

Biom mineralization through a symmetry-controlled oligomeric peptide

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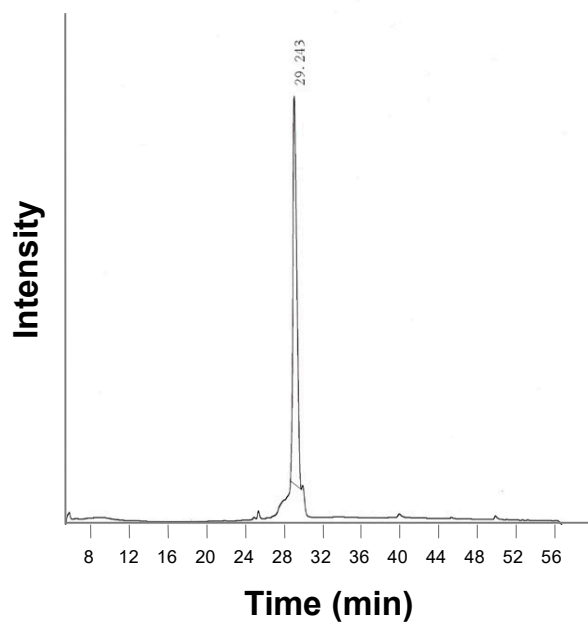
Table S1. Peptide sequences of TBP-CC peptides

Name	Sequence
TBP-CC(Di)	H-RKLPDAGGRMKQLEDKVEELLSKNYHLENEVARLKKLVGER-NH ₂
TBP-CC(Tri)	H-RKLPDAGGSGIDQEQQNNLTRLIEAQIHELQLTQWKIKQLLARIL-NH ₂
TBP-CC(Tet)	H-RKLPDAGGGELAAIKQELAAIKKELAAIKWELAAIKQGAG-NH ₂

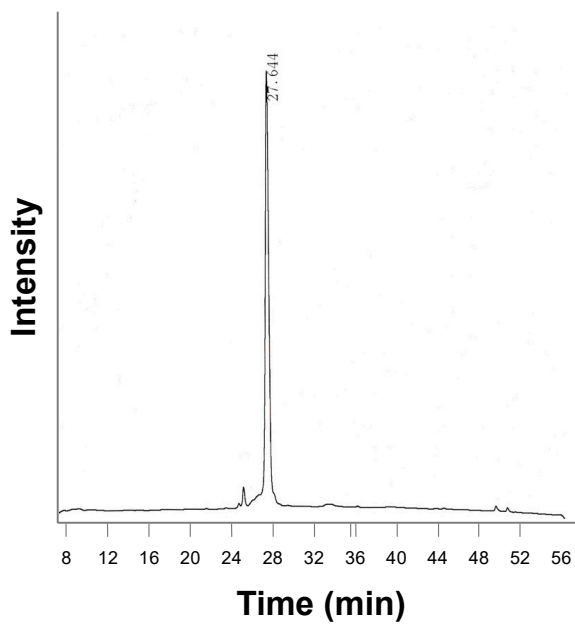
Table S2. DNA sequences of frame strands used in TBP-DNA constructs

Strand ID	Sequence
S1	5'-AACCTG CGAAGT ctatcg-3'
S2	5'-ACTTCG CAGGTT ctatcg-3'
S3	5'-ACTTCG GATGCA ctatcg-3'
S4	5'-TGCATC CAGGTT ctatcg-3'
S5	5'-TGCATC GACCAT ctatcg-3'
S6	5'-ATGGTC CAGGTT ctatcg-3'

