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Supplementary Materials for

A general route to nanocrystal kebabs periodically assembled on stretched flexible polymer shish

Hui Xu, Yuci Xu, Xinchang Pang, Yanjie He, Jaehan Jung, Haiping Xia, Zhiqun Lin

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Table S1. Calculated dimensions of elongated ellipsoid-shaped PAA-*b*-PS diblock copolymers on the PEG chain.
Scheme S1. Chain-extension reaction for the formation of chain-extended linear PEG.

Fig. S1. Gel-like polypseudorotaxane α-CD–PEG–Ts_2 inclusion complexes, in which α-CDs are threaded by linear PEG-Ts_2.

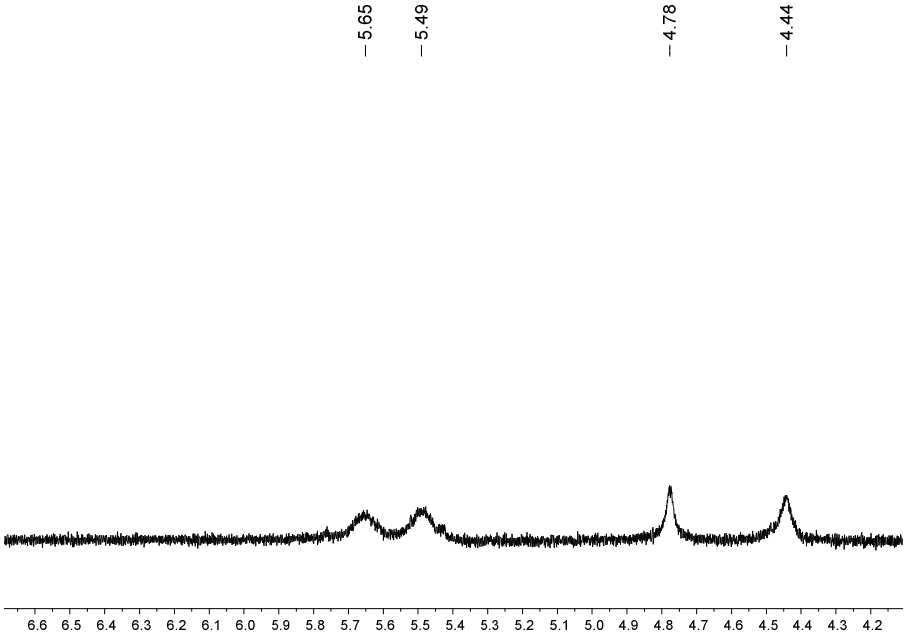


Fig. S2. ^{1}H NMR spectrum of polyrotaxane α-CD–PEG–MA_2 in DMSO-d_6.

