Electronic Supplementary Material (ESI) for Polymer Chemistry.

Helix-Sense-Selective Surface Grafting Polymerization for Preparing Optically Active Hybrid Microspheres

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Catalogue

Table S1 Elemental weight percentage (wt%) of SM, E-SM, D-CA-SM and A-SM obtained from elemental analysis and corresponding organic content calculated from weight percentage of C element.

	N	C	H	Organic content
SM	0.10	0.87	0.30	-
E-SM	0.16	2.74	0.45	2.13
D-CA-SM	0.61	4.53	0.69	4.85
A-SM	0.45	3.47	0.55	3.16

Table S2 Elemental weight percentage (wt%) of P1-DCA-SM, P1-A-SM obtained from elemental analysis and corresponding organic content calculated from weight percentage of N element.

	N	C	H	Organic content
P1-DCA-SM	1.01	9.83	2.25	11.81
P1-A-SM	0.74	6.83	1.91	7.72

Table S3 Mass content (wt%) of different elements on the surface of P1-DCA-SM and P1-A-SM obtained from XPS spectra and corresponding organic content calculated from weight percentage of N element.

	C	**Si**	**O**	**N**	B	Organic content
P1-DCA-SM	72.08	5.08	20.15	2.64	0.02	36.34
P1-A-SM	70.21	5.15	19.82	2.51	0.02	37.56

Table S4 Weight percentage (wt%) of P2-DCA-SM, P3-DCA-SM obtained from elemental analysis and corresponding organic content calculated from weight percentage of C element.

	N	C	H	Organic content
P2-DCA-SM	1.05	8.74	2.67	12.13
P3-DCA-SM	0.34	8.17	1.91	9.64

Table S5 The mass content (wt%) of different elements on the surface of P2-DCA-SM and P3-DCA-SM obtained from XPS spectra and corresponding organic content calculated from weight percentage of N element.

	C	Si	O	N	B	Organic content
P2-DCA-SM	70.39	5.26	19.94	2.77	1.63	39.61
P3-DCA-SM	67.57	7.93	24.02	0.48	0.00	-

Table S6 Average molecular weight of P_D, P_L, $P_{D/M1}$, $P_{L/M1}$, $P_{D/M2}$, $P_{L/M2}$, P1 and P2 measured with polystyrene as standard, THF as eluent, c=1mg/ml.

Samples	Mn	Mw/Mn
P_D	1200	3.17
P_L	1400	1.28
$P_{D/M1}$	1900	1.81
$P_{L/M1}$	2400	3.31
$P_{D/M}2$	-	-
$P_{L/M2}$	-	-
P1	-	-
P2	-	-

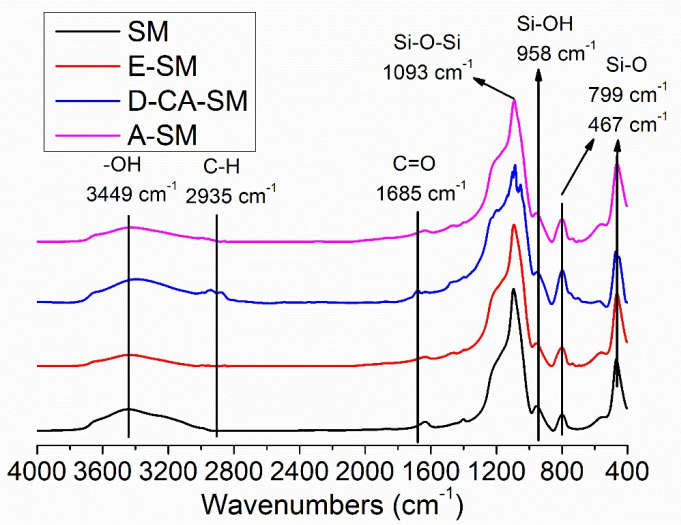

Figure S1. FTIR measurement of SM, E-SM, D-CA-SM and A-SM, with KBr as tablet.

