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*Yasemin Yuksel Durmaz, Yen-Ling Lin, and Mohamed E. H. ElSayed**

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Yasemin Yuksel Durmaz[+]*, Yen-Ling Lin*[+]*, and Mohamed E. H. ElSayed**

[+] These authors contributed equally to this research work.

Dr. Yasemin Yuksel Durmaz, Ms. Yen-Ling Lin, and Prof. Mohamed E. H. ElSayed
University of Michigan
Department of Biomedical Engineering
1101 Beal Avenue
Lurie Biomedical Engineering Building
Ann Arbor, MI 48109, USA
E-mail: melsayed@umich.edu
Web: www.bme.umich.edu/centlab.php

1. Synthesis of "Smart" β-CD-Based Vectors

We successfully utilized the asymmetric distribution of primary hydroxyl groups on the primary face and secondary hydroxyl groups on the secondary face of the β-CD core to graft amphiphilic poly(hexyl methacrylate-*co*-(2-(dimethylamino)ethyl methacrylate)) (P(HMA-*co*-DMAEMA)) polymers from the secondary face via acid-labile hydrazone linkages using ATRP. As shown in **Scheme S1**, we used *tert*-butyldimethylsilyl chloride (TBDMSCl) to cap 96% of the primary hydroxyl groups forming $(TBDMS)_7$-β-CD (compound **2**), which allowed us to selectively modify the secondary hydroxyl groups in subsequent reactions. The average number of secondary hydroxyl groups that reacted with phenyl acetate was 8.5 yielding $(TBDMS)_7$-β-CD-$(phenyl\ acetate)_{8.5}$ (compound **3**), which was completely (100%) transformed to the correspponding acyl hydrazide $(TBDMS)_7$-β-CD-$(hydrazide)_{8.5}$ (compound **4**). We utilized the aromatic protons of the phenyl groups to quantitatively confirm the formation of the phenyl acetate ester and subsequent transformation to the acyl hydrazide based on the ^{1}H NMR spectra **(Figures S2 and S3**). We reacted $(TBDMS)_7$-β-CD-$(hydrazide)_{8.5}$ (compound **4**) with 2-bromo-2-methyl-propionic acid-4-formyl-phenyl ester (compound **5**) to introduce the initiation sites for ATRP conjugated via acid-labile hydrazone linkages to the β-CD secondary face following published protocols.[1] By comparing the ratio between TBDMS and the aromatic protons in the $(TBDMS)_7$-β-CD-$(hydrazone\text{-}Br)_{4.8}$ (compound **6**), we confirmed the conjugation of 4.8 ATRP initiation sites **(Figure S4**), which is sufficient for graftting the desired number of cationic groups for condensation of a large dose of siRNA molecules without causing undesirable gelation of the formed star polymers at higher grafting densities.

We used $(TBDMS)_7$-β-CD-$(hydrazone\text{-}Br)_{4.8}$ (Compound **6**) as a macroinitiator for copolymerization of hexyl methacrylate (HMA) and 2-(dimethylamino)ethyl methacrylate (DMAEMA) monomers using the $CuCl/CuCl_2$/HMATETA catalytic system in anisole or

tetrahydrofuran at 60 ^{o}C, which yielded (TBDMS)$_7$-β-CD-P(HMA-*co*-**D**MAEMA)$_{4.8}$ (compound **7**) star polymers with two different graft compositions (HMA/DMAEMA ratio of 50/50 or 75/25) and degree of polymerization (molecular weight of 25 kDa or 40 kDa) **(Table S1)**. Details of the polymerization reactions are listed in **Table S1** and graft composition was confirmed based on the corresponding ^{1}H NMR spectrum (**Figure S5A**). The number average molecular weight and the number of HMA and DMAEMA units in the each graft were calculated based on the ratio between the aromatic protons inserted in the initiating group and the methylene protons of each monomer located next the ester and amine groups of the HMA and DMAEMA monomers, respectively (**Table 1**). We analyzed the molecular weight and molecular weight distribution for all star polymers using gel permeation chromatograph. Results show that all the synthesized star polymers exhibit narrow molecular weight distribution (**Figure S6 & Table S1**). However, given the established interaction between DMAEMA monomers and the packing material of GPC columns[2] and difference in topography between star-shaped and the linear polymers, we used the number average molecular weight obtained from the ^{1}H NMR spectra in all subsequent calculations in this research.

The TBDMS protecting groups were removed to yield β-CD-P(HMA-*co*-**D**MAEMA)$_{4.8}$ (compound **8**) star polymers before partial (50%) or complete (100%) quaternization of the DMAEMA monomers into N,N,N-trimethylaminoethyl methacrylate iodide (TMAEMA) monomers using methylene iodide to obtain β-CD-P(HMA-*co*-**T**MAEMA)$_{4.8}$ (compound **9**) and β-CD-P(HMA-*co*-**D**MAEMA-*co*-**T**MAEMA)$_{4.8}$ (compound **10**) polymers. As shown in **Figure S5B and S5C**, we used the ratio between the methyl protons of the DMAEMA monomers at 2.26 ppm and those of the TMAEMA monomers at 3.61 ppm to calculate the % of DMAEMA quaternization in different star polymers **(Table 1)**.

1.1.Materials

β-Cyclodextrin (β-CD) (Aldrich, 98 %) was freeze-dried before use. 2-(dimethylamino)ethyl methacrylate (DMAEMA) (Aldrich, 98 %) and hexyl methacrylate (HMA) (Aldrich, 98 %) were passed through basic alumina column to remove the associated inhibitor before use. 1,1,4,7,10,10-Hexamethyltriethylenetetramine (HMTETA) ligand (Aldrich, 97 %) was distilled before use. 2-Bromo-2-methyl-propionic acid 4-formyl-phenyl ester (Ald-Br) was synthesized following a published protocol.[3] Copper (I) chloride (CuCl) (Aldrich, 99.9 %), copper (II) chloride ($CuCl_2$) (Aldrich, 99.9%), *tert*-butyldimethylsilyl chloride (TBDMS) (Aldrich, 97%), phenyl bromoacetate (Aldrich, 98%), sodium hydride (NaH) (Aldrich, 60% dispersion in mineral oil), hydrazine anhydrous (Aldrich, 98%), pyridine anhydrous (Aldrich, 98%), 2-bromoisobutyryl bromide (Fluka, > 97%), tetrabutylammonium floride 1.0 M solution in tetrahydrofuran (TBAF) (Aldrich), iodomethane (Aldrich, 99%), anisole anhydrous (Aldrich, 99.7 %), tetrahydrofuran anhydrous (THF) (Aldrich, > 99.9 %) were used as received.

