Electronic Supplementary Information

Self-assembly of well-defined triblock copolymers based on poly(lactic acid) and poly(oligo(ethylene glycol)methyl ether methacrylate) prepared by ATRP

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Table S1 Characteristics of α,ω-telechelic poly(lactide)s

		Feed composition	Time hours	Conversion[c] %	$M_{n,NMR}$[c] g.mol^{-1}	DP_{PLLA}[c]	$M_{n,SEC}$[d] g.mol^{-1}	$Đ$[d]
Entry 1	$PLA_{20}(OH)_2$	20:1:0.2[a]	4	98	3000	20	4900	1.10
Entry 2	$PLA_{20}(Br)_2$	1:1.5:1.5[b]	24	-	3300	20	5500	1.10

[a]Feed : $[_L\text{-La}]_0/[I]_0/[Sn]_0$ T=90 °C, solvent: toluene; [b]$[PLA(OH)_2]/[RCO_2Br]/[Et_3N]$, room temperature, solvent: dichloromethane; [c]determined by NMR; [d]determined by SEC in THF using polystyrene standards.

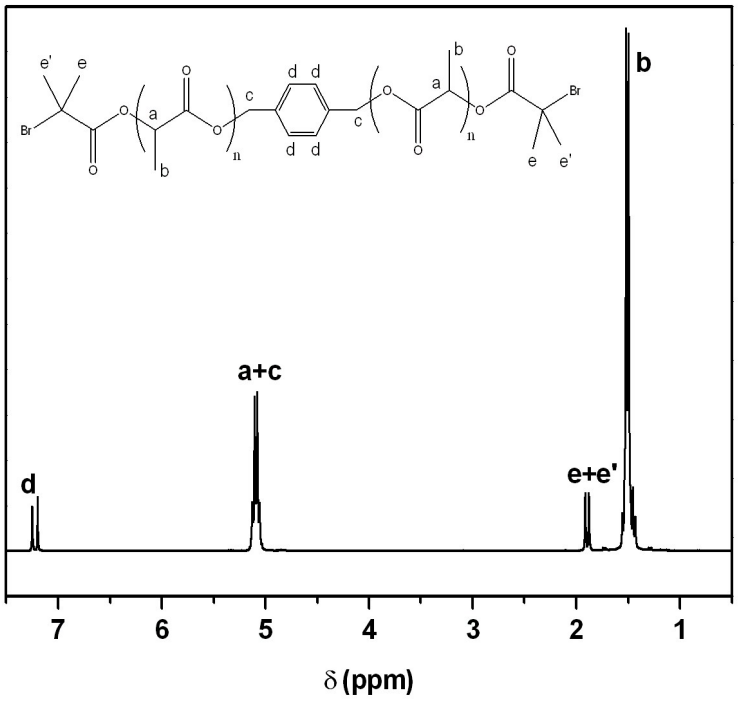


Fig. S1. ^{1}H NMR spectrum of α,ω-bromoisobutyryl poly(lactic acid) $PLLA_{20}(Br)_2$