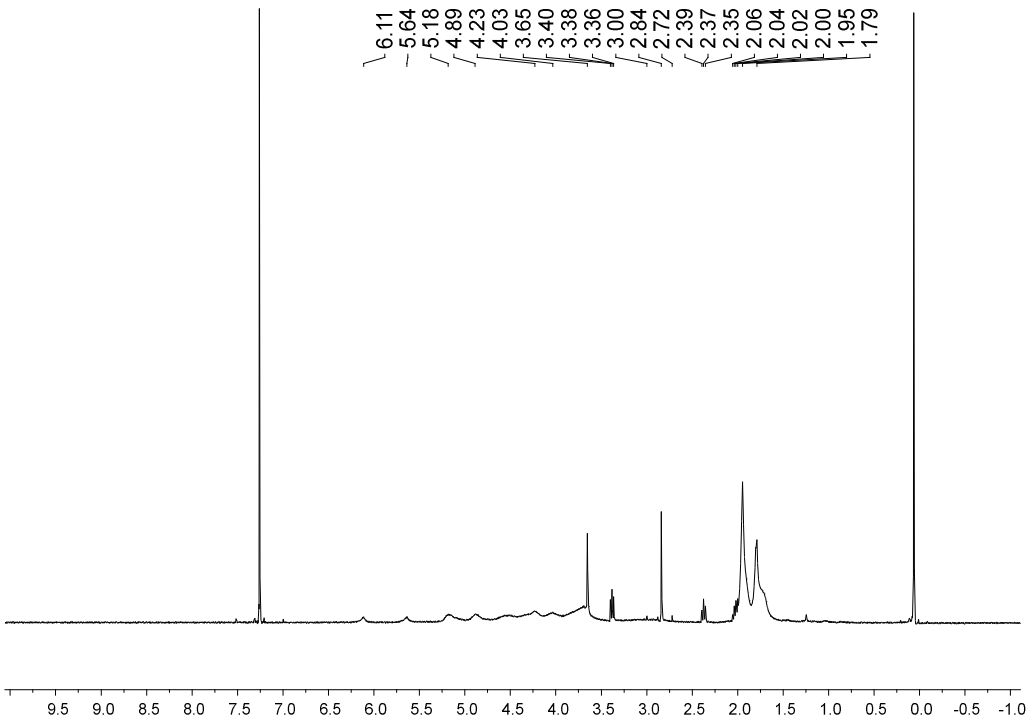


Fig. S3. ^{1}H NMR spectrum of polyrotaxane macroinitiator 18Br–α–CD–PEG–MA_2 in $CDCl_3$.

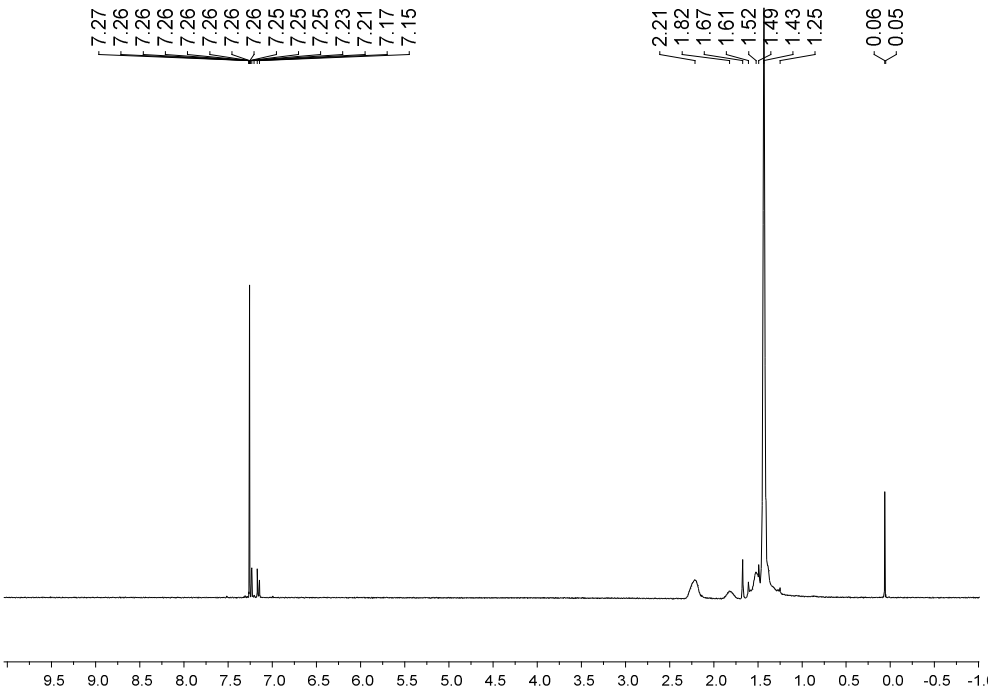


Fig. S4. ^{1}H NMR spectrum of worm-like P*t*BA (sample 1 in Table 1) in $CDCl_3$.