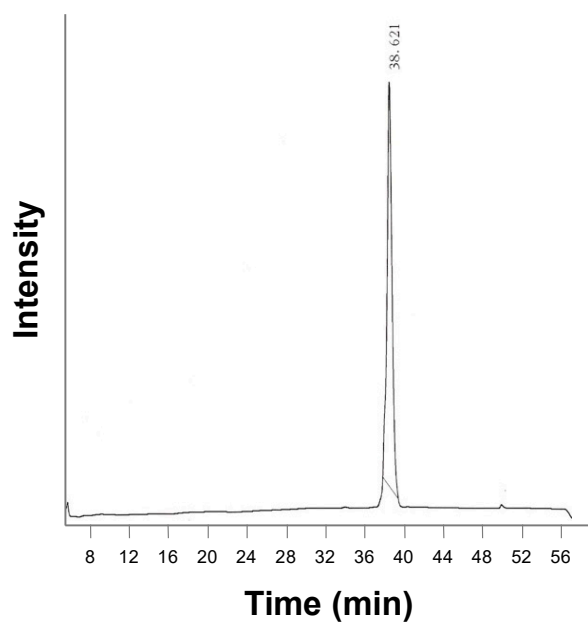
(a)



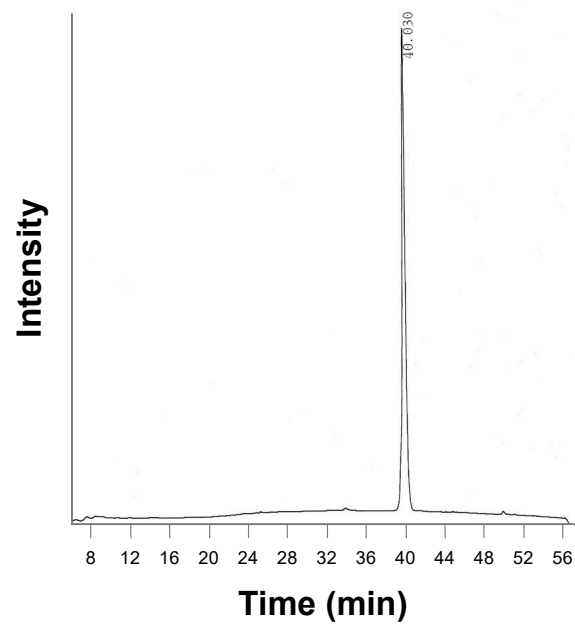
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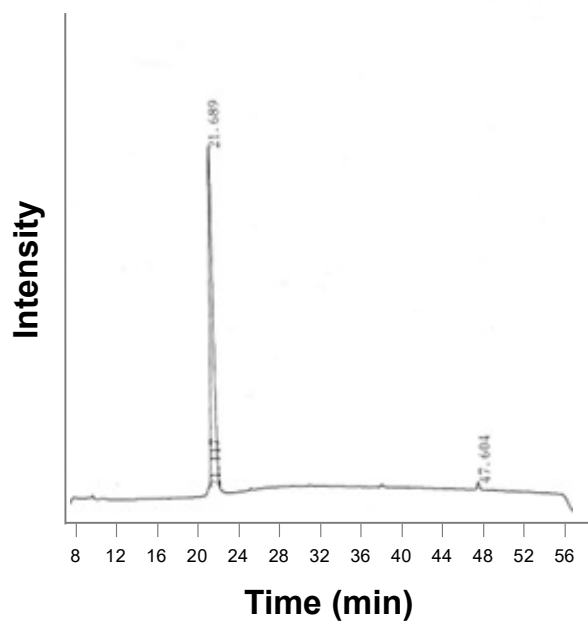
(c)



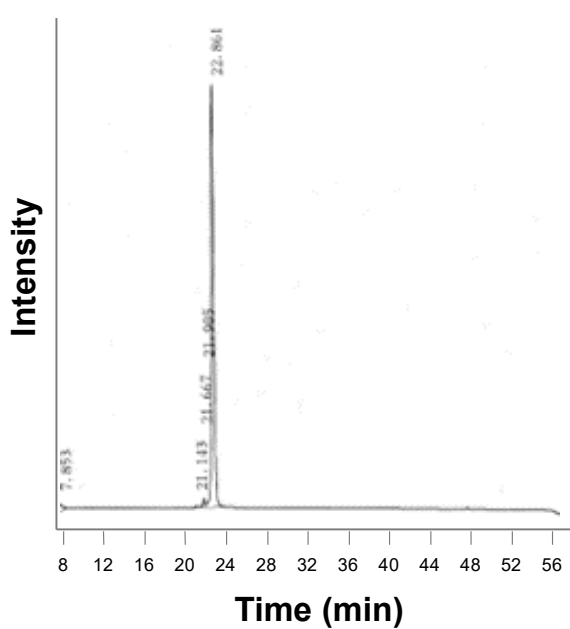
(d)



