Novel Epoxy-terminated Macromonomers and Their Polymerization for Synthesis of Bottle-brush Type Amphiphilic Block Copolymers

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Table S1. Polymerization protocols for synthesis of poly(Ep-TEGMME).

PRODUCTS	Polymerization Protocols		
	Diethylene Glycol (Initiator)	Sodium Hydride (Catalyst)	Epoxy terminated TEGMME (Monomer)
	g (mmoles)	g (mmoles)	g (mmoles)
$P(Ep\text{-}TEGMME)_{1K}$	0.44 (4.15)	0.02 (0.83)	2 (9.09)
$P(Ep\text{-}TEGMME)_{2K}$	0.22 (2.07)	0.02 (0.83)	2 (9.09)
$P(Ep\text{-}TEGMME)_{3K}$	0.07 (0.66)	0.02 (0.83)	2 (9.09)

Table S2. Polyemrization protocols for synthesis of MeO-PEG_{550}-b-P(Ep-EGMBE) and P(Ep-EGMBE)-b-PEG_{400}-b-P(Ep-EGMBE).

S.no	Mass Ratio	Macro-initiator	Catalyst	Monomer
	Macro-initiator : Macromonomer	PEG_{400}/MeO-PEG_{550} (gm)	Sodium hydride (gm)	Ep-TEGMME (gm)
1	1: 3	0.2	0.006	0.6
2	1:1	0.6	0.006	0.6
3	3:1	1.8	0.006	0.6

Table S3. Polyemrization protocols for synthesis of P(Ep-TEGMME)$_{2K}$-b-PCL.

S.no	Mass Ratio	Macro-initiator	Catalyst	Monomer
	Macro-initiator : Monomer	**Poly(Ep-TEGMME)$_{2K}$ (gm)**	**Sodium hydride (gm)**	**ε-caprolactone (gm)**
1	1: 3	0.2	0.006	0.6
2	1:1	0.6	0.006	0.6
3	3:1	1.8	0.006	0.6

Table S4. Molar mass data of P(Ep-TEGMME) as obtained by size exclusion chromatography using PS calibration.

Sample	*Target molar mass (g/mol)*	Mn (g/mol)	Mw (g/mol)	Mp (g/mol)	Dispersity (Đ)
P(Ep-TEGMME)$_{1K}$	1000	1400	1800	1650	1.28
P(Ep-TEGMME)$_{2K}$	2000	2600	3200	2800	1.23
P(Ep-TEGMME)$_{3K}$	3000	3900	5500	4400	1.41

Table S5. Molar mass data of *MeO-PEG$_{550}$-b-P(Ep-EGMBE)* as obtained by size exclusion chromatography using PS calibration.

Sample	Mn (g/mol)	Mw (g/mol)	Mp (g/mol)	Dispersity (Đ)
MeO-PEG$_{550}$	1000	1100	1050	1.10
MeO-PEG$_{550}$-b-P(Ep-EGMBE) (3:1)	1100	1250	1150	1.14
MeO-PEG$_{550}$-b-P(Ep-EGMBE) (1:1)	1550	1750	1600	1.13
MeO-PEG$_{550}$-b-P(Ep-EGMBE) (1:3)	1850	2300	2100	1.24

Table S6. Molar mass data of P(Ep-EGMBE)-b-PEG_{400}-b-P(Ep-EGMBE) as obtained by size exclusion chromatography using PS calibration.

Sample	Mn (g/mol)	Mw (g/mol)	Mp (g/mol)	Dispersity (Đ)
PEG_{400}	800	900	850	1.12
P(Ep-EGMBE)-b-PEG_{400}-b-P(Ep-EGMBE) (3:1)	1000	1250	1100	1.25
P(Ep-EGMBE)-b-PEG_{400}-b-P(Ep-EGMBE) (1:1)	1300	1700	1450	1.31
P(Ep-EGMBE)-b-PEG_{400}-b-P(Ep-EGMBE) (1:3)	1700	2450	2200	1.44

Table S7. Molar mass data of $P(Ep\text{-}TEGMME)_{2K}$-b-PCL as obtained by size exclusion chromatography using PS calibration.

Sample	Mn (g/mol)	Mw (g/mol)	Mp (g/mol)	Dispersity (Đ)
$P(Ep\text{-}TEGMME)_{2K}$	2700	3100	2900	1.15
$P(Ep\text{-}TEGMME)_{2K}$-b-PCL (3:1)	3200	3700	3400	1.16
$P(Ep\text{-}TEGMME)_{2K}$-b-PCL (1:1)	4100	5200	4400	1.27
$P(Ep\text{-}TEGMME)_{2K}$-b-PCL (1:3)	6000	8500	6500	1.41