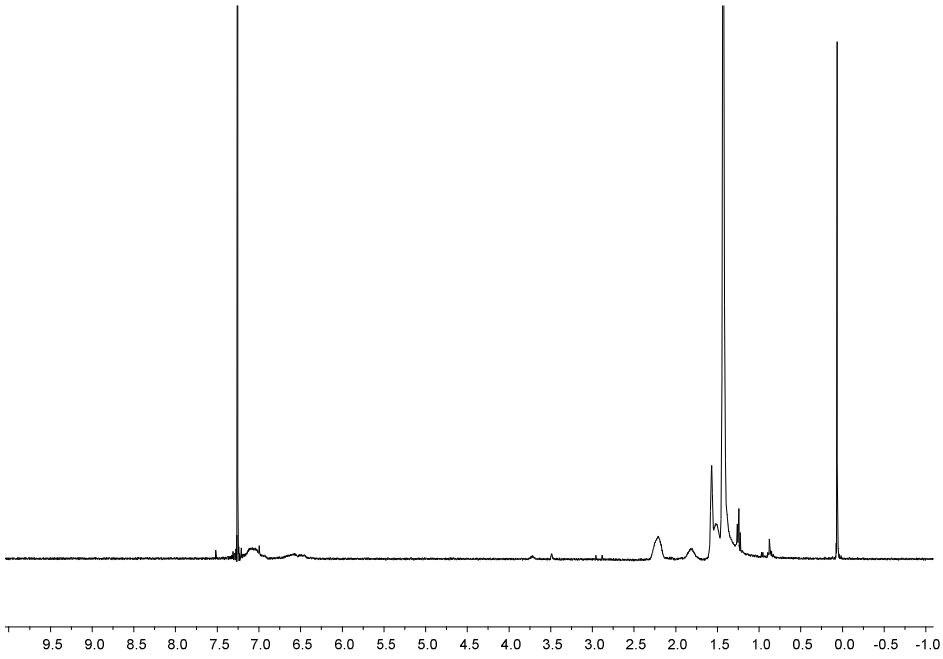


Fig. S5. ^{1}H NMR spectrum of worm-like P*t*BA-*b*-PS (sample 1 in Table 1) in $CDCl_3$.

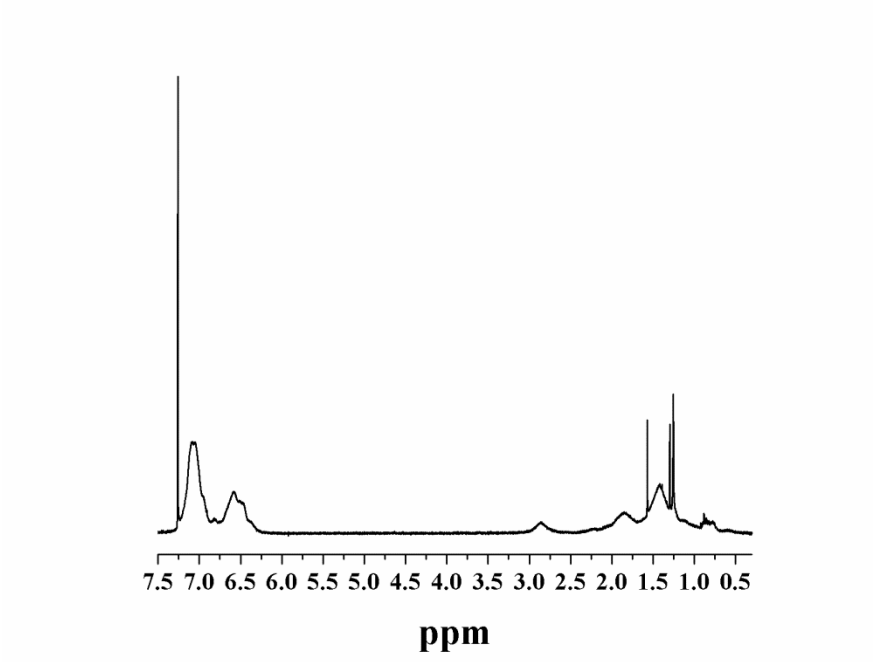


Fig. S6. ^{1}H NMR spectrum of worm-like PAA-*b*-PS (sample 1 in Table 1) in DMF-d_7.