1.2.Characterization

^{1}H NMR and ^{13}C NMR spectra of 5–10 % (w/w) solutions in $CDCl_3$ or D_2O with $Si(CH_3)_4$ as an internal standard were recorded using 400 MHz and 500 MHz Varian Mercury system (Palo Alto, CA) at room temperature, respectively. Gel permeation chromatography (GPC) analyses were done using a Viscotek GPCmax Autosampler system equiped with a Water 2414 refractive index (RI) detector. The apparent molecular weight and molecular weight distribution of final polymers were determined based on their elution volume on an Styragel HR 4E column compared to a series of poly(methyl methacrylate) standards (PolyAnalitik Inc, Canada) using THF containing 5 % TEA as a mobile phase at a flow rate of 1 mL/min at 35 ^{o}C. Data were analyzed using Viscotek OmniSEC Omni-01 software. Fragmentation of star

polymers in acidic solution was evaluated by dissolving 2 mg of each star polymer in 1 mL phosphate-buffered saline (PBS) with pH 5.8 and incubating at 37 °C for 8 hours while shaking. A 100 µl sample was drawn by the autosampler from polymer solution at 1, 2, 4, and 8 hours for GPC analysis using a Styragel HR 3, 4 and 5 DMF column system connected in series. DMF was used as an eluent at flow rate of 0.8 mL min^{-1} at 50°C for this fragmentation study. The areas under the curve for the peaks corresponding to the star polymer were used to quantify the amount of degraded polymer at a given time point to determine the hydrolysis rate of the hydrazone linkages connecting the polymer grafts to the secondary face of the β-CD core. FT-IR spectra were recorded on a Jasco FT-IR Spectrum 4100 type A.

1.3.Synthesis of $(TBDMS)_7$-β-CD-(hydrazone-Br)$_{4.8}$ Macroinitiator

1.3.1. Synthesis of $(TBDMS)_7$-β-CD

The primary OH groups of β-CD (**1**) were capped using *tert*-butyldimethylsilyl groups to yield compound $(TBDMS)_7$-β-CD (**2**) following published protocols.[4] Briefly, β-CD (2.8 g, 2.46 mmol) was dissolved by vigorous stirring in dry pyridine (30 mL) followed by cooling the solution on an ice bath to produce a thick gel. Dry *tert*-butyldimethylsilyl chloride (TBDMSCl) (3.0 g, 20 mmol) was dissolved in dry pyridine (20 mL) and added dropwise by a syringe to the cooled reaction vessel containing β–CD over 30 minutes, which liquefied the β-CD gel. The reaction vessel was kept in an ice bath for 3 hours before allowing it to warm up to room temperature while stirring overnight (18 h). The reaction mixture was poured into ice-cold water (500 mL) and stirred vigorously for 10 minutes to precipitate the crude product, which was filtered off, washed with ice-cold water, and dissolved in ethyl acetate (70 mL). The ethyl acetate solution was washed with 5% aqueous HCl solution (3 times x 50 mL), saturated aqueous $NaHCO_3$ solution (50 mL), and saturated brine (50 mL) before drying the solution using anhydrous Na_2S0_4, filtering, and concentrating to get a white solid. The solid

product was purified by flash chromatography on silica gel using a gradient mobile phase composed of 9/1 ethyl acetate/hexane followed by 18/1.9/0.1 dichloromethane/methanol/water to yield 3 g of compound **(2)** with 96 % of the primary OH capped with TBDMS group. ^{1}H NMR (400 MHz, $CDCl_3$): δ_H= 0.02 (s, 21H, Si-CH_3), 0.03 (s, 21H, Si-CH_3), 0.86 (s, 63H, C-$(CH_3)_3$), 3.55 (dd, *J*=8.8, 9.2, 7H, H-6a), 3.60 (bs, 7H, H-2), 3.64 (dd, *J*=4, 9.6, 7H, H-5), 3.71 (bd, *J*=10.8, 7H, H-3), 3.90 (dd, *J*=2.8, 11.2, 7H, H-6b), 4.00-4.05 (dd, *J*=8.8, 9.6, 7H, H-4), 4.88 (d, *J*=3.6 7H, H-1), 5.26 (s, 7H, OH), 6.73 (s, 7H, OH). ^{13}C NMR (125 MHz, $CDCl_3$): δ_C=-5.2, - 5.1, 18.2, 25.9, 61.6, 72.5, 73.4, 73.6, 81.8, 102.0. FT-IR (cm^{-1}): 3323, 2951-2855, 1565, 1465, 1367, 1251, 1151, 1032, 961, 829, 771. EIMS *m/z* $[M+H]^+$ calculated for $C_{84}H_{168}O_{35}Si_7$ is 1934.8, found 1935.7.

1.3.2. Etherification of Secondary Hydroxyl Groups

$(TBDMS)_7$-β-CD **(2)** (3.0 g, 1.55 mmol) was dissolved in dry THF (60 mL) and added to sodium hydride (NaH) (2.16 g washed with hexane, 54.24 mmol) while cooling the reaction flask in an ice bath. Once the evolution of H_2 subsided, phenyl bromoacetate (12.30 g, 48.48 mmol) was added to the reaction mixture in an ice bath under N_2 atmosphere and the reaction mixture was kept 1 more hour in an ice bath. After 16 h, the reaction mixture was cooled on an ice bath followed by dropwise addition of methanol to inactivate excess NaH followed by removal of solvents under reduced pressure to yield a solid residue. The residue was suspended in CH_2Cl_2 and washed with H_2O followed by saturated aqueous NaCl solution. The CH_2Cl_2 layer was recovered and evaporated to dryness to yield brown oil, which was purified by column chromatography starting with 1/4 ethyl acetate/hexane solvent mixture followed by 18/2 dichloromethane/methanol mixture to yield 1.96 g of $(TBDMS)_7$-β-CD-$(\text{phenyl acetate})_{8.5}$ **(**compound **3)** (54% conversion). ^{1}H NMR (400 MHz, $CDCl_3$): δ_H= -0.04 (s, 42H, Si-CH_3), 0.89 (s, 63H, C-$(CH_3)_3$), 3.57-4.06 (bm, 42H, H-2, H-3, H-4, H-5, H-6a, H-6b), 4.73

(s, 17H, O*CH*$_2$CO), 4.45-4.90 (b, 7H, H-1), 5.33 (s, OH), 6.83-7.40 (b, 42.5H, aromatic protons). ^{13}C NMR (125 MHz, $CDCl_3$): δ_C=-5.01, 18.1, 25.9, 57.3, 61.6, 72.2, 72.9, 73.0, 75.6, 97.5, 114.5, 121.7, 129.5, 151.2, 157.7. FT-IR (cm^{-1}): 2997, 2980, 2926, 2851, 1745, 1590, 1492, 1251, 1158, 1079, 1032, 833, 750.

