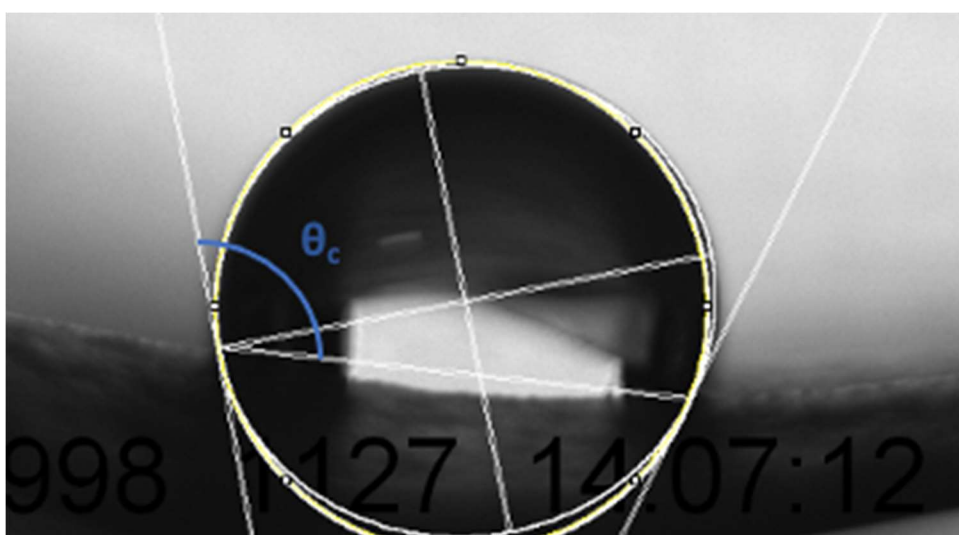


Figure S1: Sessile-drop contact angle (θ_c) determination using ImageJ.

Table S1: Grafting efficiency of PMEO₂MA to chitosan using Chito-RAFT agent.

Sample	Trial	Chito-RAFT agent (W _i , mg)	MEO ₂ MA (W _m , mg)	Recovered (W _r , mg)	Average grafting efficiency (%)	Average PMEO ₂ MA content (wt%)
Chito-g-PMEO₂MA (15 wt%)	1	110	19.5	120	49±2	8.7±1
	2	113	19.9	123		
	3	112	19.7	121		
Chito-g-PMEO₂MA (30 wt%)	1	110	47.3	132	47±3	20.3±1
	2	110	47.3	134		
	3	113	48.4	134		
Chito-g-PMEO₂MA (60 wt%)	1	110	166	152	29±3	43±3
	2	110	166	161		
	3	112	168	162		

Table S2: Comparison of the apparent number-average molecular weights (*M_n*) obtained by GPC analysis of the cleaved PMEO₂MA chains.

Cleaved Samples	<i>M_n</i> from GPC (kg/mol)	PDI
Chito-g-PMEO ₂ MA (15 wt%)	43	1.82
Chito-g-PMEO ₂ MA (30 wt%)	85	1.71
Chito-g-PMEO ₂ MA (60 wt%)	128	1.80
Chito-g-PMEO ₂ MA (60 wt%, High DS)	105	1.88

Table S3: Contact angle (in degrees) from $t = 0$ to 4 s for selected samples at 22 and 40 °C.

Time (s)	PMEO ₂ MA on glass slide		SNP-g-PMEO ₂ MA (15 wt%)		SNP-g-PMEO ₂ MA (30 wt%)		SNP-g-PMEO ₂ MA (60 wt%)	
	@22 °C	@40 °C	@22 °C	@40 °C	@22 °C	@40 °C	@22 °C	@40 °C
0	73±2	88±1	75±3	103.7±2	95±2	109±1.5	91±1.3	102±1.2
1	70.4±1.7	88.7±1.2	66±4.8	102.9±3.4	92.4±2	107±2	92.5±1	100.5±2
2	72±2	89.2±1.5	62.7±5	103.5±4.7	86.7±4	106.8±2	91±1.2	102±2.7
3	73.6±1.5	85.1±2	62.2±4.3	102.3±4.9	81.7±4.7	106.9±2.1	93.2±2	101±3
4	74.8±2.7	85.6±2.6	60.2±6	104.8±3.7	83.3±3.6	106.6±1.7	92.1±3	102±4.2