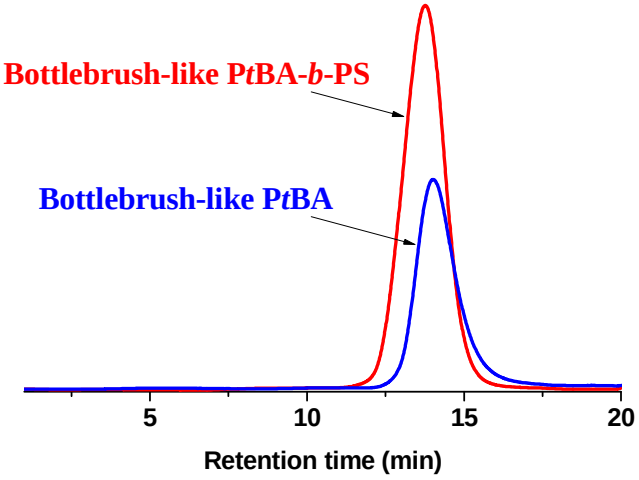


Fig. S7. GPC traces of worm-like P*t*BA (blue) and P*t*BA-*b*-PS (red) (sample 1 in Table 1).

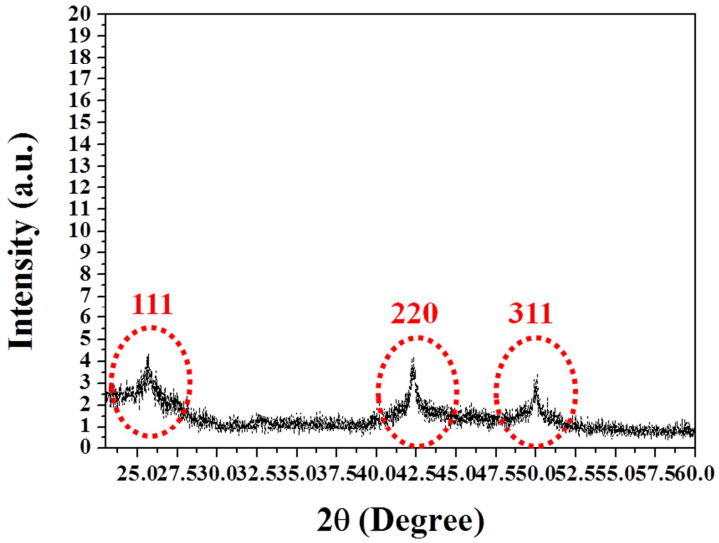


Fig. S8. XRD pattern of semiconductor CdSe nanonecklaces.

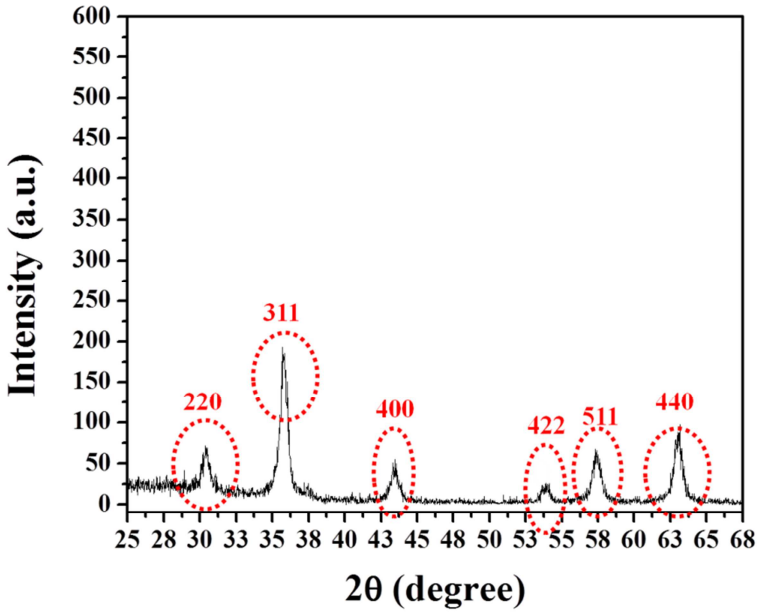


Fig. S9. XRD pattern of magnetic Fe_3O_4 nanonecklaces.