1.3.3. Incorporation of Acid-Labile Hydrazine Groups

(TBDMS)$_7$-β-CD-(phenyl acetate)$_{8.5}$ **(3)** (1.96 g, 7.75 x 10^{-4} mol containing 6.59 x 10^{-3} moles of ester unit) was dissolved in THF (80 mL). Hydrazine (2.06 mL, 6.59 x 10^{-2} mol) was added to reaction mixture and refluxed at 65 ºC for 36 h before removing the THF. The residual solid was dissolved in CH_2Cl_2 and extracted with 2.5% NaOH solution and the organic layer was dried to separate (TBDMS)$_7$-β-CD-(hydrazide)$_{8.5}$ **(4)** as a light brown solid (0.75 g, conversion ~ 99%). ^{1}H NMR (400 MHz, $CDCl_3$): δ_H= -0.01 (s, 42H, Si-CH_3), 0.85 (s, 63H, C-(CH_3)$_3$), 2.25 (bs, NH-*NH*$_2$), 3.10-4.40 (bm, 59H, H-2, H-3, H-4, H-5, H-6a, H-6b and O*CH*$_2$CO), 4.45-5.33 (b, 7H, H-1 overlapped with OH), 7.69 (CO-*NH*-NH$_2$). ^{13}C NMR (125 MHz, $CDCl_3$): δ_C=-5.02, 18.2, 25.9, 59.5, 61.8, 72.5, 73.2, 73.5, 79.2, 101.8, 208.1. FT-IR (cm^{-1}): 3309, 2930-2855, 1673, 1598, 1462, 1362, 1251, 1143, 1082, 1036, 961, 829, 775.

(TBDMS)$_7$-β-CD-(hydrazide)$_{8.5}$ **(4)** (0.7 g, 3.5 x 10^{-4} mol containing 2.97 x 10^{-3} moles of NH_2 units) was dissolved in THF (20 mL) followed by addition of 2-bromo-2-methyl-propionic acid-4-formyl-phenyl ester (**5**) (8.06 g, 2.97 x 10^{-2} mol) to the reaction flask and refluxing the mixture at 65 ºC for 24 h before evaporating the THF and isolating the crude product, which was purified by flash chromatography on silica gel using a gradient mobile phase composed of 9/1 ethyl acetate/hexane mixture followed by 18/2 dichloromethane/methanol mixture containing 1% w/v TEA to yield 0.15 g of (TBDMS)$_7$-β-CD-(hydrazone-Br)$_{4.8}$ (**6**) (80% conversion). ^{1}H NMR (400 MHz, $CDCl_3$): δ_H= 0.03 (s, 42H, Si-CH_3), 0.87 (s, 63H, C-(CH_3)$_3$), 2.09 (s, 28H, C(CH_3)$_2$-Br), 3.38-4.53 (bm, 59H, H-2, H-3,

H-4, H-5, H-6a, H-6b and O*CH*$_2$CO), 4.88-5.13 (b, 7H, H-1 and s, OH), 6.82-7.21 (b, 9.6H, aromatic protons) 7.30-7.95 (b, 14.5H aromatic protons and *NH*-N). 8.15 (s, CH). ^{13}C NMR (125 MHz, $CDCl_3$): δ_C=- 5.1, 19.2, 25.9, 29.7, 29.9, 55.9, 59.6, 61.9, 71.8, 72.05, 74.10, 81.8, 99.3, 121.2, 127, 131.7, 145.5, 150.8, 164.7, 170.9. FT-IR (cm^{-1}): 3294, 3069-2855, 1749, 1684, 1652 1602, 1555 1458, 1387, 1251, 1158, 1082, 1032, 957, 829, 775.

1.4.Grafting of HMA/DMAEMA Monomers from the Secondary Face of β-CD

Compound **6** (13.5 mg, 3.48 x 10^{-6} mol containing 1.77 x 10^{-5} Br unit) and HMTETA (4.83 µL, 1.77 x 10^{-5} mol) were mixed with 1 mL of anisole or THF in Schlenk tube and degassed by three freeze–pump–thaw cycles. CuCl (1.4 mg, 1.42 x 10^{-5} mol), $CuCl_2$ (0.47 mg, 3.55 x 10^{-6} mol), DMAEMA (0.88 mL, 5.33 x 10^{-3} mol), HMA (1.05 mL, 5.33 x 10^{-3} mol) and 2 mL of anisole or THF were mixed in a second Schlenk tube followed by degassing the reaction mixture by three freeze–pump–thaw cycles. The initiator solution was transferred to the reaction vessel by a syringe and the reaction mixture was heated in an oil bath at 60 ºC. The reaction product was dissolved in THF, passed through a basic alumina column to remove the catalyst, rotary evaporated to remove the solvent, and added to cold heptane to precipitate $(TBDMS)_7$-β-CD-P(HMA-*co*-DMAEMA)$_{4.8}$ (**7**). ^{1}H NMR (400 MHz, $CDCl_3$): δ_H= 0.03 (s, 42H, Si-CH_3), 0.86-2.03 (C-(*CH*$_3$)$_3$, *CH*$_2$-C(CH_3), CH_2-C(*CH*$_3$), O-CH_2-(*CH*$_2$)$_2$-CH_3, O-CH_2-$(CH_2)_2$-*CH*$_3$), 2.26 (bs, N(*CH*$_3$)$_2$), 2.54 (*CH*$_2$-N$(CH_3)_2$), 3.56 (7H, H-6a), 3.62-3.72 (21H, H-2, H-3, H-5), 3.92 (COO*CH*$_2$$(CH_2)_4$-$CH_3$ overlap with H-6b, H-4), 4.04 (COOCH_2-CH_2-N(*CH*$_3$)$_2$), 4.90-5.11 (7H, H-1 and OH residue), 6.78-7.05 (Aromatic protons), 7.61-7.99 (Aromatic protons and *NH*-N=CH), 8.08 (NH-N=*CH*). FT-IR (cm^{-1}): 2951-2725, 1726, 1458, 1376, 1266, 1143, 1061, 965, 746.