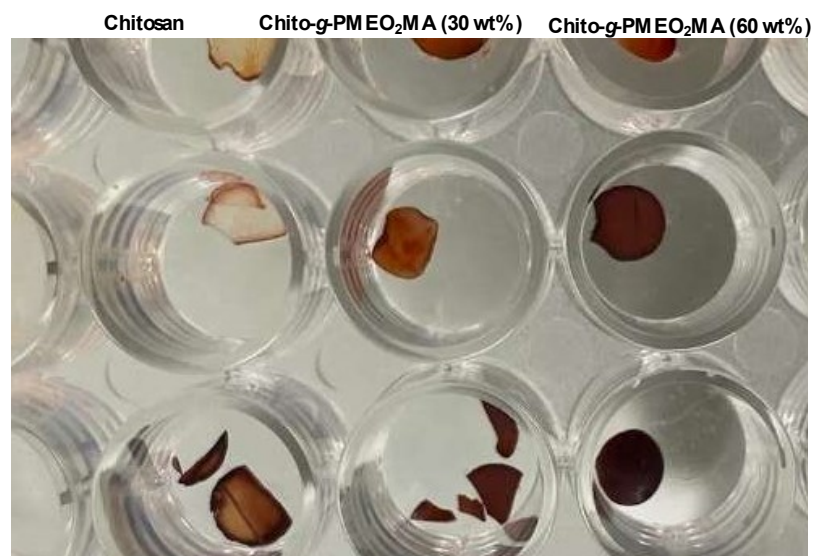


Figure S2: Sorption of the dye on the films.

Table S4: Water uptake index (WUI) of selected chitosan films at 22 °C

Sample	Trial	Initial Weight (W _d , mg)	After Water Uptake (2 h) (W _w , mg)	Water Uptake Index (WUI)	Average WUI (%)
Chitosan	1	24.7	65.2	164	169±5
	2	40.7	110.5	171	
	3	36.7	100.1	173	
Chito-RAFT	1	33.2	79	138	154±29
	2	28.2	81	187	
	3	42	99.4	137	
Chito-g- PMEO₂MA (15 wt%)	1	45.3	122.4	170	151±17
	2	34.7	83.8	141	
	3	30.7	74	141	
Chito-g- PMEO₂MA (30 wt%)	1	39.4	71.5	81	85±4
	2	34.4	65.1	89	
	3	42.1	77	83	
Chito-g- PMEO₂MA (60 wt%)	1	34.2	60	75	78±12
	2	45	75.1	67	
	3	33	63	91	

Table S5: Water uptake Index (WUI) of selected chitosan films at 37 °C

Sample	Trial	Initial Weight (W _d , mg)	After Water Uptake (2 h) (W _w , mg)	Water Uptake Index (WUI)	Average WUI (%)
Chitosan	1	35.5	89.8	153	158±39
	2	46.2	138	199	
	3	41.8	92.5	121	
Chito-RAFT	1	29.7	73.7	148	142±23
	2	30.5	66.2	117	
	3	30.3	79.1	161	
Chito-g- PMEO₂MA (15 wt%)	1	36.2	83.4	130	117±12
	2	27.8	57.7	108	
	3	24.6	52.2	112	
Chito-g- PMEO₂MA (30 wt%)	1	27.6	43.4	57	61±3
	2	40.1	65.8	64	
	3	29.5	47.6	62	
Chito-g- PMEO₂MA (60 wt%)	1	28.5	45	58	55±20
	2	37.5	50	33	
	3	27.5	47.5	73	