Supplementary Information:

Separation and characterization of benzaldehyde-functional polyethylene glycols by liquid chromatography under critical conditions

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Table S1. Feed ratios of 4-carboxybenzaldehyde to MPEGOH 5k with the catalysts used and the average degrees of functionality of MPEGCHO 5k.

feed ratio of [COOH]: [OH][a]	MPEGOH 5k/ [OH]	4-carboxybenzaldehyde/ [COOH]	DCC	DMAP	degree of functionality of MPEGCHO 5k mol %[b]
1:1	1 .00 g/ 0.21 mmol	0.032 g, 0.21 mmol	0.052 g 0.25 mmol	0.065 g 0.53 mmol	44
2:1		0.063 g, 0.42 mmol	0.103 g 0.50 mmol	0.65 g 0.53 mmol	65
3:1		0.095 g, 0.63 mmol	0.157 g 0.76 mmol	0.065 g 0.53 mmol	97

[a][COOH]: 4-carboxybenzaldehyde; [OH]: MPEGOH 5k, M_n=4677

[b] Determined by ^{1}H NMR.

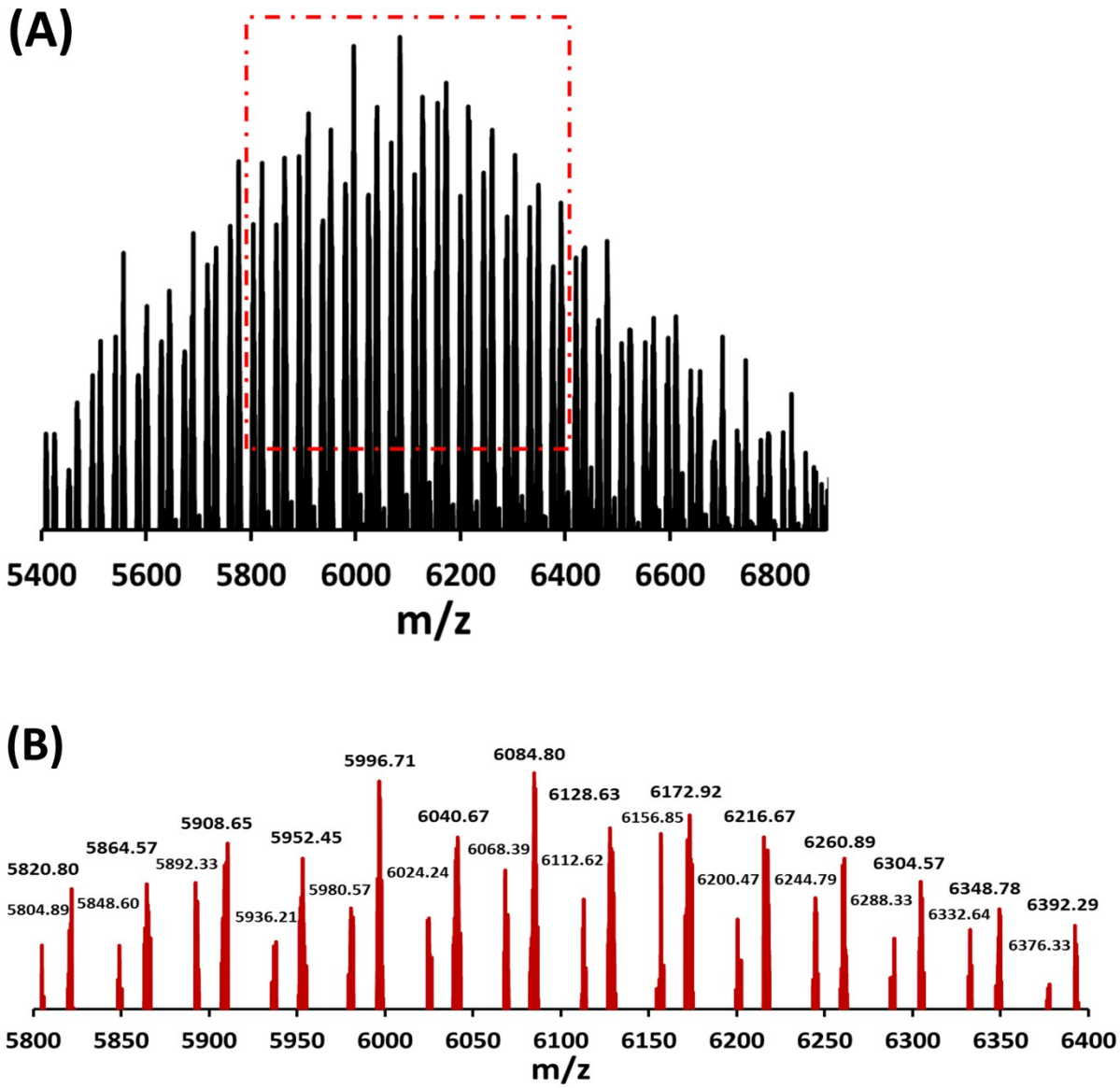

Fig. S1. MALDI-TOF mass spectrum for (A) bi-funtional fraction collected at 12.15-12.40 min of PEGDCHO 6k under LCCC on XB-Phenyl column at 30°C, (B) enlarged part from 5800 to 6400 m/z (the major series, M_{peak} = n×44 (CH_2CH_2O-) + 133 (-CO-Ph-CHO) + 149(-COO-Ph-CHO)+39 (K^+); the minor series, M_{peak} = n×44 (CH_2CH_2O-) + 133 (-CO-Ph-CHO) + 149(-COO-Ph-CHO) +23 (Na^+)).