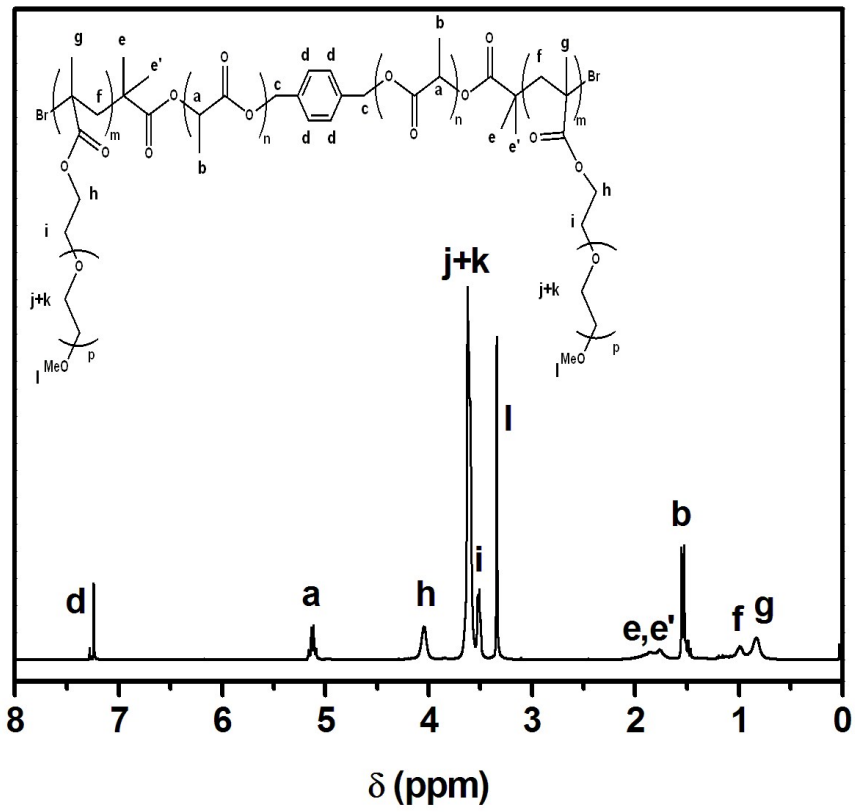
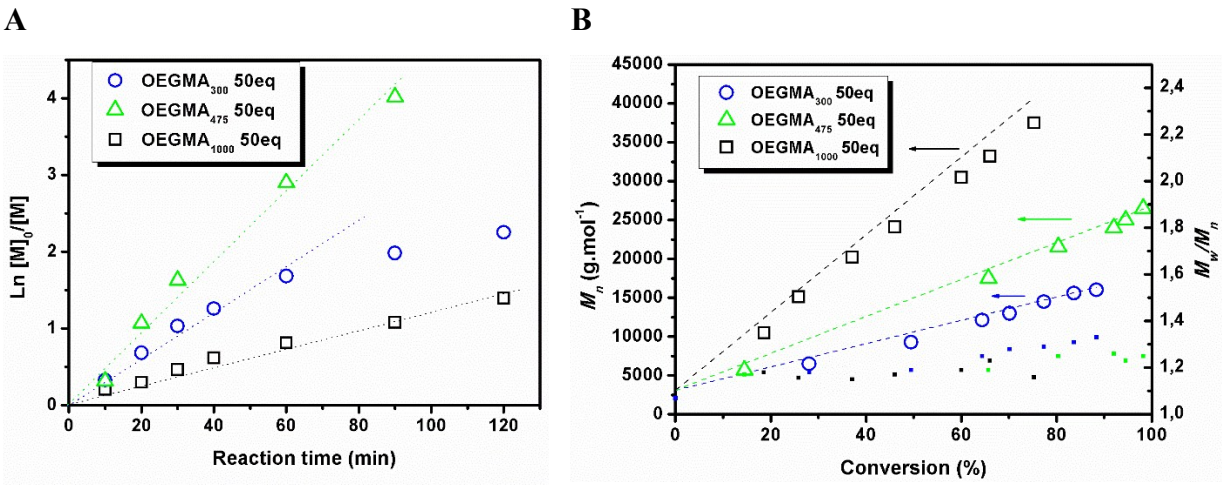