1.5. Deprotection of (TBDMS)$_7$-β-CD-P(HMA-co-DMAEMA)$_{4.8}$ Polymer

(TBDMS)$_7$-β-CD-P(HMA-*co*-DMAEMA)$_{4.8}$ polymer **(7)** (100 mg, 3.44 x 10^{-7} mol with 2.40 x 10^{-6} mol of TBDMS units) was dissolved in anhydrous THF (3 mL), mixed with tetrabutylamonium floride (TBAF) (24 µL, 2.40 x 10^{-5} mol) under argon atmosphere, and stirred for 8 h at room temperature followed by removing the solvent and precipitating the polymer in cold heptane. ^{1}H NMR (400 MHz, $CDCl_3$): δ_H=0.86-2.03 (*CH$_2$*-C(CH$_3$), CH$_2$-C(*CH$_3$*), O-CH$_2$-(*CH$_2$*)$_2$-CH$_3$, O-CH$_2$-(CH$_2$)$_2$-*CH$_3$*), 2.26 (s, N(*CH$_3$*)$_2$), 2.54 (*CH$_2$*-N(CH$_3$)$_2$), 3.56 (7H, H-6a), 3.62-3.72 (21H, H-2, H-3, H-5), 3.92 (COO*CH$_2$*(CH$_2$)$_4$-CH$_3$ overlap with H-6b, H-4), 4.04 (COOCH$_2$-CH$_2$- N(*CH$_3$*)$_2$), 4.90-5,26 (7H, H-1 and OH residue), 6.78-7.05 (Aromatic protons), 7.61-7.92 (Aromatic protons and CO-*NH*-N), 8.08 (CO-NH-N=*CH*). FT-IR (cm^{-1}): 3423, 2958-2768, 1723, 1650, 1573, 1458, 1383, 1269, 1147, 1061, 961, 882, 746.

1.6. Quaternization of DMAEMA Monomers into Cationic TMAEMA Monomers

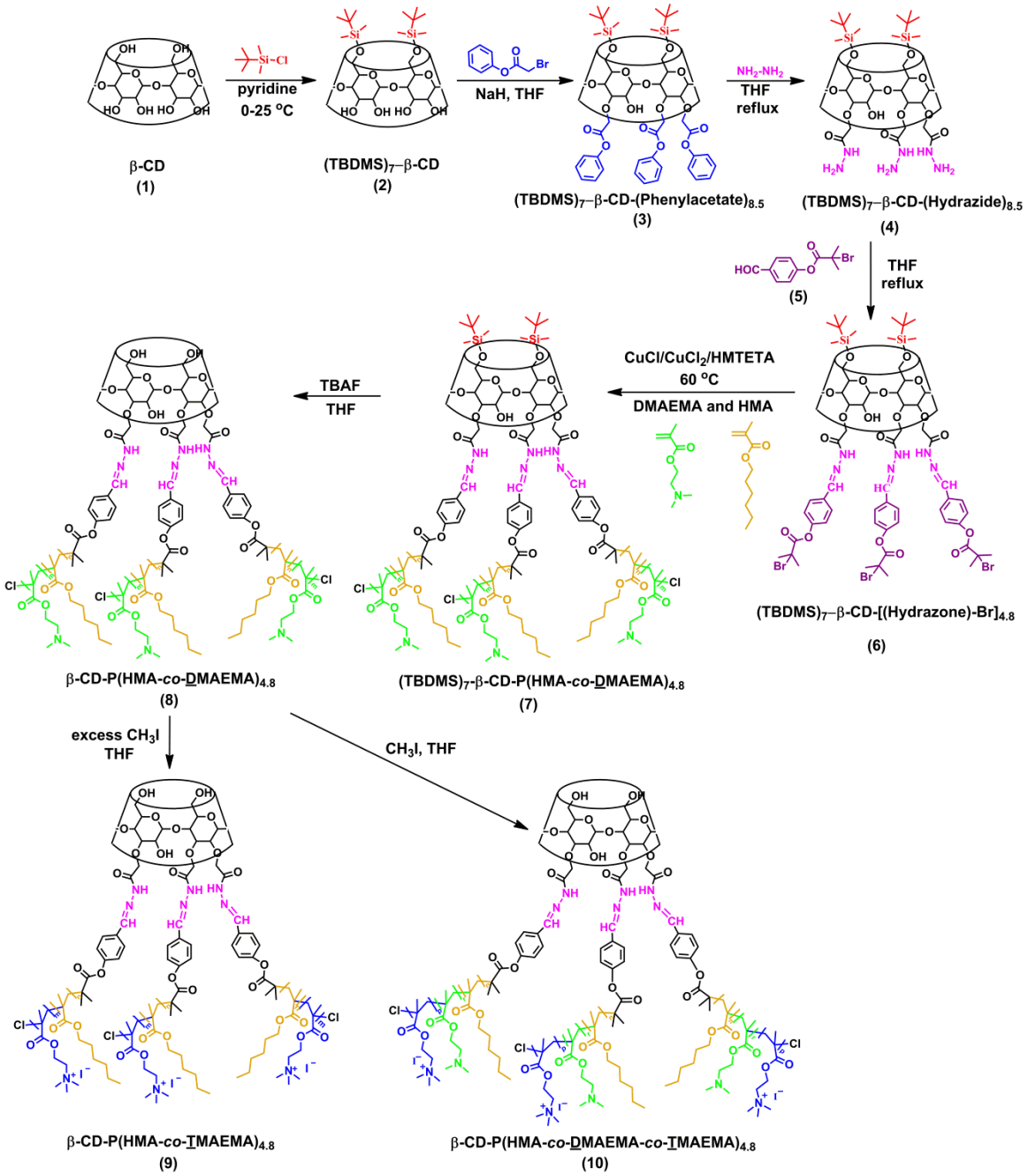
β-CD-P(HMA-*co*-**D**MAEMA)$_{4.8}$ (**8**) (90 mg, 3.1 x 10^{-7} mol with 2.88 x 10^{-4} mol of *tert*-amine groups) was dissolved in anhydrous THF (5 mL) followed by addition of methyl iodide (36 µL, 5.76 x 10^{-4} mol) to the reaction vessel and allowing the reaction mixture to stand overnight at room temperature under an argon atmosphere. Pure β-CD-P(HMA-*co*-**T**MAEMA)$_{4.8}$ (**9**) was isolated by removing the THF solvent by rotary evaporation, dissolving the reaction product in water and dialyzing it against deionized water for 3 days followed by lyophilization**.** To prepare partially (50%) quaternized polymers, methyl iodide was used at 1/2 equivalent of the concentration of *tert*-amine groups of polymer (**8**) to yield β-CD-P(HMA-*co*-**D**MAEMA-*co*-**T**MAEMA)$_{4.8}$, (**10**), which was purified the same way as β-CD-P(HMA-*co*-**T**MAEMA)$_{4.8}$. ^{1}H NMR (400 MHz, D_2O): δ_H=0.84-2.05 (*CH$_2$*-C(CH$_3$), CH$_2$-C(*CH$_3$*), O-CH$_2$-(*CH$_2$*)$_4$-CH$_3$, O-CH$_2$-(CH$_2$)$_2$-*CH$_3$*), 3.16 (bs, N(*CH$_3$*)$_2$), 3.75 (O-*CH$_2$*-(CH$_2$)$_4$-

