Supporting Information

Asymmetric and Symmetric PCR of Gold Nanoparticles: A Pathway to Scaled-Up Self-Assembly with Tunable Chirality

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Captions:

Table S1. The nucleotide sequences of template and the primers.

Fig. S1 TEM images of gold nanoparticles with the diameter at 25±3 nm (A) and 10±2 nm (B).

Fig. S2 The electrophoresis results of the GNPs-primer conjugation.

Fig. S3 The electrophoresis results of assembled structures by PCR at 40 cycles.

Fig. S4 CD spectra of the control groups including small and big GNPs, dsDNA and the mixtures.

Fig. S5 UV-vis spectra of superstructures in asymmetric PCR at different cycles (150 bp).

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Table S1. The nucleotide sequences of template and the primers.

Name	Nucleotide sequences (5′to 3′)
Template	Plasmid λDNA
F-primer (100bp)	-SH-ATGAAACGGCAGGCAGAACAGG
R-primer (100bp)	-SH-ACAGGGACATCGCCACCAGAAA
F-primer (152bp)	-SH-GGAGGGCGTAACCGACAA
R-primer (152bp)	-SH-CCGCAGCAAACTCACCATT

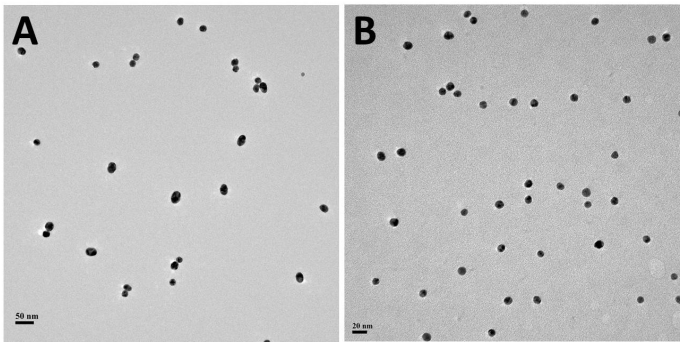


Fig. S1 TEM images of gold nanoparticles with the diameter at 25±3 nm (A) and 10±2 nm (B). The bar in A) was 50nm and in B) was 20nm.

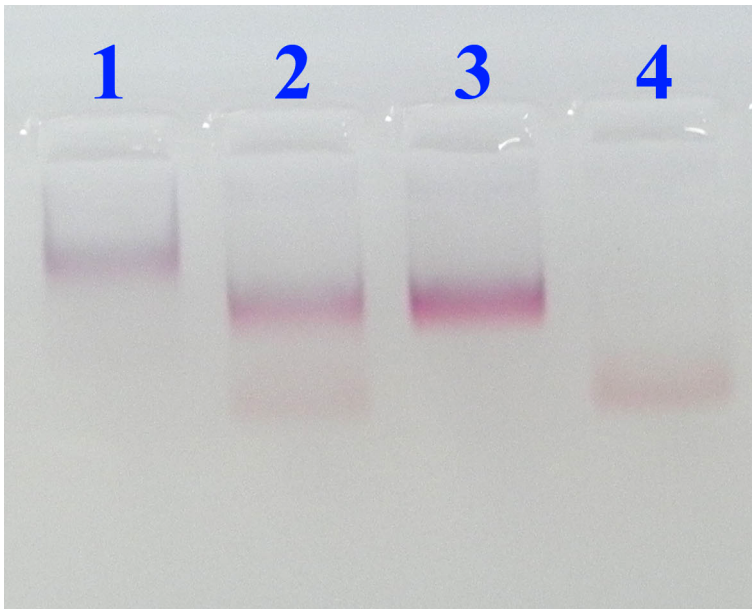


Fig. S2 The electrophoresis results of the GNPs-primer conjugation.

Lane 1: PCR products; lane 2: mixture of big GNPs-primers and small GNPs-primers; lane 3: big GNPs-primer conjugates; lane 4: small GNPs-primer conjugates.

From Figure S2, the bright-field image of the gel shows the mobility of GNPs in different statues. Lane 1 is the result of PCR product, which is composed of many big and small GNPs in the structures. Therefore, the mobility is the slowest. As to the short sequence of the forward and backward primers conjugated to the small and big GNPs, therefore, the mobility of the GNPs-primer conjugates is a little faster.