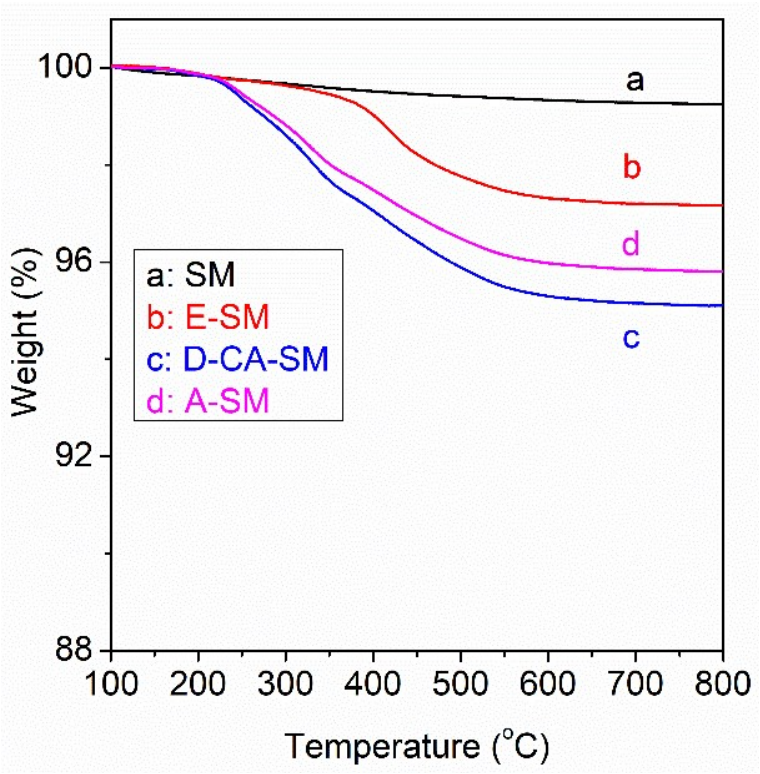

Figure S2. TGA curves of SM (a), E-SM (b), E-CA-SM (c) and A-SM (d). Measured under N_2 condition, scanning rate of 10 °C min^{-1}.

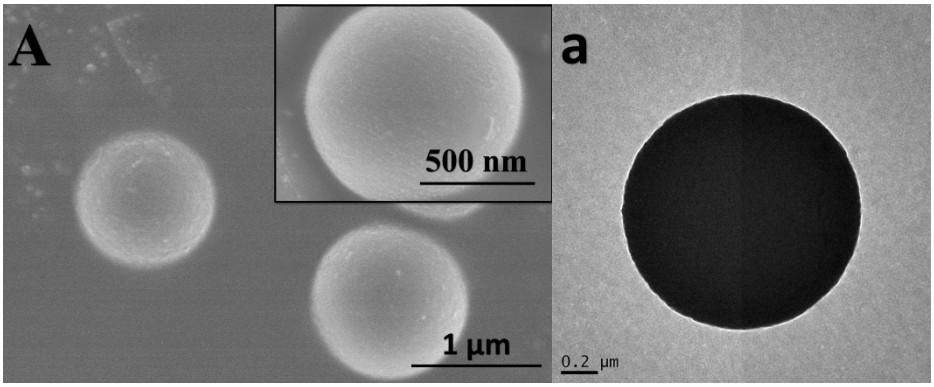

Figure S3. SEM and TEM images of A-SM (A and a).