(e)



(f)



(g)

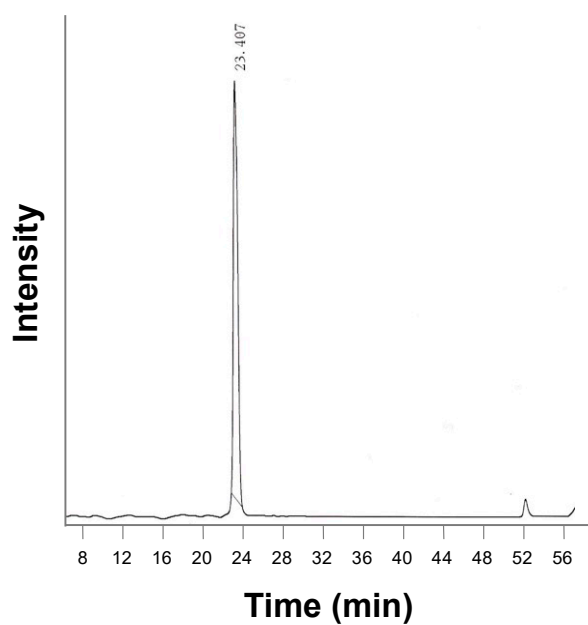
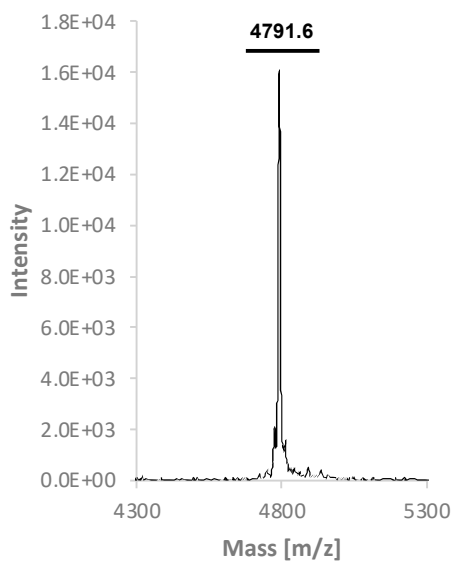
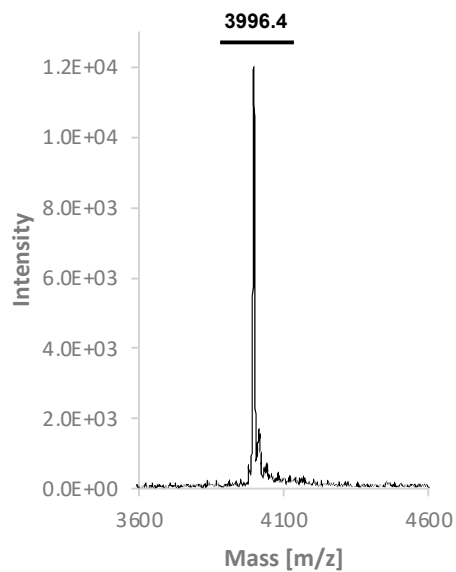


Figure S1. HPLS profiles of the synthesized peptides. (a) TBP-CC(Di), (b) CC(Di), (c) TBP-CC(Tri), (d) CC(Tri), HPLS profiles of the synthesized peptides. (e) TBP-CC(Tet), (f) CC(Tet), (g) TBP-GlyGlyCys