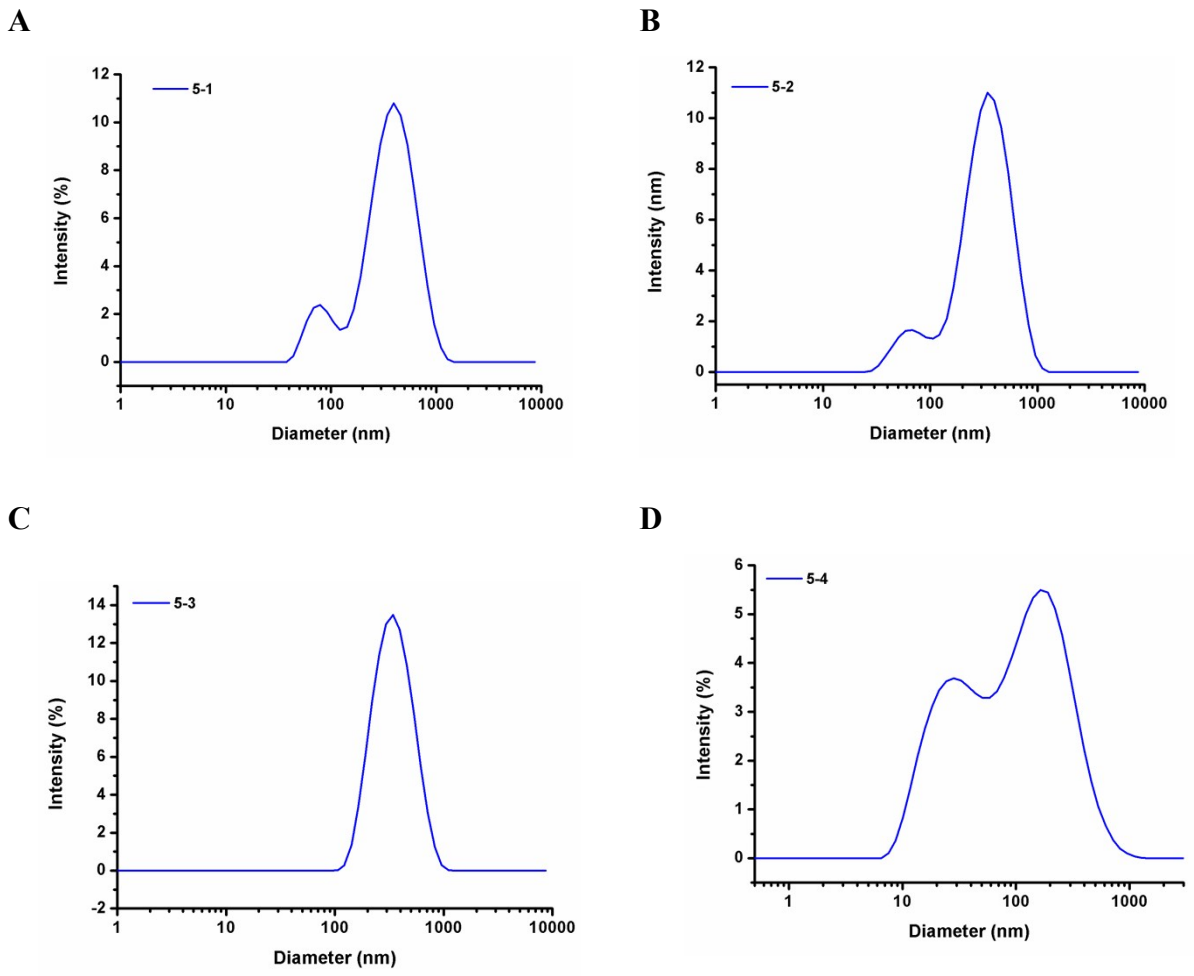
Figure S2 ^{1}H NMR spectrum of P(OEGMA$_{300}$)$_{12}$-*b*-PLLA$_{20}$-*b*-P(OEGMA$_{300}$)$_{12}$ copolymer in $CDCl_3$



Experimental conditions: $[PLA(Br)_2]_0/[CuBr_2]_0/[CuBr]_0/[PMDETA]_0$=1/1/2/4 in solution in anisole at 60°C.

Figure S3. Evolutions (A) of $\ln([M]_0/[M])$ versus time and (B) molar mass (M_n) and dispersity ($Đ_M$) versus conversion with ATRP of $OEGMA_{300}$, $OEGMA_{475}$ and $OEGMA_{1000}$ initiated by $PLLA(Br)_2$ with monomer to initiator ratio [OEGMA]/[PLLA] of 50.

Figure. S4. DLS results of the copolymer NPs in aqueous media from the amphiphilic copolymers (A) $P(OEGMA_{300})_{12}$-*b*-$PLLA_{20}$-*b*-$P(OEGMA_{300})_{12}$ NPs, (B) $P(OEGMA_{300})_{21}$-*b*-$PLLA_{20}$-*b*-$P(OEGMA_{300})_{21}$ NPs, (C) $P(OEGMA_{475})_{12}$-*b*-$PLLA_{20}$-*b*-$P(OEGMA_{475})_{11}$ NPs, (D) $P(OEGMA_{475})_{21}$-*b*-$PLLA_{20}$-*b*-$P(OEGMA_{475})_{21}$ NPs.



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