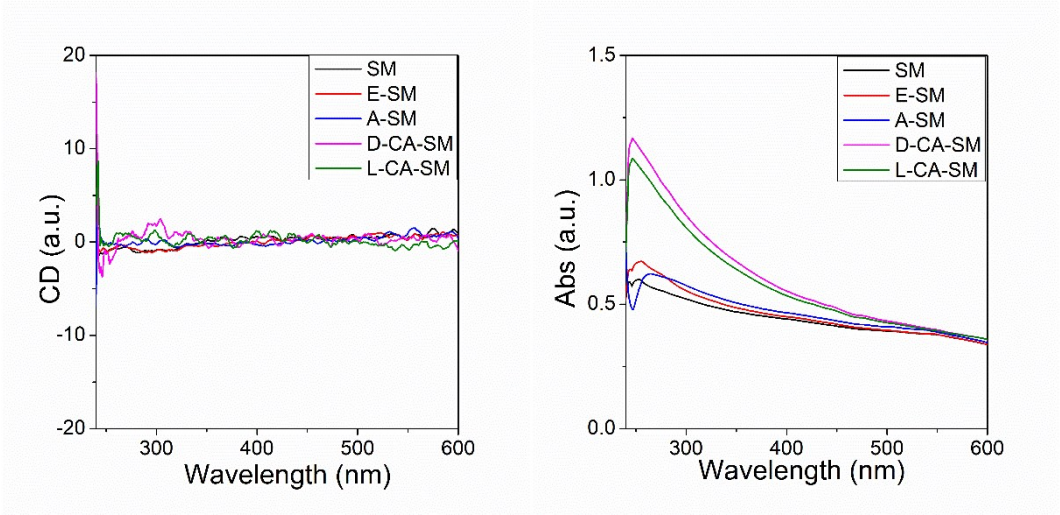

Figure S4. CD (A) and UV-vis (B) absorption spectra of SM, E-SM, A-SM, D- and L-CA-SM. Measured by dispersing the products in $CHCl_3$ (1mg/ml).

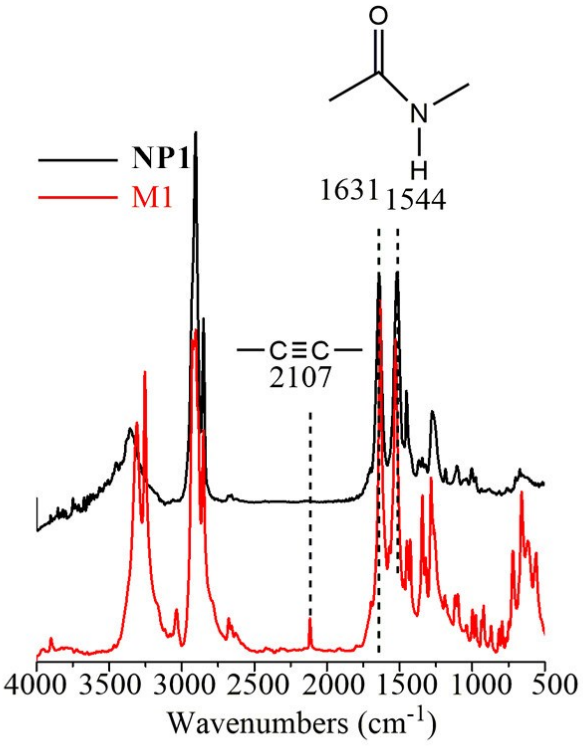

Figure S5. FTIR measurement of M1 and NP1, with KBr as tablet.

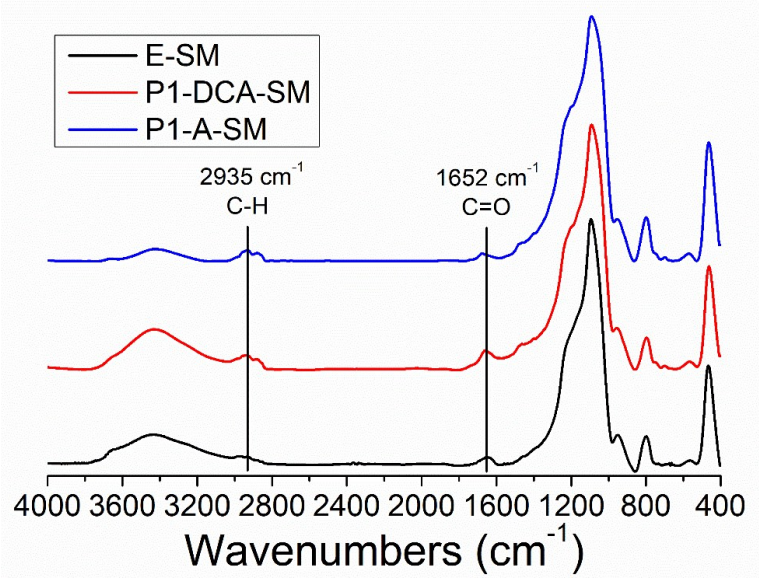

Figure S6. FTIR measurement of E-SM, P1-DCA-SM and P1-A-SM, with KBr as tablet.