CH_3 overlap with CH_2-$N(CH_3)_2$), 4.35 (COOCH_2-CH_2-$N(CH_3)_2$). FT-IR (cm^{-1}): 3334, 2951-2851, 1720, 1648, 1477, 1387, 1237, 1140, 982, 961, 879.

Table S1. Copolymerization of HMA and DMAEMA monomers from β-Cyclodextrin macroinitiator using ATRP.

Polymer Code	**[M]/[I]/[CuCl]/ [$CuCl_2$]/[HMTETA][a]**	**Time (h)**	**Copolymer Composition,% (HMA/DMAEMA)[d]**	**Conv. (%)[e]**	**M_{ntheo} of each arm[e] (g/mol)**	**M_{nNMR} of each arm[d] (g/mol)**	**M_w/M_n[f]**
β-CD-1&2	200/1/0.8/0.2/1[b]	47	47:53	70	23170	25580	1.45
β-CD-3&4	600/1/0.8/0.2/1[c]	45	49:51	39	38310	40750	1.75
β-CD-5	200/1/0.8/0.2/1[b]	48	76:24	44	14670	25050	1.13
β-CD-6	200/1/0.8/0.2/1[b]	48	74:26	53	17800	24930	1.17
β-CD-7&8	600/1/0.8/0.2/1[c]	50	76:24	25	25850	41200	1.25

[a]1,1,4,7,10,10-Hexamethyltriethylenetetramine and $(TBDMS)_7$-β-CD-$(hydrazone\text{-}Br)_{4.8}$ were used as ligand and initiator, respectively [b] Polymerizations were performed in THF [c] Polymerizations were performed in Anisole [d] Calculated by using ^{1}H NMR spectra [e] Conversion was determined gravimetrically [f] Determined based on GPC measurements using a series of poly(methyl methacrylate) standards. M_n is the number average molecular weight and M_w is the weight average molecular weight.



Scheme S1. Protocol for synthesis of β-CD-P(HMA-*co*-**T**MAEMA)$_{4.8}$ and β-CD-P(HMA-*co*-**D**MAEMA-*co*-**T**MAEMA)$_{4.8}$ polymers.

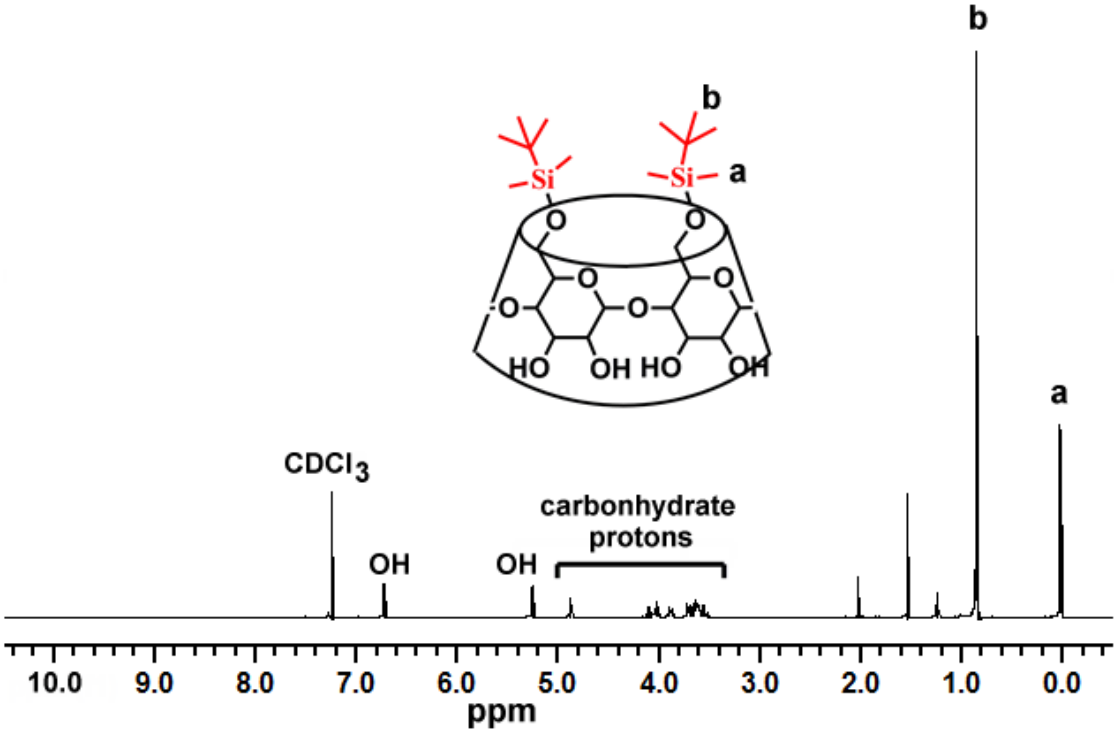


Figure S1: ^{1}H NMR spectrum of $(TBDMS)_7$-β-CD recorded in $CDCl_3$.