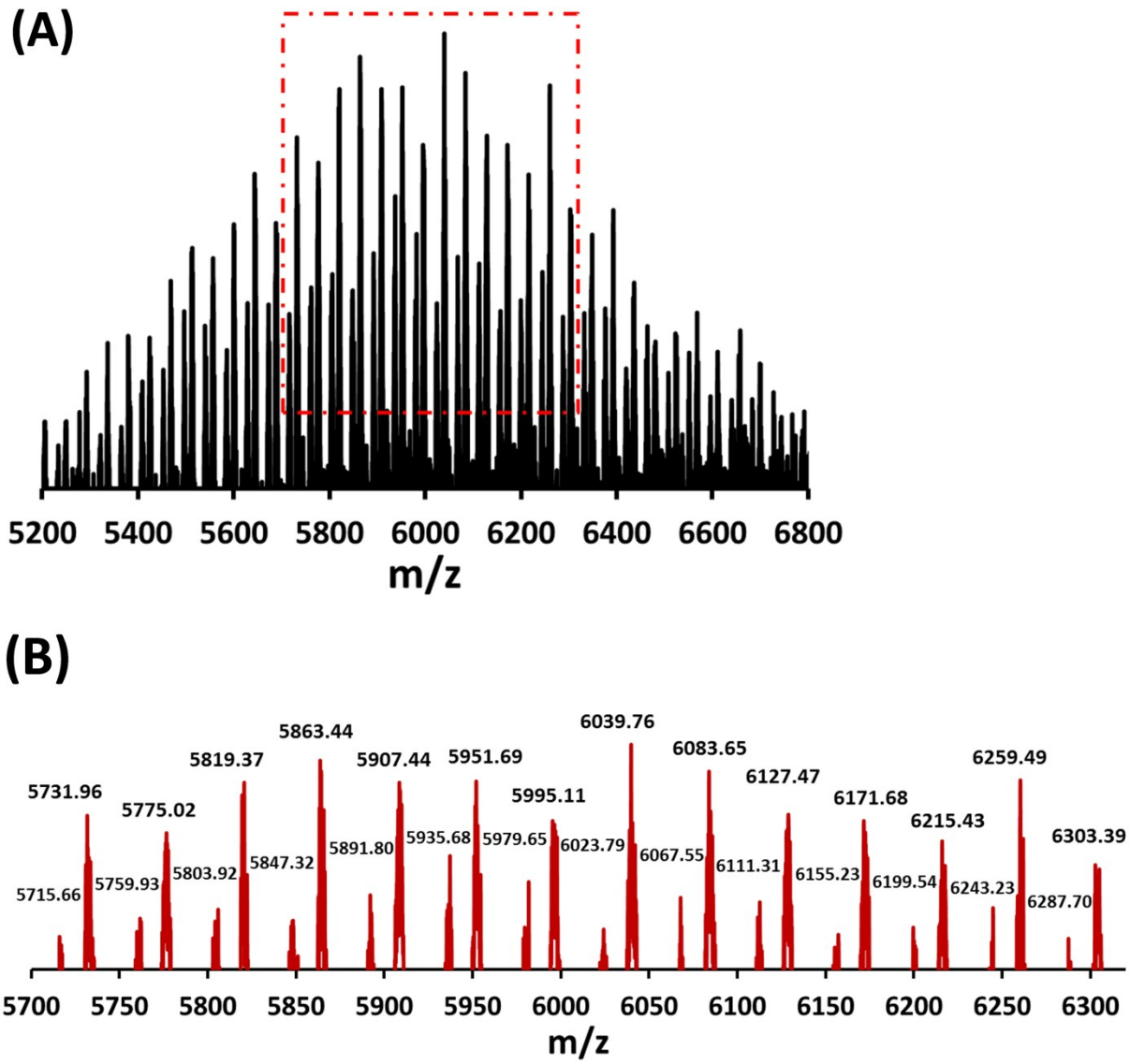

Fig. S2. MALDI-TOF mass spectrum for (A) mono-funtional fraction collected at 8.25-8.55 min of PEGCHO 6k under LCCC on XB-Phenyl column at 30°C, (B) enlarged part from 5700 to 6320 m/z (the major series, M_{peak} = n×44 (CH_2CH_2O-) + 133 (-CO-Ph-CHO) + 17(-OH) +39 (K^+); the minor series, M_{peak} = n×44 (CH_2CH_2O-) + 133 (-CO-Ph-CHO) + 17(-OH) +23 (Na^+)).