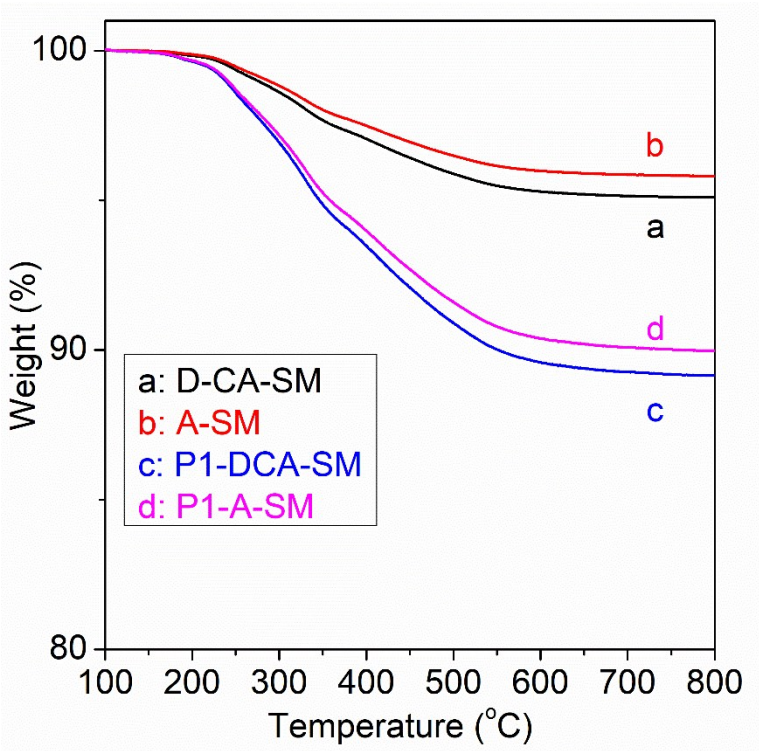

Figure S7. TGA curves of D-CA-SM (a), A-SM (b), P1-DCA-SM (c) and P1-A-SM (d). Measured under N_2 condition, scanning rate of 10 °C min^{-1}.

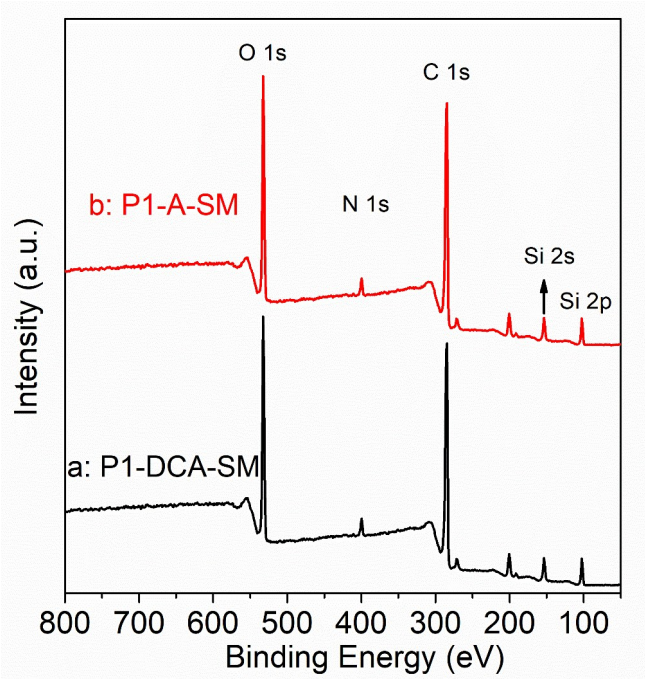

Figure S8. XPS spectra measured on the surface of microspheres, (a) P1-DCA-SM, (b) P1-A-SM.