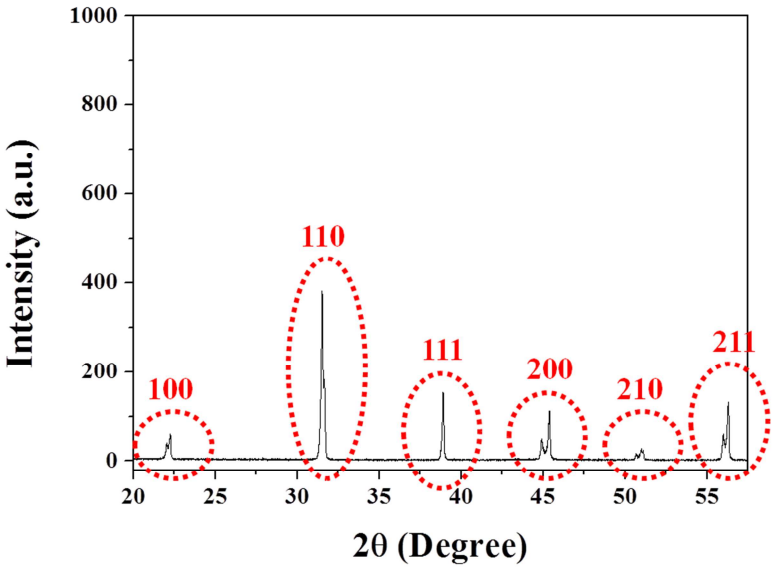
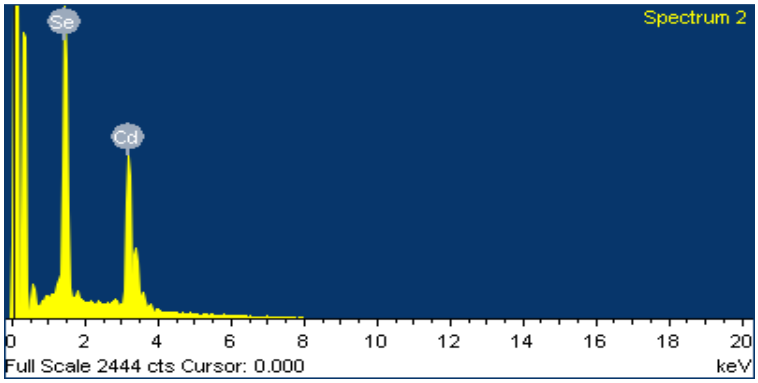
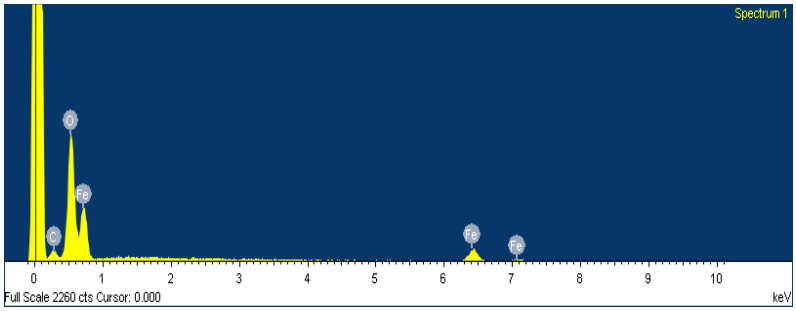


Fig. S10. XRD pattern of ferroelectric $BaTiO_3$ nanonecklaces.