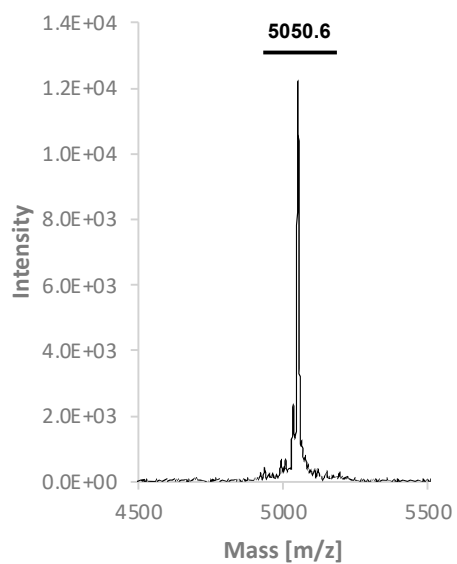
(a) $[\text{MH}]^+(\text{ave, calc}): 4791.61$



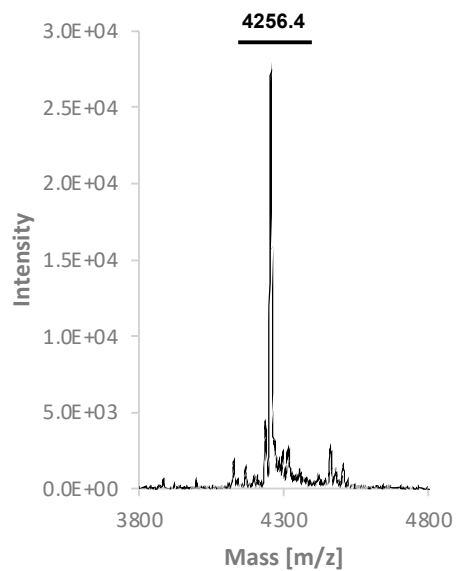
(b) $[\text{MH}]^+(\text{ave, calc}): 3996.70$



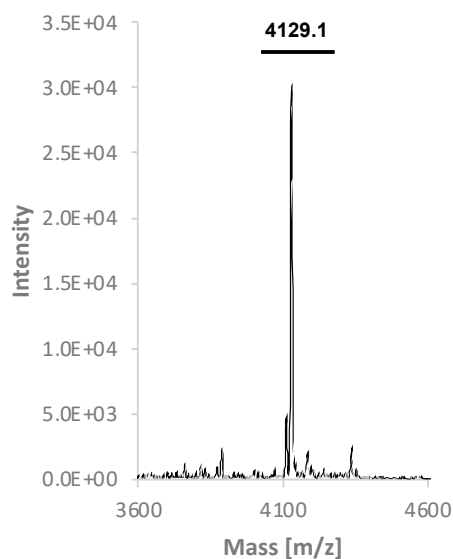
(c) $[\text{MH}]^+(\text{ave, calc}): 5050.90$



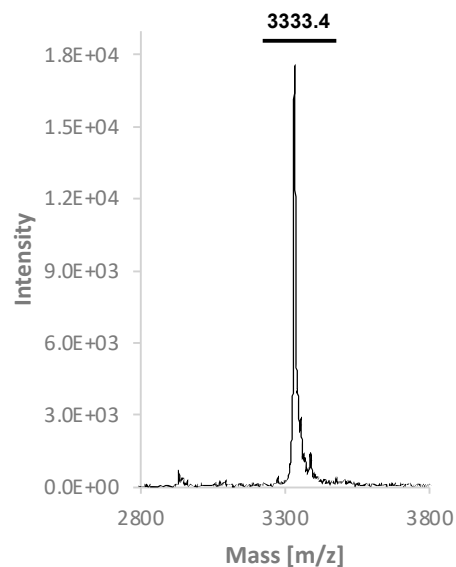
(d) $[\text{MH}]^+(\text{ave, calc}): 4255.99$