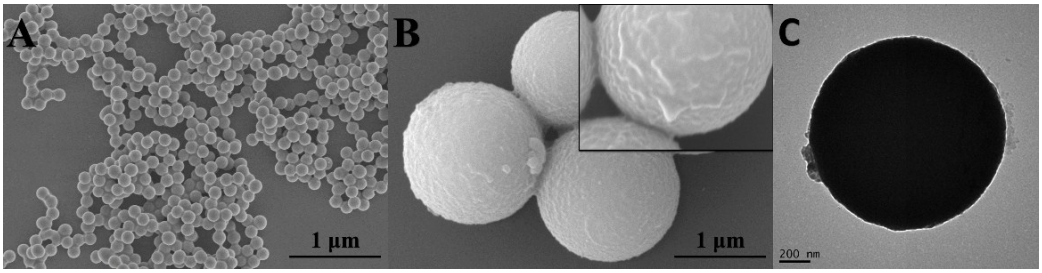

Figure S9. SEM images of P1 (A) and P1-A-SM (B); TEM images of P1-A-SM (C).

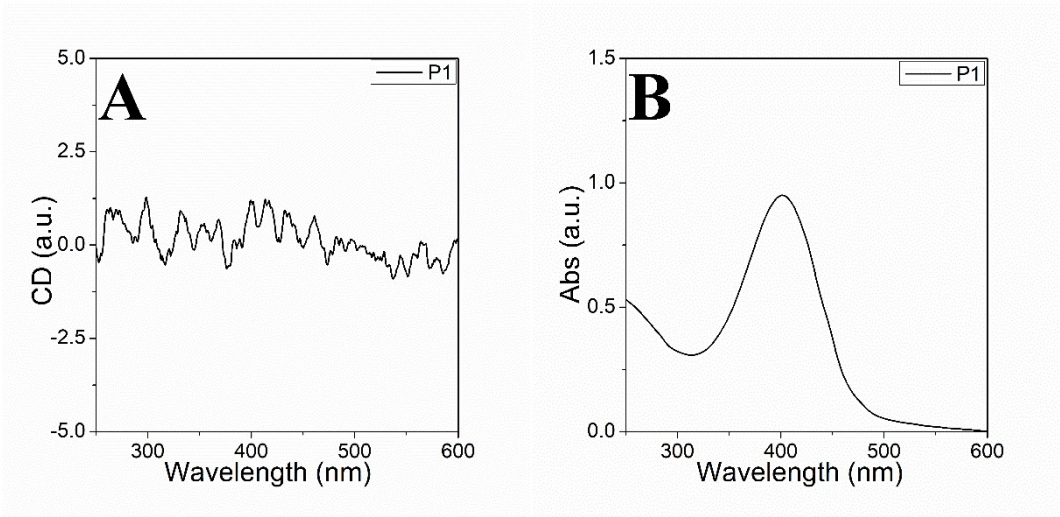

Figure S10. CD and UV-vis absorption spectra of P1. Quantitatively measured by dissolving P1 in $CHCl_3$.