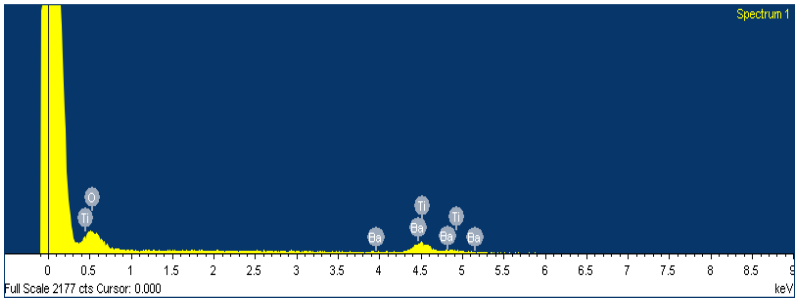
Element	Weight%	Atomic%
Se L	45.28	54.08
Cd L	54.72	45.92
Totals	100.00	100.00

Fig. S11. EDS spectrum of semiconductor CdSe nanonecklaces.



Element	Weight%	Atomic%
C K	3.88	9.41
O K	31.15	56.71
Fe L	64.97	33.88
Totals	100.00	100.00

Fig. S12. EDS spectrum of magnetic Fe_3O_4 nanonecklaces.



Element	Weight%	Atomic%
O K	30.68	69.14
Ti K	25.82	15.44
Ba L	43.50	15.42
Totals	100.00	100.00

Fig. S13. EDS spectrum of ferroelectric $BaTiO_3$ nanonecklaces.

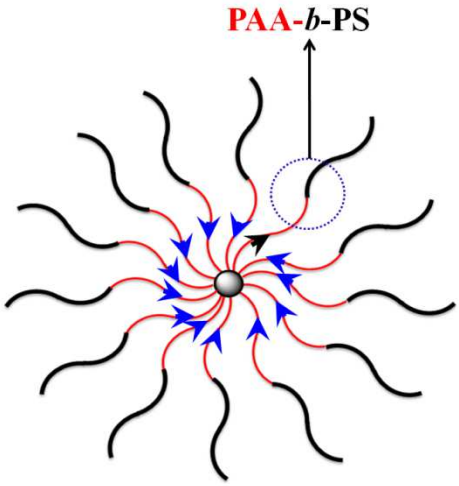


Fig. S14. Graphic illustration of the initial condition for $q_A(\mathbf{r}, 0)$. The blue arrows indicate the propagation of $q^{\dagger}(\mathbf{r}, s)$, and the black arrow indicates the propagation of $q(\mathbf{r}, s)$.

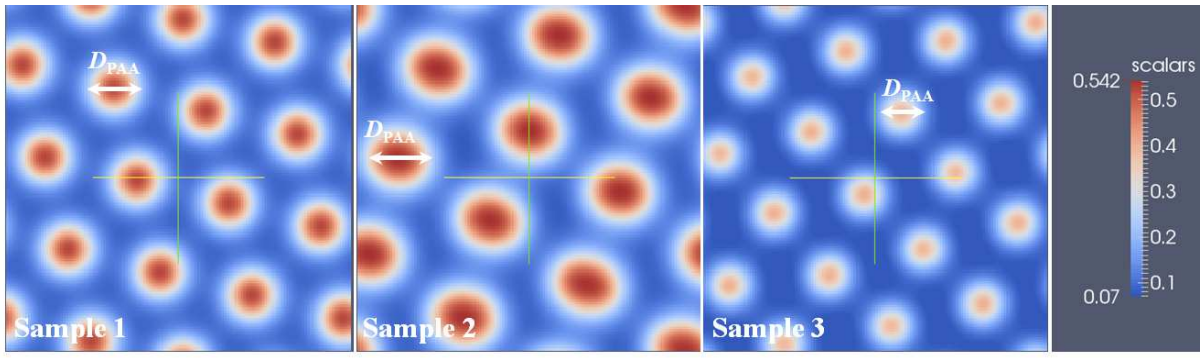


Fig. S15. Spherical micelles of 18-arm star-like diblock copolymer in the mixed solvents of DMF/BA (i.e., without being threaded in a PEG chain). The box size is $3R_g$, where R_g is the radius of gyration of linear diblock copolymer with degree of polymerization N. The parameters chosen in simulations are $\chi_{AB}N$ = 350, $\chi_{AS}N$ = 290, $\chi_{BS}N$ = 320, and polymer concentration ϕ = 0.35.