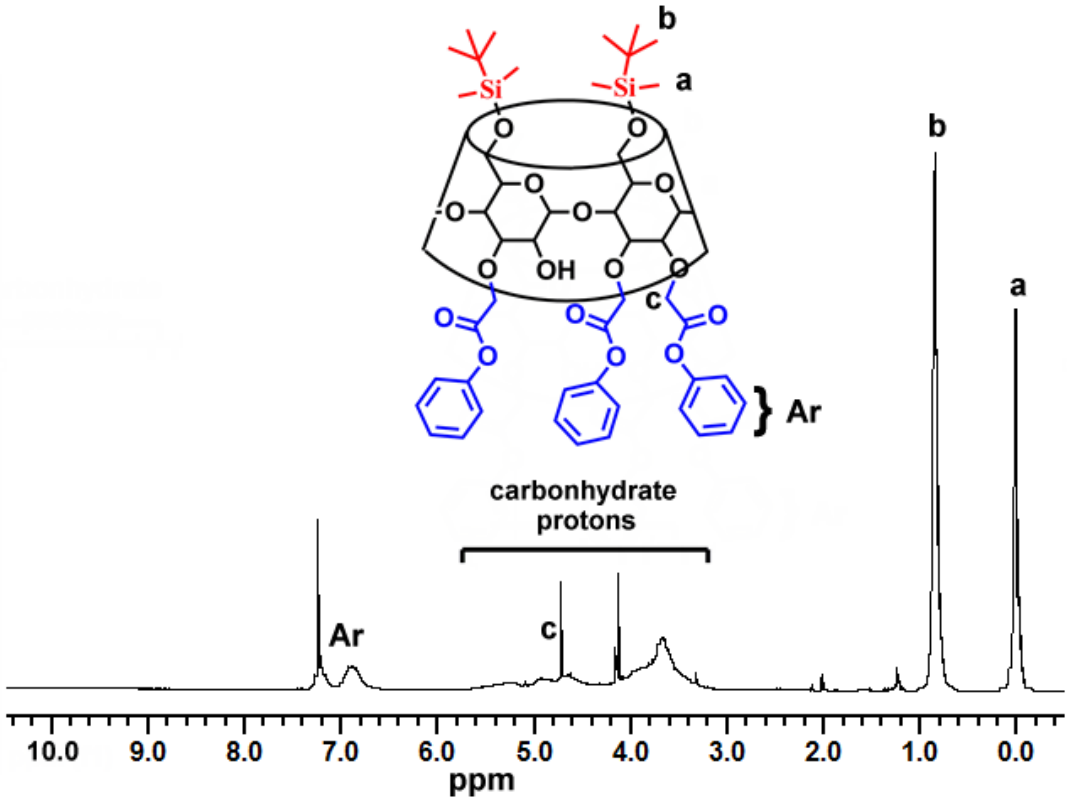


Figure S2: ^{1}H NMR spectrum of $(TBDMS)_{7}$-β-CD-$(phenyl\ acetate)_{8.5}$ recorded in $CDCl_3$.

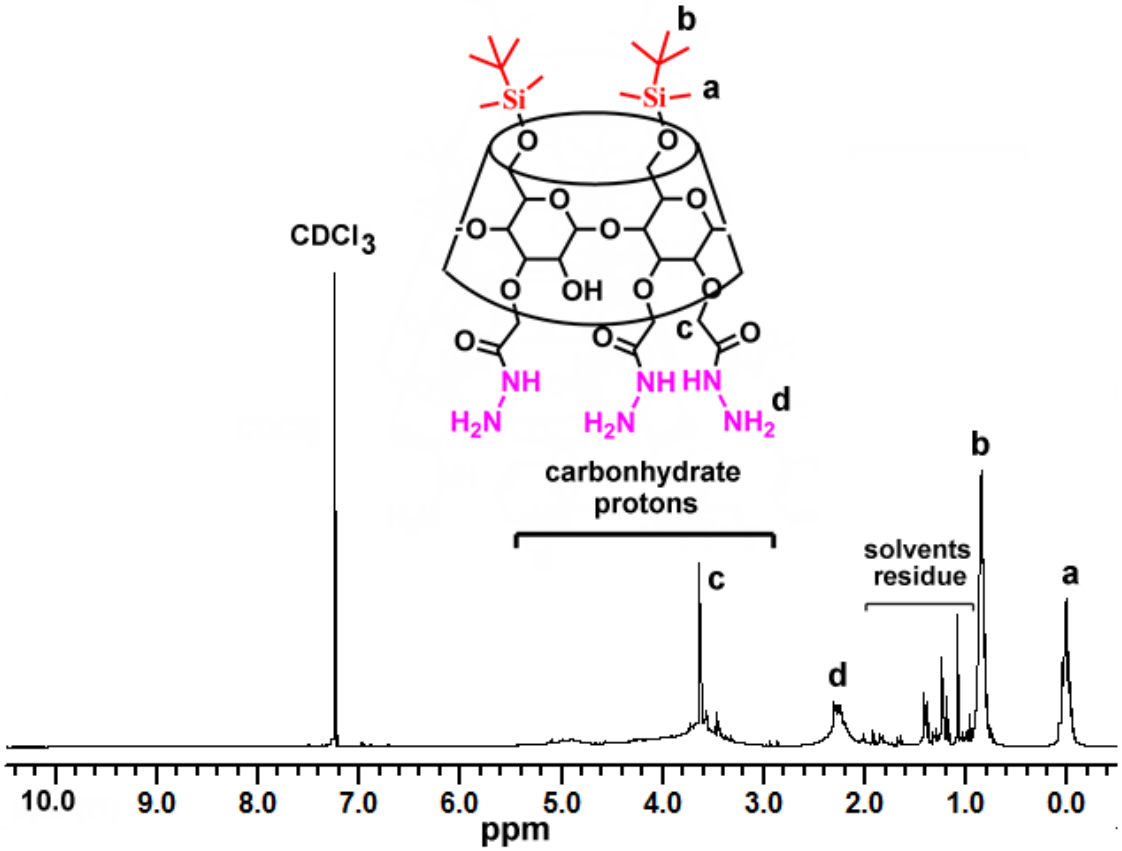


Figure S3: ^{1}H NMR spectrum of $(TBDMS)_{7}$-β-CD-$(hydrazide)_{8.5}$ recorded in $CDCl_3$.