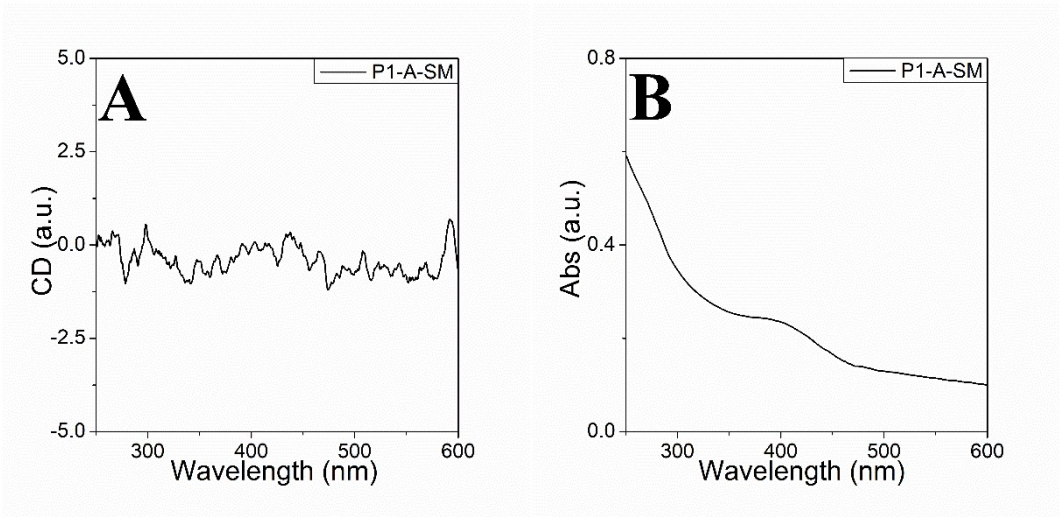

Figure S11. CD and UV-vis absorption spectra of P1-A-SM. Measured by dispersing the products in $CHCl_3$ (c=1mg/ml).

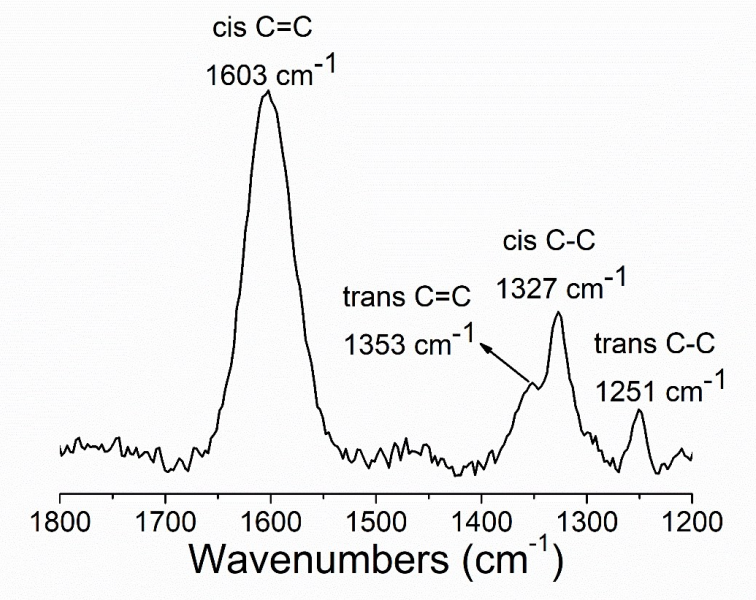

Figure S12. Raman spectra of P1-DCA-SM.