(e) $[MH]^+$ (ave,calc): 4128.93



(f) $[MH]^+$ (ave, calc): 3334.01



(g) $[MH]^+$ (ave, calc): 916.1

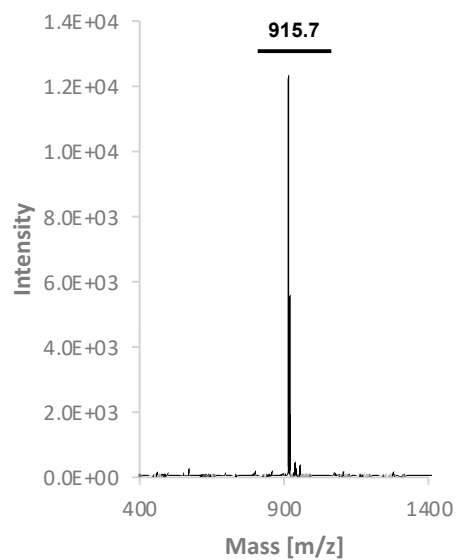


Figure S2. MALDI-TOF MS spectra of the synthesized peptides. (a) TBP-CC(Di), (b) CC(Di), (c) TBP-CC(Tri), (d) CC(Tri), MALDI-TOF MS spectra of the synthesized peptides. (e) TBP-CC(Tet), (f) CC(Tet), (g) TBP-GlyGlyCys

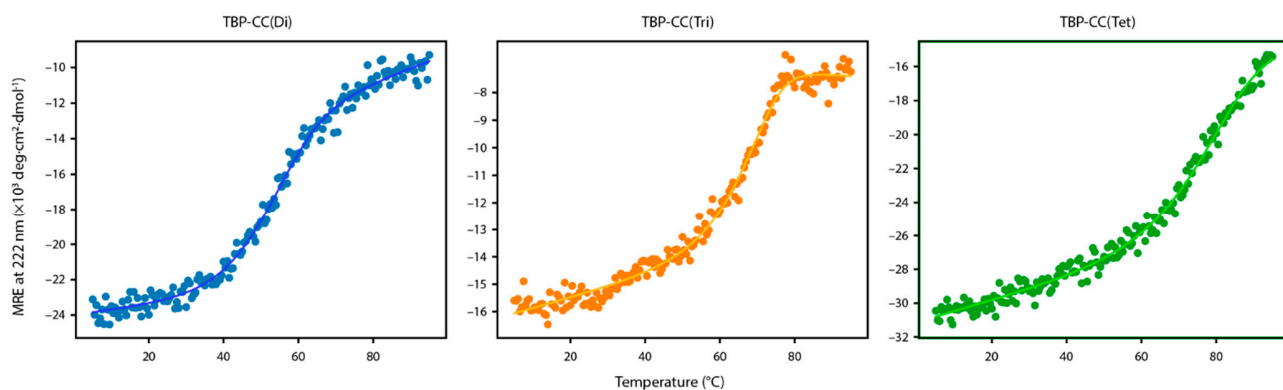


Figure S3. Change in ellipticity at 222 nm as a function of temperature for TBP-CC peptides. The temperature-dependent curves are shown for the TBP-CC(Di) peptide (**left panel**), the TBP-CC(Tri) peptide (**center panel**), and the TBP-CC(Tet) peptide (**right panel**). Peptide solutions were prepared at a concentration of 10 μM in a 20 mM phosphate buffer (pH 7.4). Temperature variation was monitored from 4°C to 96°C, with a scanning rate of 1°C per minute.