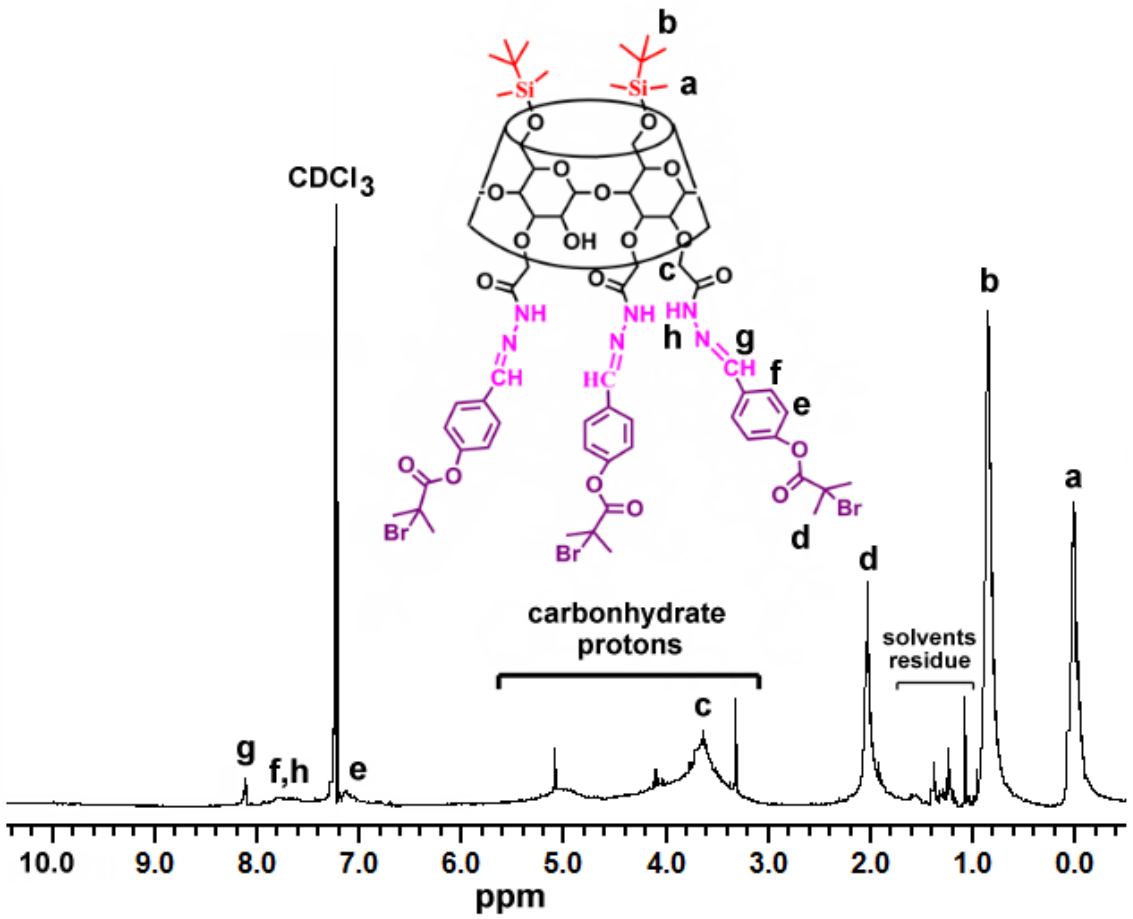


Figure S4: ^{1}H NMR spectrum of $(TBDMS)_{7}$-β-CD-$(hydrazone\text{-}Br)_{4.8}$ recorded in $CDCl_3$.

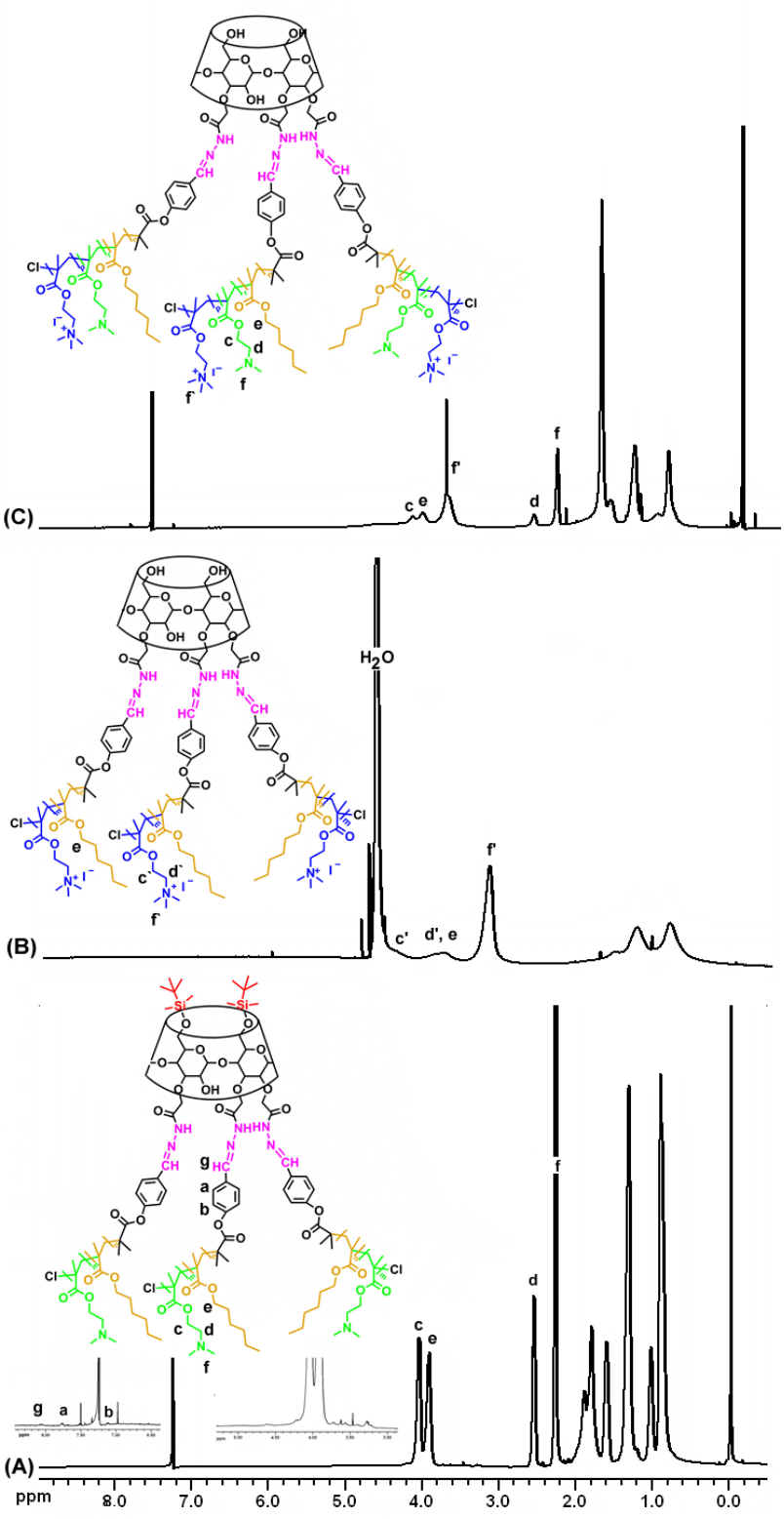


Figure S5: ^{1}H NMR spectrum of: (A) $(TBDMS)_7$-β-CD-P(HMA-*co*-**D**MAEMA)$_{4.8}$ in $CDCl_3$, (B) β-CD-P(HMA-*co*-**T**MAEMA)$_{4.8}$ in D_2O, and (C) β-CD-P(HMA-*co*-**D**MAEMA-*co*-**T**MAEMA)$_{4.8}$ in $CDCl_3$.