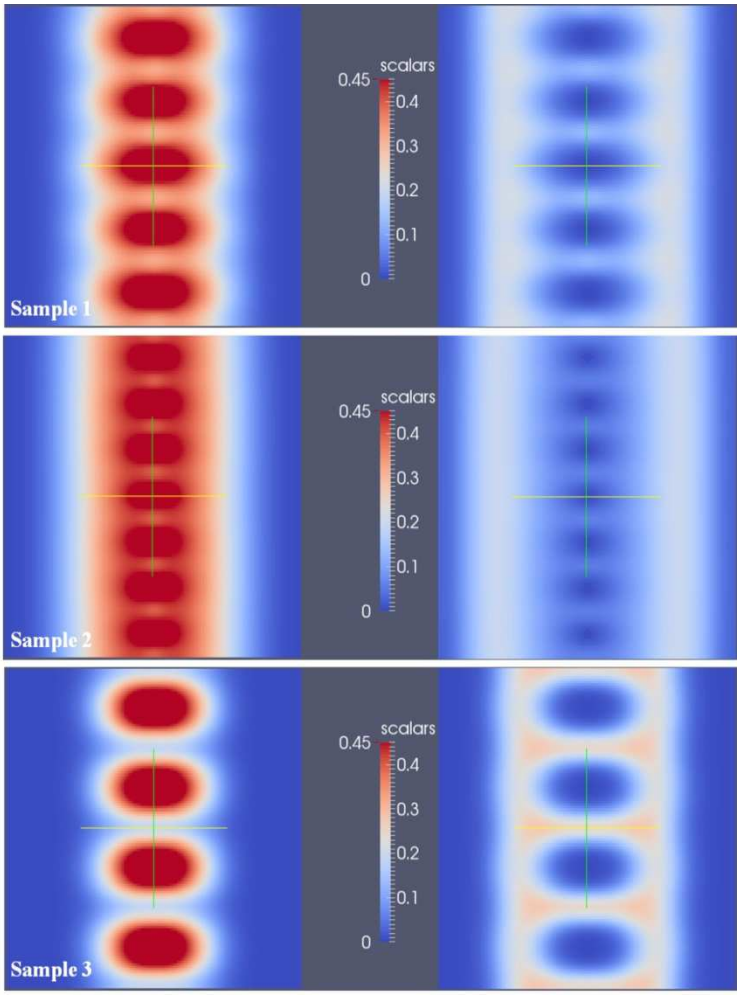


Fig. S16. The calculated density profiles of A block (inner PAA) and B block (outer PS) in star-like diblock copolymers.