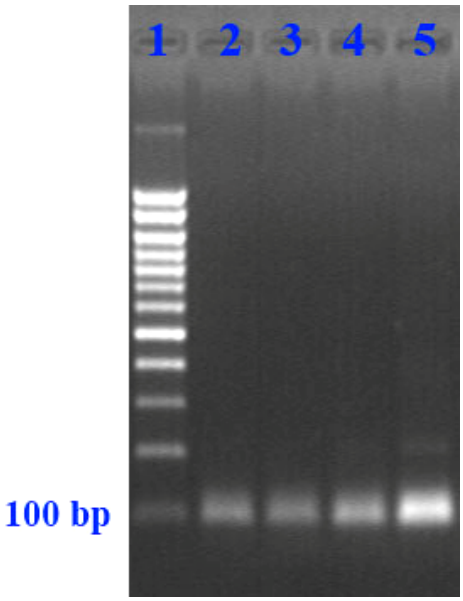


Fig. S3 The electrophoresis results of assembled structures by PCR at 40 cycles. Lane 1: standard marker; lane 2 and 3, the 1 fold PCR products; lane 4: 5-fold concentrated PCR products; lane 5: 10-fold concentrated PCR products. Firstly, from the dark field image of the gel, it is definitely confirmed that the PCR is carried out successfully.

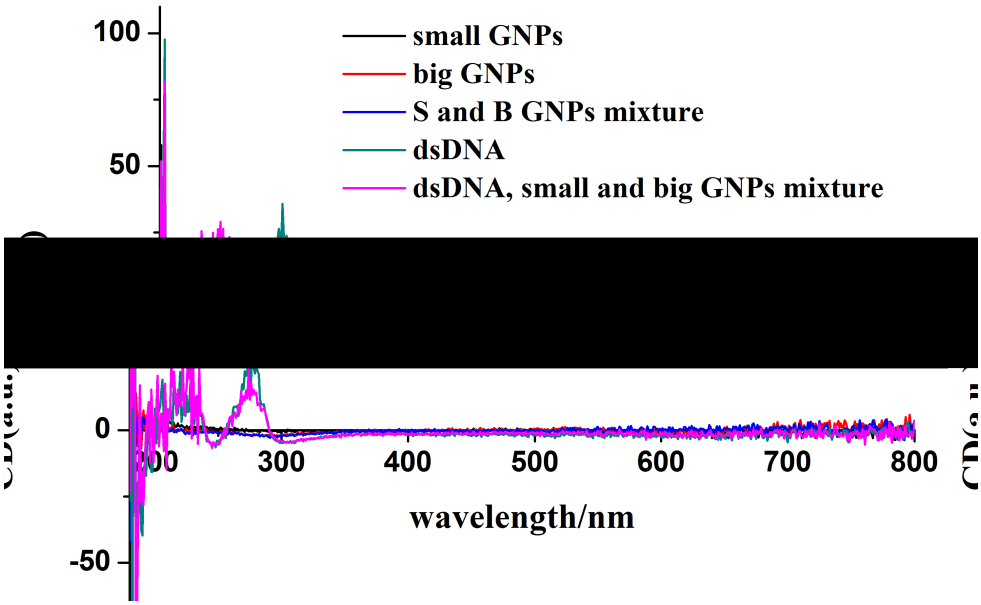
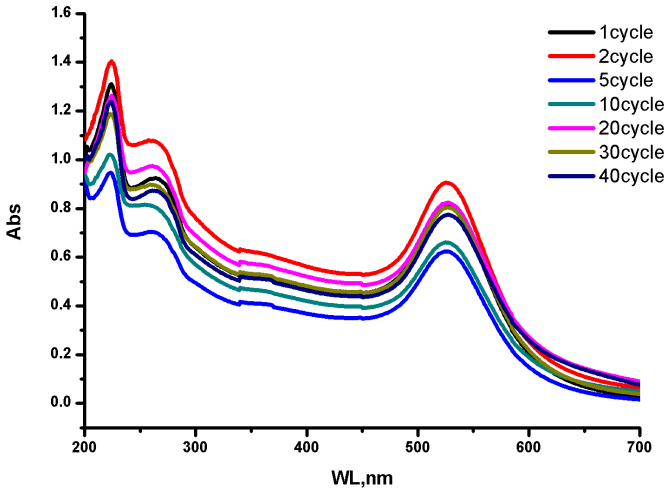


Fig. S4 CD spectra of the control groups including small and big GNPs, dsDNA and the mixtures.



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2 **Fig. S5** UV-vis spectra of superstructures in asymmetric PCR at different cycles (150 bp).

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