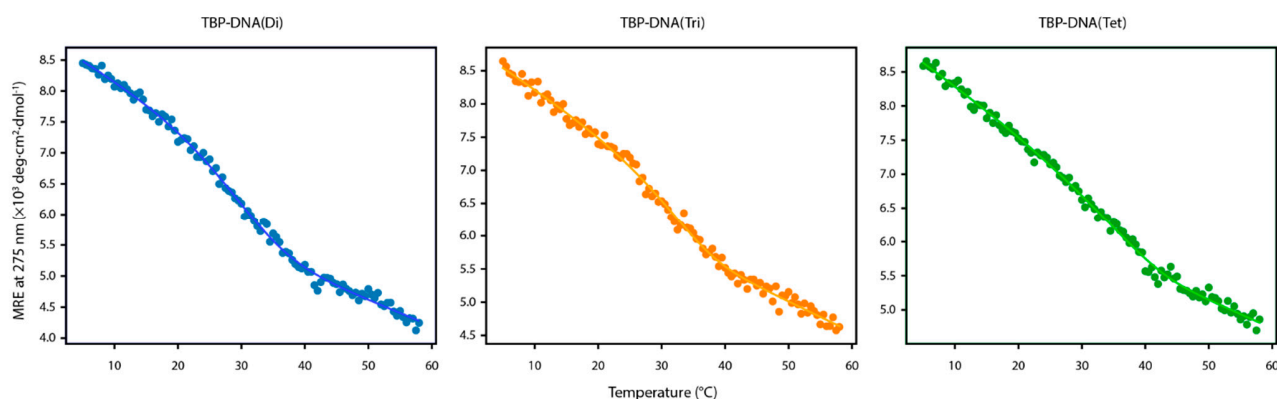


Figure S4. Change in ellipticity at 275 nm as a function of temperature for TBP-DNA oligomers. The temperature-dependent curves are shown for the TBP-DNA(Di) peptide (**left panel**), the TBP-DNA(Tri) peptide (**center panel**), and TBP-DNA(Tet) peptide (**right panel**). The solutions were prepared with a concentration of 20 μM monomer strands in a 20 mM phosphate buffer (pH 7.4). The temperature ranged from 4°C to 58°C, and the scan rate was set at 1°C per minute.

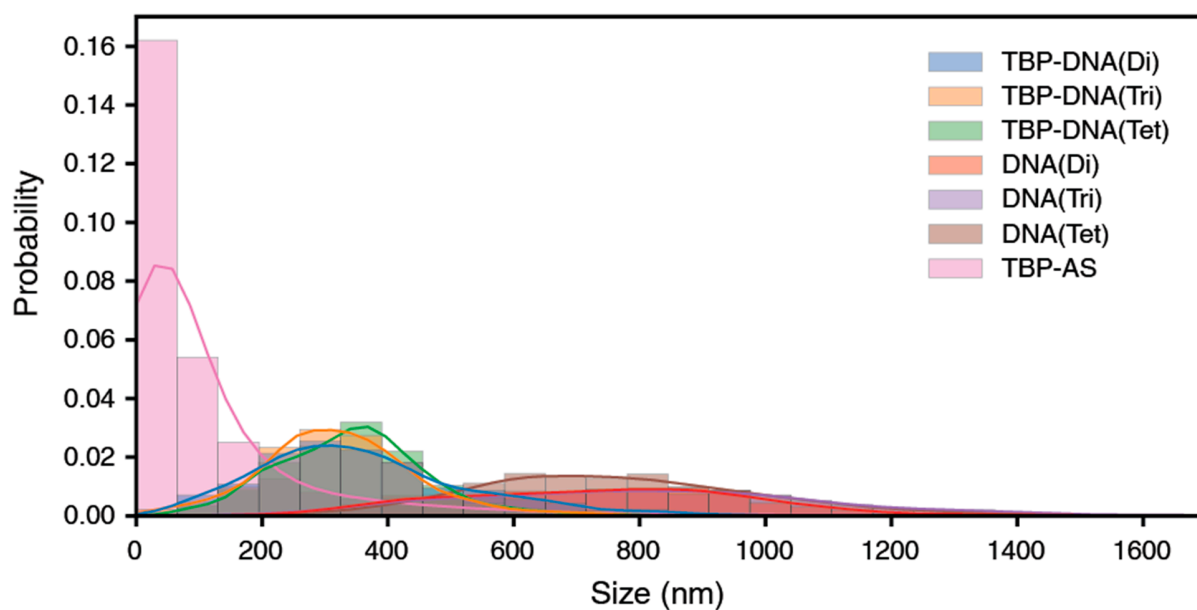


Figure S5. Histogram and Kernel Density Estimate (KDE) plot of silver nanoparticle sizes produced by TBP-DNA(Di) (blue), TBP-DNA(Tri) (orange), TBP-DNA(Tet) (green), DNA(Di) (red), DNA(Tri) (purple), DNA(Tet) (brown), and TBP-AS (pink). The number of particles analyzed for TBP-DNA(Di), TBP-DNA(Tri), TBP-DNA(Tet), DNA(Di), DNA(Tri), DNA(Tet), and TBP-SA were N=1500, N=1397, N=1356, N=973, N=1071, N=1304, and N=3035, respectively.