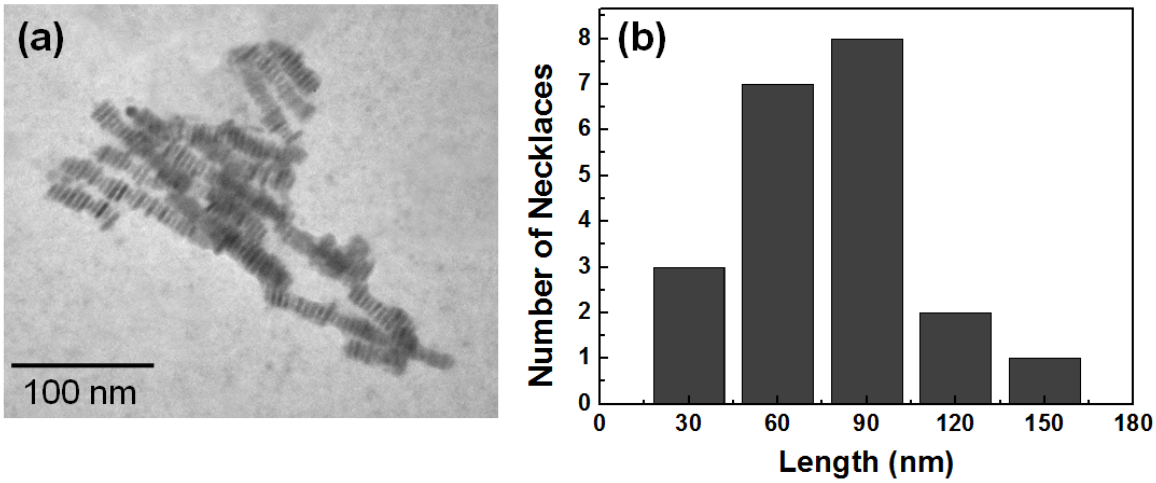


Figure S17. (a) TEM image of a number of CdSe nanonecklaces obtained by drop-casting a high-concentration CdSe nanonecklace DMF solution on the TEM grid. (b) The corresponding histogram of the length distribution of CdSe nanonecklaces shown in (a).

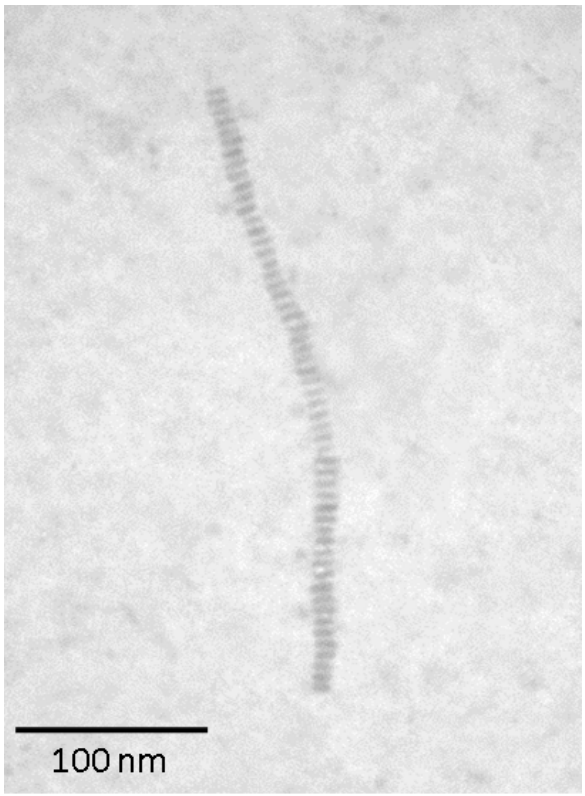


Figure S18. An ultralong CdSe nanonecklace.

Table S1. Calculated dimensions of elongated ellipsoid-shaped PAA-*b*-PS diblock copolymers on the PEG chain.

Samples	*D*(nm)*	*t* (nm)*	*s* (nm)*	*Nu**
Sample **1**	10.7±0.8	4.2±0.1	1.9±0.2	5
Sample **2**	11.5±0.5	3.0±0.1	1.4±0.1	7
Sample **3**	8.5±0.1	5.1±0.1	2.4±0.1	4

***The *D*, *t*, *s*, and the number of nanodisks (*Nu*) per PEG chain were determined by self-consistent filed theory.

Formation of chain-extended PEG by chain-extension reaction

(a) $-OCH_2CH_2-OH + TsCl \longrightarrow -OCH_2CH_2-OTs + HCl$

(b) $-OCH_2CH_2-OTs + -OCH_2CH_2-OH \longrightarrow -OCH_2CH_2-O-CH_2CH_2O- + TsOH$

Scheme S1. Chain-extension reaction for the formation of chain-extended linear PEG.