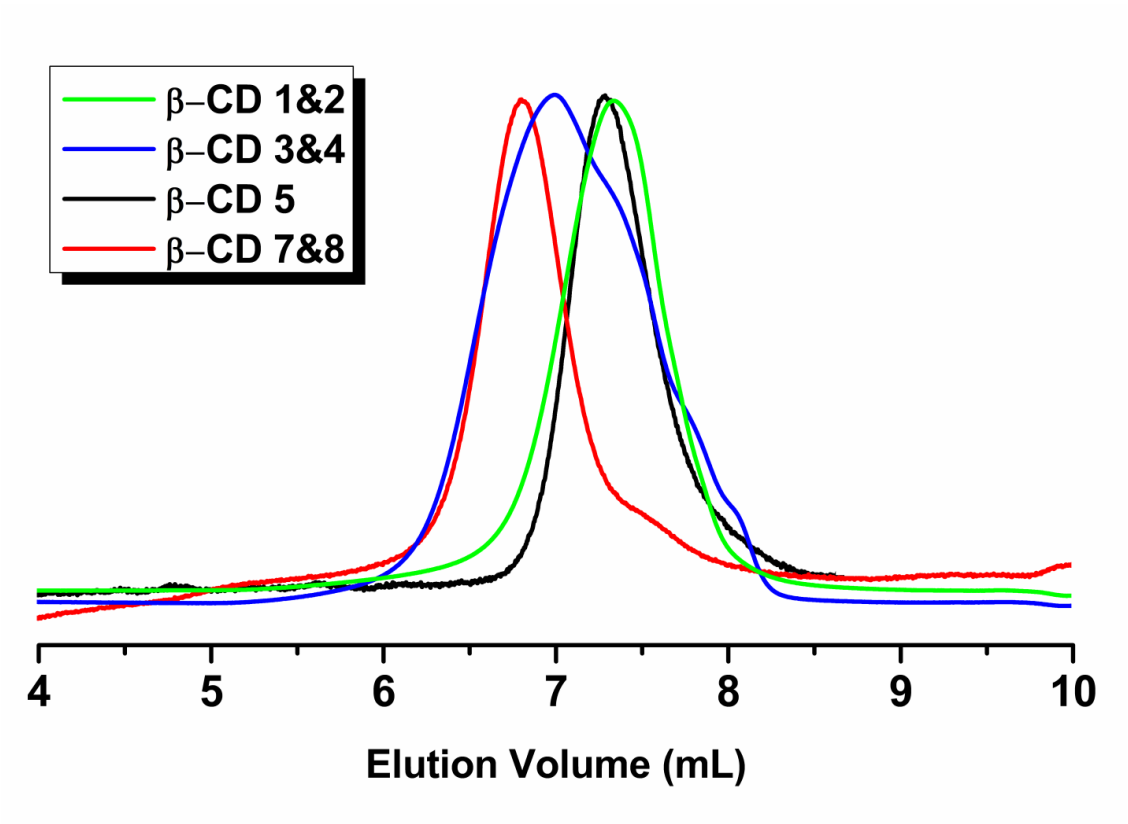


Figure S6: GPC traces of star polymers.

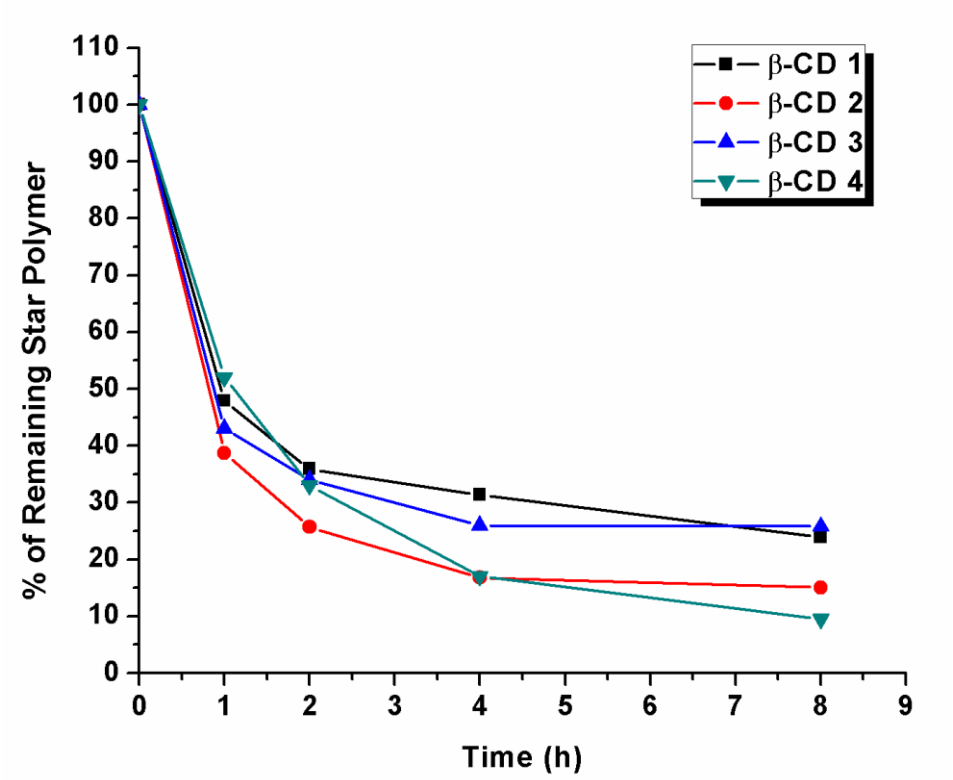


Figure S7. Hydrolysis of hydrazone linkages incorprated in β-CD-1 to β-CD-4 polymers when dissolved in PBS (pH 5.8) and incubated at 37 ^{o}C as a function of incubation time. The % of intact β-CD polymer was calculated using the area under the peak of the GPC curve at different time points.

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