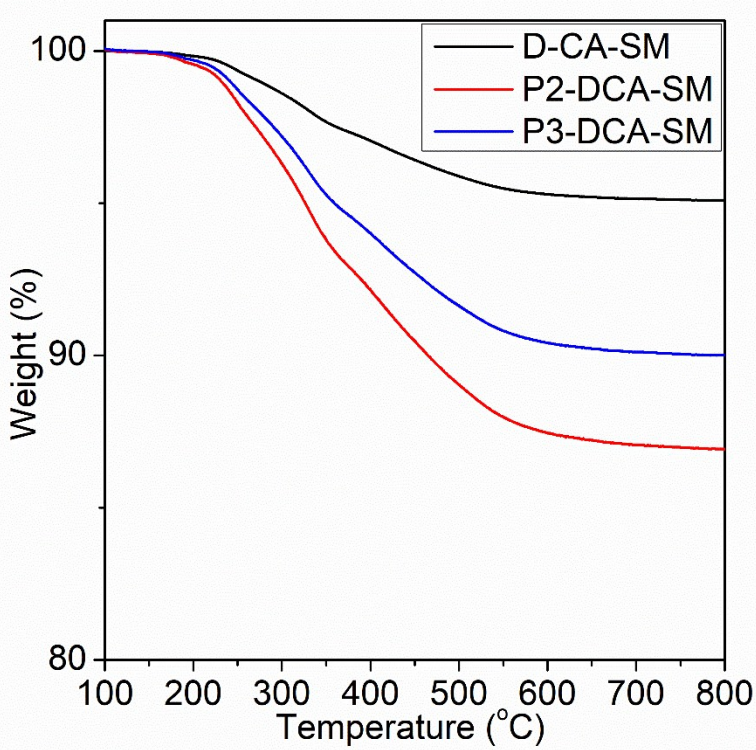

Figure S13. TGA curves of D-CA-SM, P2-DCA-SM and P3-DCA-SM. Measured under N_2 condition, scanning rate of 10 °C min^{-1}.

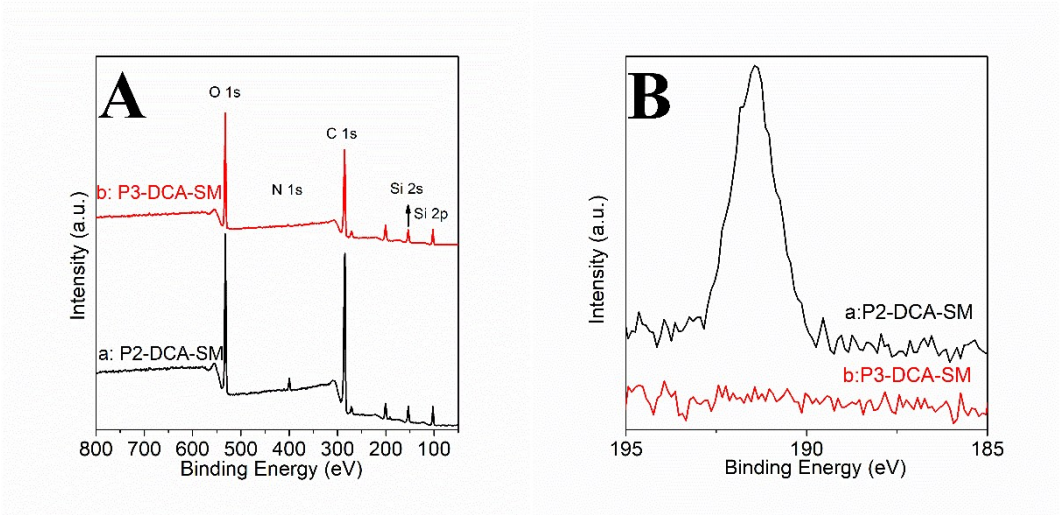

Figure S14. XPS spectra measured on the surface of microspheres, (a) P2-DCA-SM, (b) P3-DCA-SM.

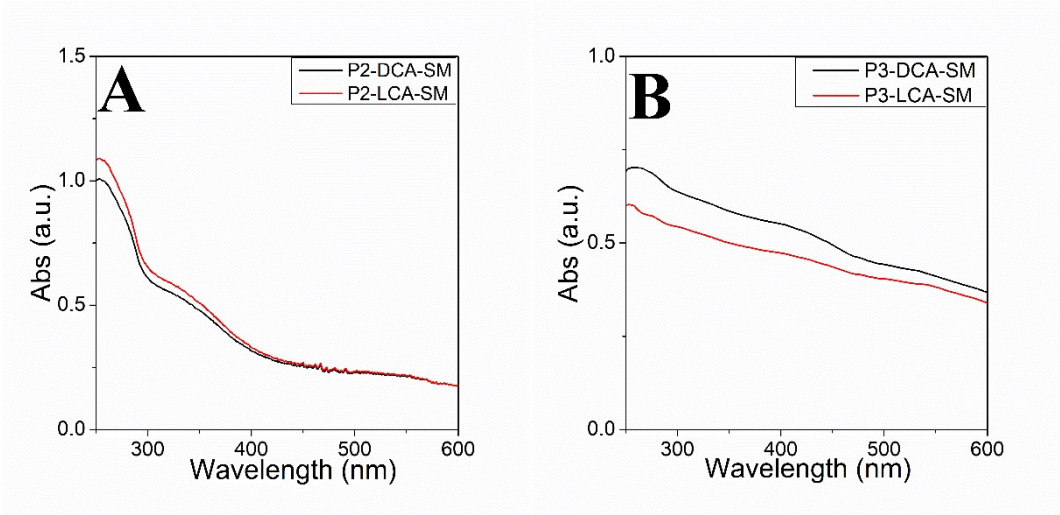

Figure S15. UV-vis spectra of P2-CA-SM (**A**) and P3-CA-SM (**B**). Measured by dispersing the products in methanol (**A**) and $CHCl_3$ (**B**) (c=1mg/ml).

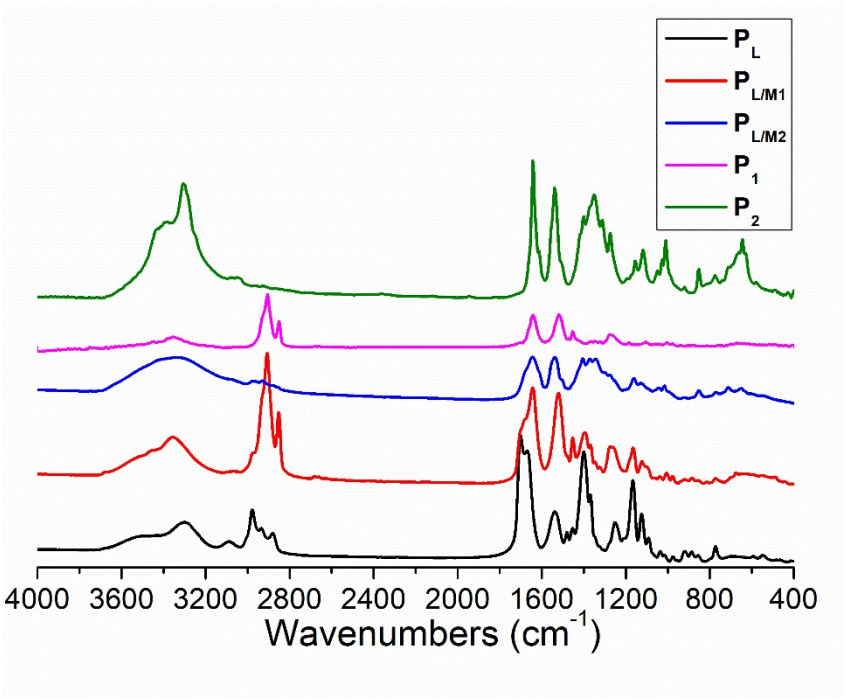

Figure S16. FTIR spectra of P_L, $P_{L/M1}$, $P_{L/M2,}$ P1 and P2 with KBr as tablet.

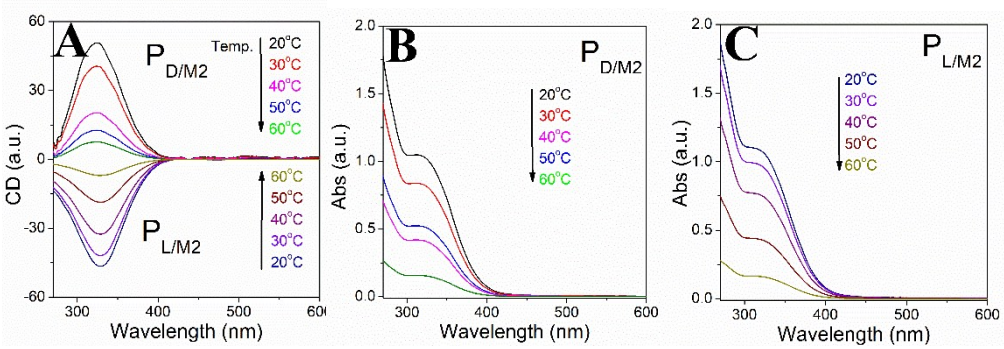

Figure S17. CD and UV-vis spectra of $P_{D/M2}$ and $P_{L/M2}$ measured at varied temperature (measured by dissolving the polymers in methanol quantitatively).